

This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

Document number: 50-WM-DP-238

Section 1 of 2

Title: Waste Compatibility Safety Issues
and Final Results for Tank
241-T-110 Push Mode Samples

Pgs. EDT-307

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Waste Compatibility Safety Issues and Final Results for Tank 241-T-110 Push Mode Samples

Jennifer L. Nuzum

Rust Federal Services of Hanford, Inc., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

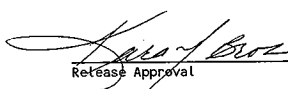
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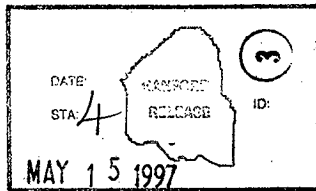
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ANALYTICAL SERVICES

**WASTE COMPATIBILITY SAFETY ISSUES AND FINAL
RESULTS FOR TANK 241-T-110 PUSH MODE
SAMPLES**

Project Coordinator: JENNIFER L. NUZUM

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

222-S Laboratory
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222-S ANALYTICAL SERVICES

**TANK 241-T-110, CORES 180 AND 181,
ANALYTICAL RESULTS FOR THE FINAL REPORT**

Summary

This document is the final laboratory report for Tank 241-T-110. Push mode core segments were removed from risers 2 and 6 between January 29, 1997, and February 7, 1997. Segments were received and extruded at 222-S Laboratory. Analyses were performed in accordance with *Tank 241-T-110 Push Mode Core Sampling and Analysis Plan* (TSAP) (McCain, 1997) and *Safety Screening Data Quality Objective* (DQO) (Dukelow, et al., 1995).

None of the subsamples submitted for total alpha activity (AT) or differential scanning calorimetry (DSC) analyses exceeded the notification limits stated in DQO.

Appearance and Sample Handling

Two cores of eight segments were expected from this tank. Complete cores were obtained.

Attachment 1 illustrates subsamples generated in the laboratory for analysis and identifies their sources. This reference also relates tank farm identification numbers to their corresponding 222-S Laboratory sample numbers.

Core 180

Segments 1-8 were removed from Tank 241-T-110 Riser 6 between February 6, 1997, and February 7, 1997. All segments were received by 222-S Laboratory between February 10, 1997, and February 14, 1997. There was no sample retrieved from Segment 5. Table 1 summarizes extrusion information.

Core 181

Segments 1-8 were removed from Tank 241-T-110 Riser 2 between January 29, 1997, and February 3, 1997. All segments were received by 222-S Laboratory on February 3, 1997. Table 2 summarizes extrusion information.

Field Blank

A field blank was provided to 222-S Laboratory with Core 181. This sample was treated as a drainable liquid in accordance with TSAP.

Hydrostatic Head Fluid Blank

There was no indication of the use of hydrostatic head fluid (HHF) in sampling, nor a HHF blank provided to 222-S Laboratory.

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Table 1. Sample Receipt and Extrusion Information for T-110, Core 180.

Customer ID	Sample Number	Date Sampled	Date Required	Time Required	Time Extruded	Depth Required (g)	Depth Retrieved (g)	Sample Description
97-1	1	2/6/97	2/10/97	2/18/97	19.0	0.0	164.2--Lower Half 175.7--Upper Half	Solids were yellow to brown and resembled a wet sludge.
97-2	2	2/6/97	2/10/97	2/26/97	19.0	0.0	155.7--Lower Half 166.7--Upper Half	Solids were dark yellow and resembled a wet sludge.
97-3	3	2/7/97	2/10/97	2/18/97	19.0	0.0	164.0--Lower Half 167.9--Upper Half	Solids were dark yellow and resembled a wet sludge.
97-4	4	2/7/97	2/10/97	2/18/97	19.0	0.0	210.1--Lower Half 139.3--Upper Half	Solids were dark yellow and resembled a wet sludge.
97-5	5	2/7/97	2/10/97	2/18/97	0.0	0.0	0.0	There were no solids or liquids retrieved. The sampler was empty.
97-6	6	2/7/97	2/10/97	2/18/97	19.0	0.0	173.4--Lower Half 192.9--Upper Half	Solids were dark yellow and resembled a wet sludge.
97-7	7	2/7/97	2/14/97	2/26/97	19.0	0.0	148.5--Lower Half 179.3--Upper Half	Solids were dark yellow and resembled a dry sludge.
97-8	8	2/7/97	2/14/97	2/27/97	19.0	0.0	144.4--Lower Half 218.4--Upper Half	Solids were dark yellow and resembled a dry sludge.

*Approximate inches Extruded

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Table 2. Sample Receipt and Extrusion Information for T-110, Core 181.

Sample ID	Date Sampled	Date Received	Date Analyzed	Inches Extruded*	Drainage (cc)	Spine (Receptor #)	Sample Description
Blank	2/3/97	2/3/97	2/7/97	0.0	233.5-Drainable	0.0	Drainable liquid was clear and colorless.
97-09	1/29/97	2/3/97	2/7/97	18.0	0.0	135.4-Lower Half 184.5-Upper Half	Solids were dark yellow and resembled a sludge slurry.
97-010	2	1/30/97	2/3/97	19.0	0.0	159.6-Lower Half 161.6-Upper Half	Solids were dark yellow and resembled a sludge slurry.
97-011	3	1/30/97	2/3/97	19.0	0.0	155.7-Lower Half 182.5-Upper Half	Solids were dark yellow and resembled a sludge slurry.
97-12	4	1/30/97	2/3/97	19.0	0.0	111.4-Lower Half 178.6-Upper Half	Solids were dark yellow and resembled a wet slurry.
97-13	5	1/30/97	2/3/97	19.0	0.0	164.7-Lower Half 171.4-Upper Half	Solids were dark yellow and resembled a wet sludge.
97-14	6	1/30/97	2/3/97	19.0	0.0	161.6-Lower Half 185.0-Upper Half	Solids were dark yellow and resembled a wet sludge.
97-15	7	1/30/97	2/3/97	19.0	0.0	164.7-Lower Half 186.6-Upper Half	Solids were dark yellow and resembled a wet sludge.
97-16	8	1/31/97	2/3/97	19.0	0.0	183.0-Lower Half 186.1-Upper Half	Solids were dark yellow and resembled a wet sludge.

* Approximate Inches Extruded

Analytical Results Summary

The Data Summary Table (Table 3) included in this report compiles analytical results associated with each subsample submitted in accordance with TSAP and DQO.

Liquid subsamples prepared for analysis by an acid adjustment of the direct subsample are indicated by a "D" in the A# column in Table 3. Solid subsamples prepared for analysis by performing a fusion digest are indicated by a "F" in the A# column in Table 3. Solid subsamples prepared for analysis by performing a water digest are indicated by a "W" in the A# column of Table 3.

Near infrared spectroscopy and percent water by gravimetry analyses were performed on drainable liquid and half segment samples by Numatec Hanford Company at 222-S Laboratory. These results will be reported in a revision to this document.

Inorganic Analyses

Differential Scanning Calorimetry (DSC) Analysis

The exothermic energy, based on dry weight of subsample, was calculated for all subsamples. The average of the thermogravimetric analysis (TGA) results for each subsample was used in the dry weight correction for that subsample. Statistical evaluation of the results by calculating the 95% upper confidence limit is not performed by 222-S Laboratory and, thus, not considered in this report.

Relative percent difference (RPD) between sample and duplicate for Upper Half Segment 5 of Core 181 (S97T000170) was 200%. Poor precision is due to a very small exotherm detected on the duplicate in comparison to no exotherm present for the sample. Rerun analysis was not requested.

Thermogravimetric Analysis (TGA)

TGA results were typically determined by summing weight loss steps below 200°C. Weight loss steps above this were not used to determine the result. More information may be obtained by examining the raw data.

A second analysis of Lower Half Segment 1 of Core 180 (S97T000214) was performed (denoted by a "1" in the replicate (R) column of Table 3) due to differences in appearance of the thermograms between the sample and duplicate. These differences were not seen in the replicate analysis. The results for both analyses are presented in Table 3.

Density

Bulk density was requested only on lower half segments in accordance with TSAP. Results from bulk density tests ranged from 1.16 g/mL to 1.32 g/mL. The highest bulk density result of 1.32 g/mL was used to calculate the solid total alpha activity notification limit for this tank (46.6 $\mu\text{Ci/g}$).

Specific Gravity (SpG)

There were no exceptions to the quality control (QC) parameters stated in TSAP for these subsamples.

Ion Chromatography (IC)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Inductively Coupled Plasma Spectrophotometry (ICP)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Total Organic Carbon (TOC)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

Total Inorganic Carbon (TIC)

For all TIC analyses, a "Total Inorganic Carbon Analysis Report" worksheet is included as raw data. Due to programming limitations with the TIC instrument software, the sample size listed on this worksheet is incorrect. This value is not used in the final calculations (also included) and has no bearing on the results in Table 3. Results are presented in Table 3 as opportunistic. There were no customer defined TIC QC parameters. The results are not discussed.

Radiochemistry Analyses

Attachment 2 contains the Data Verification and Deliverable (DVD) Summary Report for radiochemistry analyses. This report summarizes results from radiochemistry analyses and provides data qualifiers and total propagated uncertainty (TPU) values for results. The TPU values are based on the uncertainties inherent in each step of the analysis process. They may be used as an additional reference to determine "reasonable" RPD values which may be used to accept valid data that do not meet the TSAP acceptance criteria. A report guide is provided with the report to assist in understanding this summary report.

Total Alpha (AT) Analysis

AT analyses were requested for lower half segments only in accordance with TSAP. Liquid AT results were below the total alpha activity notification limit of $61.5 \mu\text{Ci/mL}$. All solid AT results were below the total alpha activity notification limit of $46.6 \mu\text{Ci/g}$ (based on a bulk density of 1.32 g/mL).

RPD between sample and duplicate exceeded 20% for four subsamples. Segments 3, 4, and 6 of Core 180 (S97T000231, S97T000232, and S97T000233) and Segment 5 of Core 181 (S97T000169) had RPDs of 20.8%, 31.4%, 39.5%, and 21.4%, respectively. High RPD is due to low sample alpha activity. Rerun analyses were not requested. AT analysis of five subsamples resulted in low spike recoveries. For Segments 1 and 7 of Core 180 (S97T000230 and S97T000269) and Segment 8 of Core 181 (S97T000196), rerun results showed similar spike recoveries, suggesting the cause to be matrix interference. Continuing reruns were not requested. For Segment 4 of Core 180 (S97T000232) and Segment 7 of Core 181 (S97T000162), the spike recoveries were within control limits for the QC standard. Rerun analyses were not requested.

Plutonium 239/240 (Pu)

There were no exceptions to the QC parameters stated in TSAP for these subsamples.

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Procedures

Table 4 lists the analytical procedures used for performing sample analyses. Abbreviations for analyses are defined in the table notes.

Table 4. Analytical Procedures

Analysis	Matrix	Preparation Procedure +	Analysis Procedure
DSC	Solid Liquid	N/A	LA-514-113 Rev. C-1 LA-514-114 Rev. D-0
TGA	Solid Liquid	N/A	LA-514-114 Rev. D-0 LA-560-112 Rev. C-0
Density	Solid	N/A	LO-160-103 Rev. B-0
AT	Solid Liquid	+LA-549-141 Rev. F-0 N/A	LA-508-101 Rev. F-0
Sp.G	Liquid	N/A	LA-510-112 Rev. D-1
IC	Liquid	N/A	LA-533-105 Rev. D-1
ICP	Liquid	N/A	LA-505-161 Rev. B-1
TOC	Liquid	N/A	LA-342-100 Rev. E-0
TIC	Liquid	N/A	LA-342-100 Rev. E-0
Pu	Liquid	N/A	LA-943-128 Rev. B-0

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Notes:

N/A	not applicable (these are direct samples)
DSC	differential scanning calorimetry
TGA	thermogravimetric analysis
Density	bulk density
AT	total alpha
Sp.G	specific gravity
IC	ion chromatography
ICP	inductively coupled plasma
TOC	total organic carbon
TIC	total inorganic carbon
Pu	plutonium 239/240
+	fusion digest

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References

- Dukelow, G. T., J. W. Hunt, H. Babad, and J. E. Meacham, 1995, *Tank Safety Screening Data Quality Objective*, WHC-SD-WM-SP-004, Rev. 2, Westinghouse Hanford Company, Richland, WA 99352.
- McCain, D.J., 1997, *Tank 241-T-110 Push Mode Core Sampling and Analysis Plan*, HNF-SD-WM-TSAP-113, Rev. 1, Westinghouse Hanford Company, Richland, WA 99352.
- Meznarich, H. K., 1995, *Quality Assurance Plan for the 222-S Laboratories*, WHC-SD-CP-QAPP-016, Rev. 0, Westinghouse Hanford Company, Richland, WA 99352.

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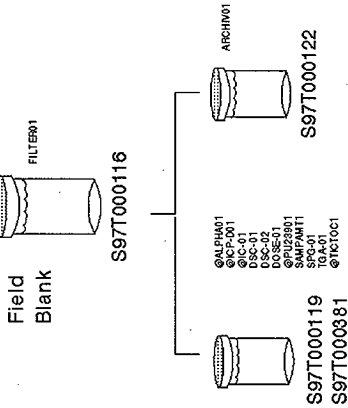
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Core:181
Seg: Field Blank
S97T000099

Attachment 1

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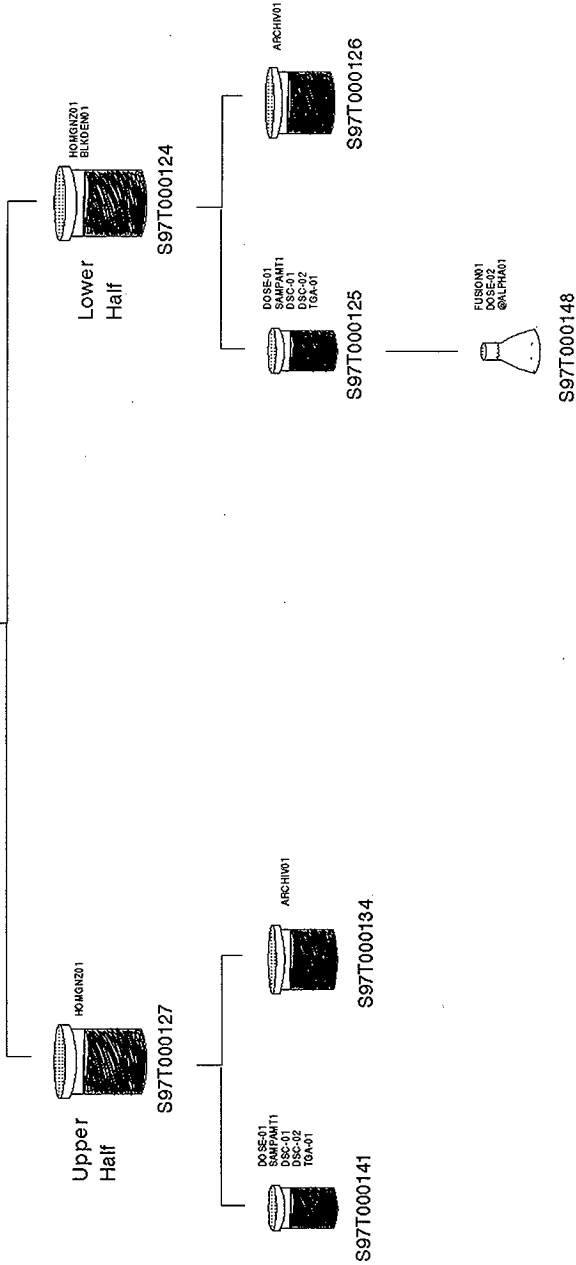
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Core:181

Seg: 1 (97-09)

S97T000100

Attachment 1



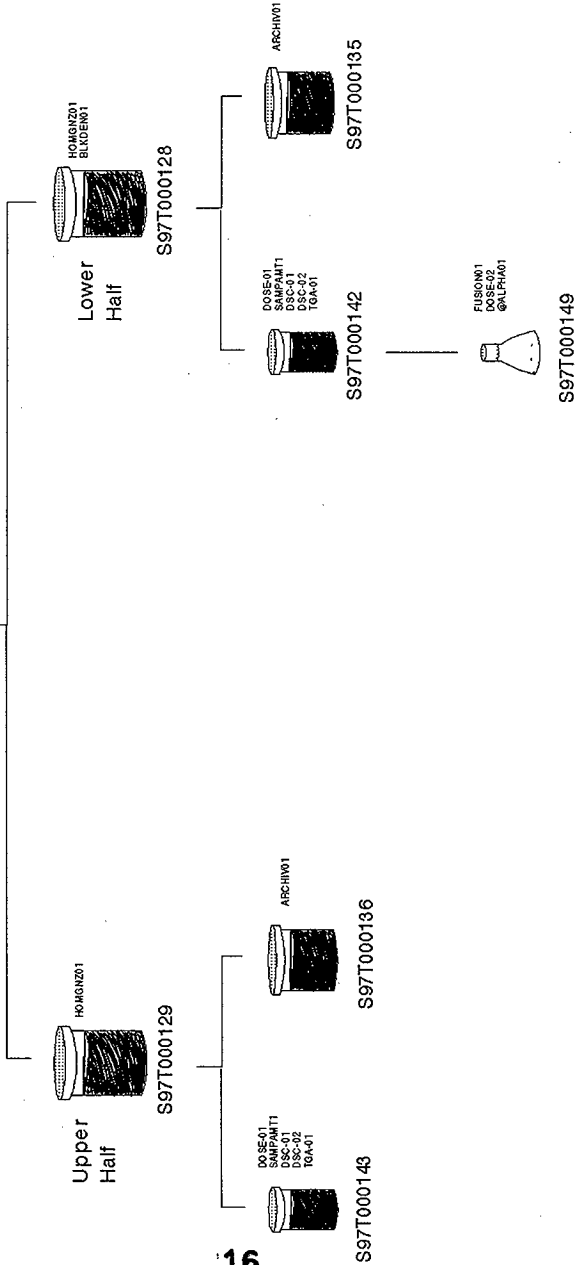
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Core:181

Seg: 2 (97-010)

S97T000101

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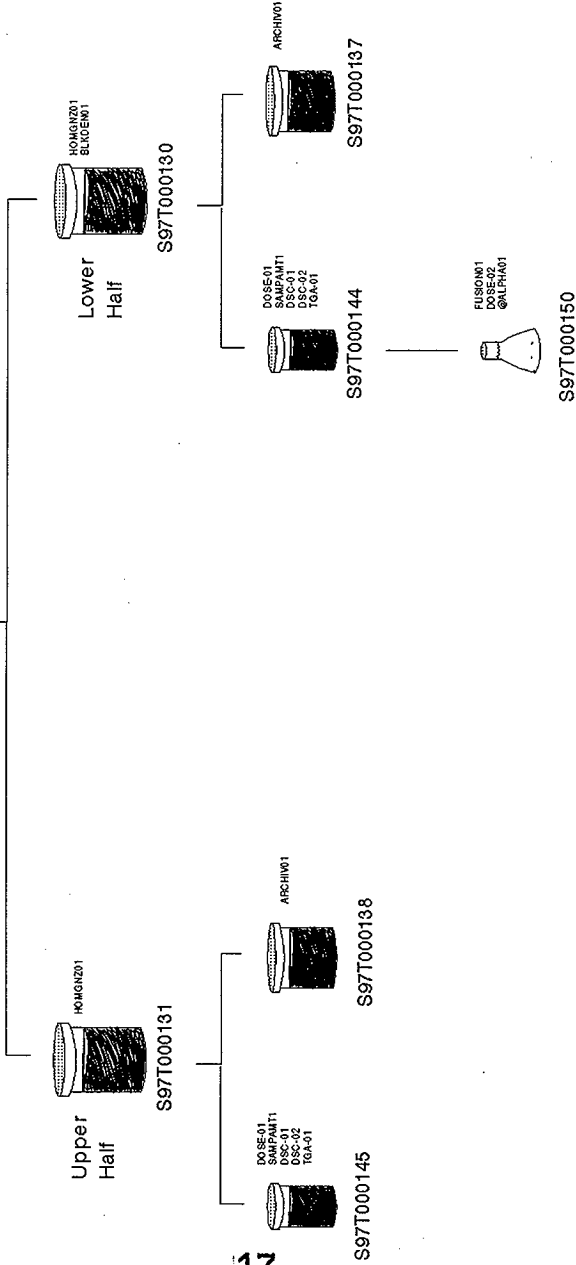
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Core:181

Seg: 3 (97-011)

S97T000102

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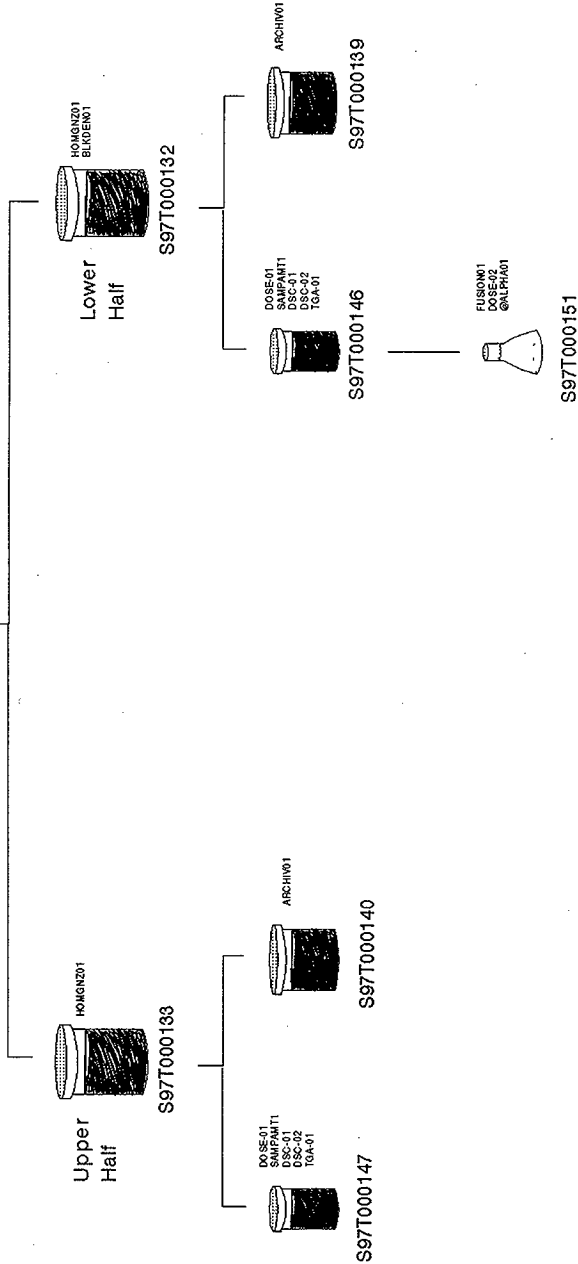
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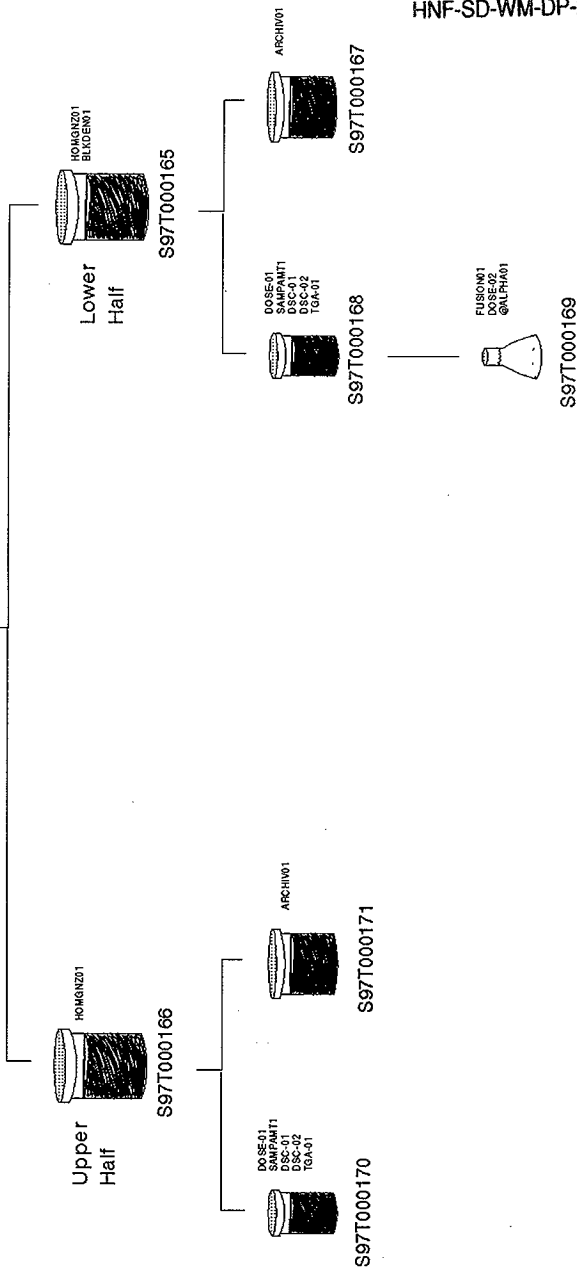
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Attachment 1



T-110
Core:181
Seg: 5 (97-13)
S97T000104

Attachment 1



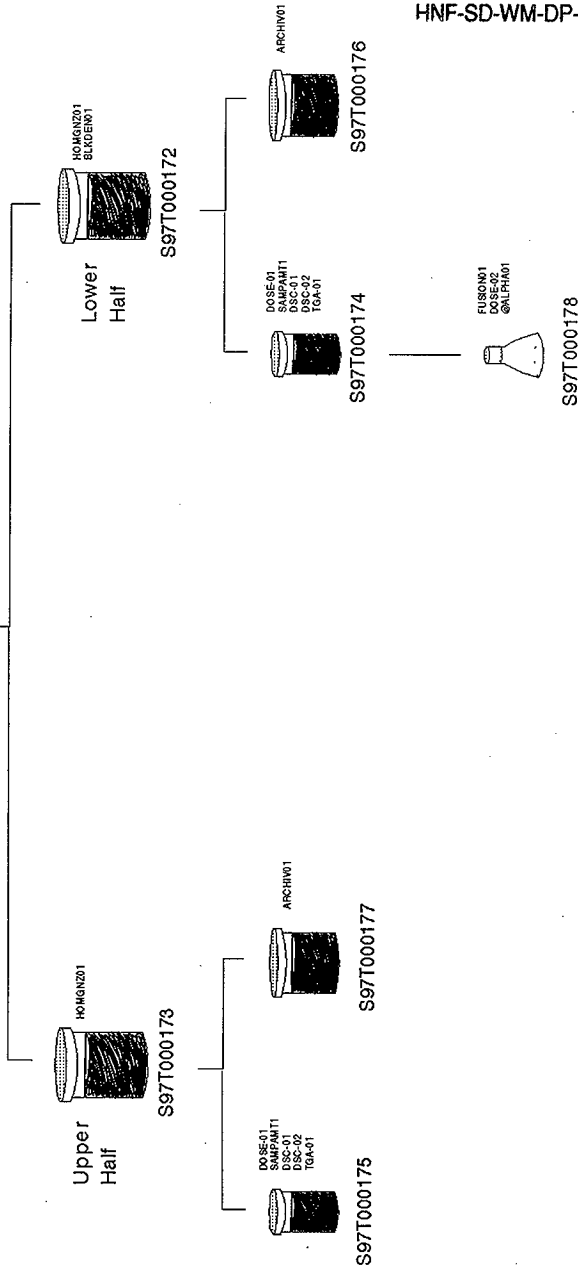
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Core:181

Seg: 6 (97-14)

S97T000105

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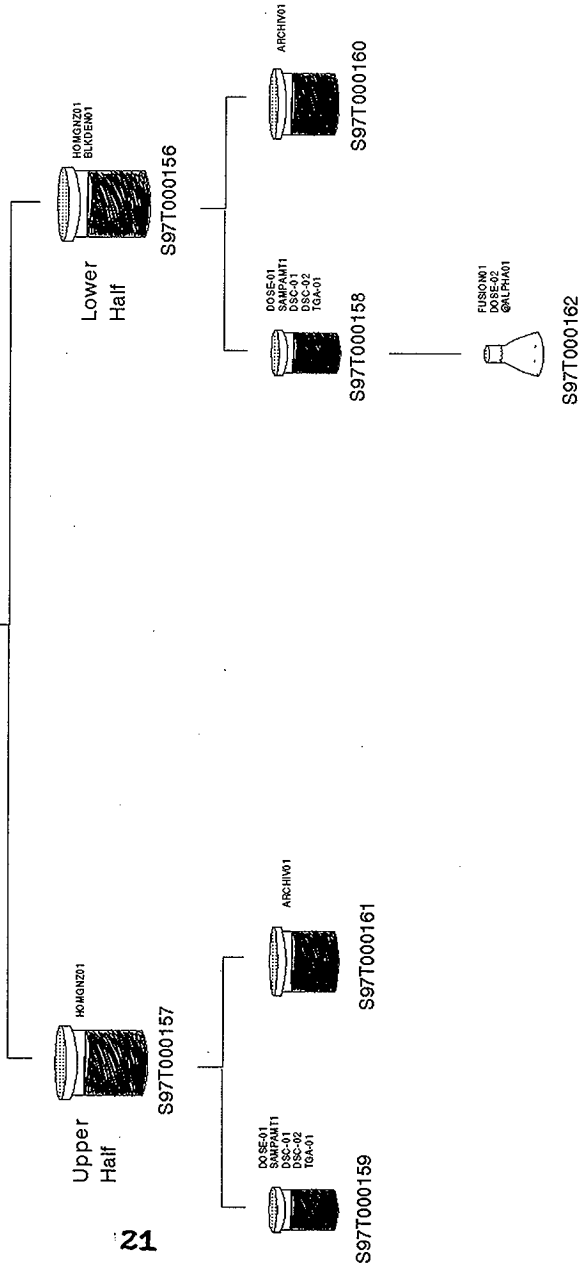
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Seg: 7 (97-15)

S97T000106

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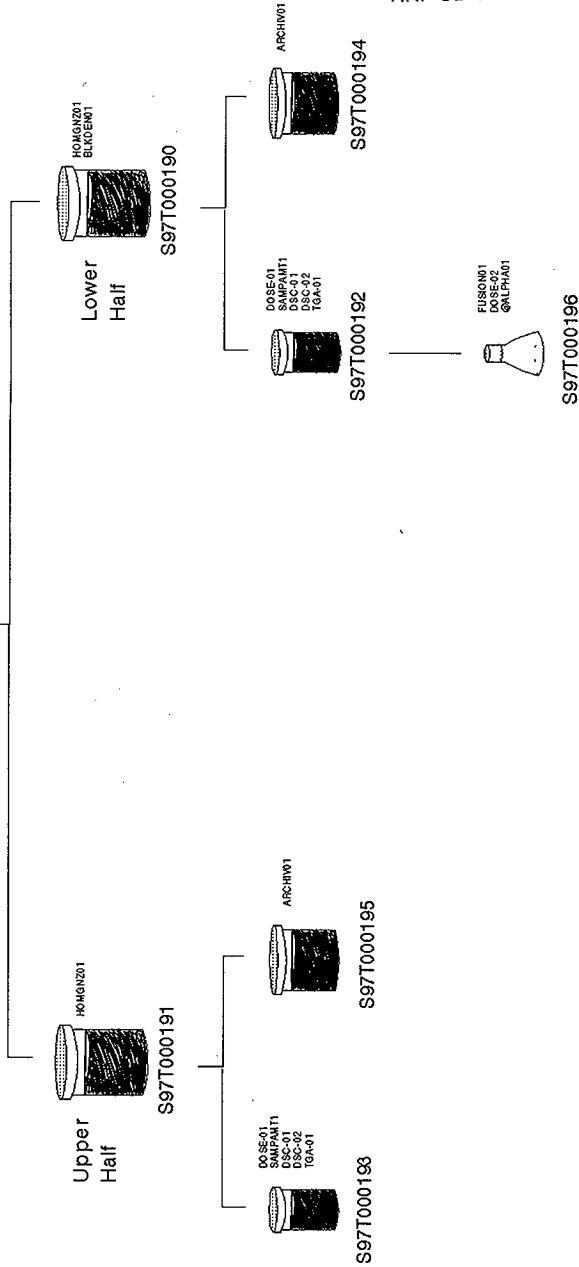
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Core:181

Seg: 8 (97-16)

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Attachment 1



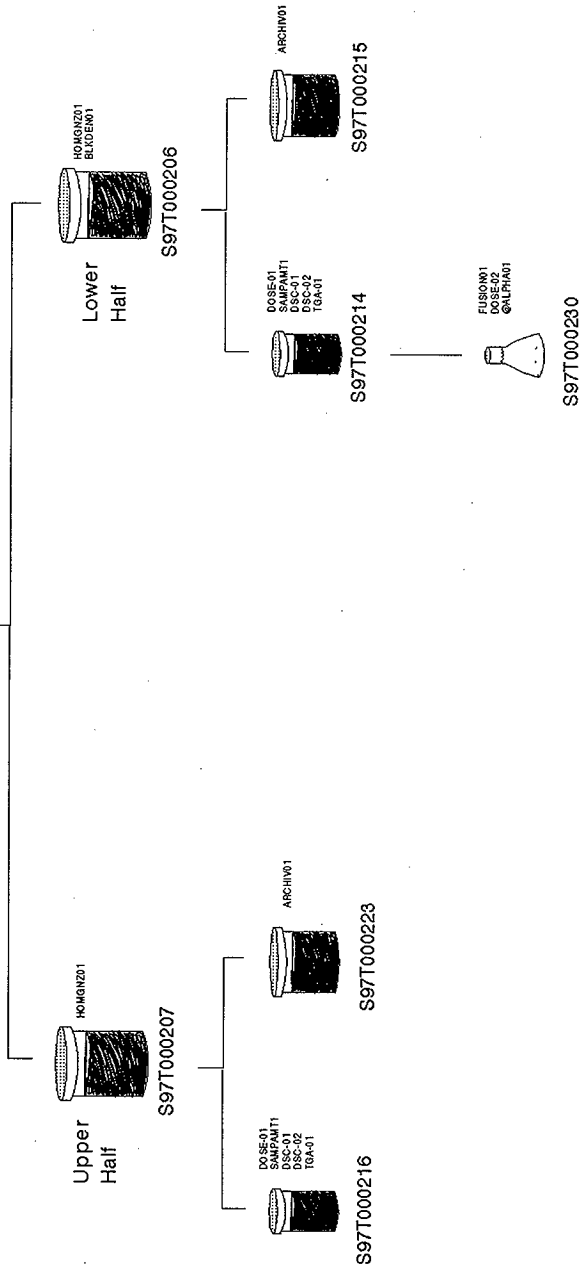
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Seg: 1 (97-1)

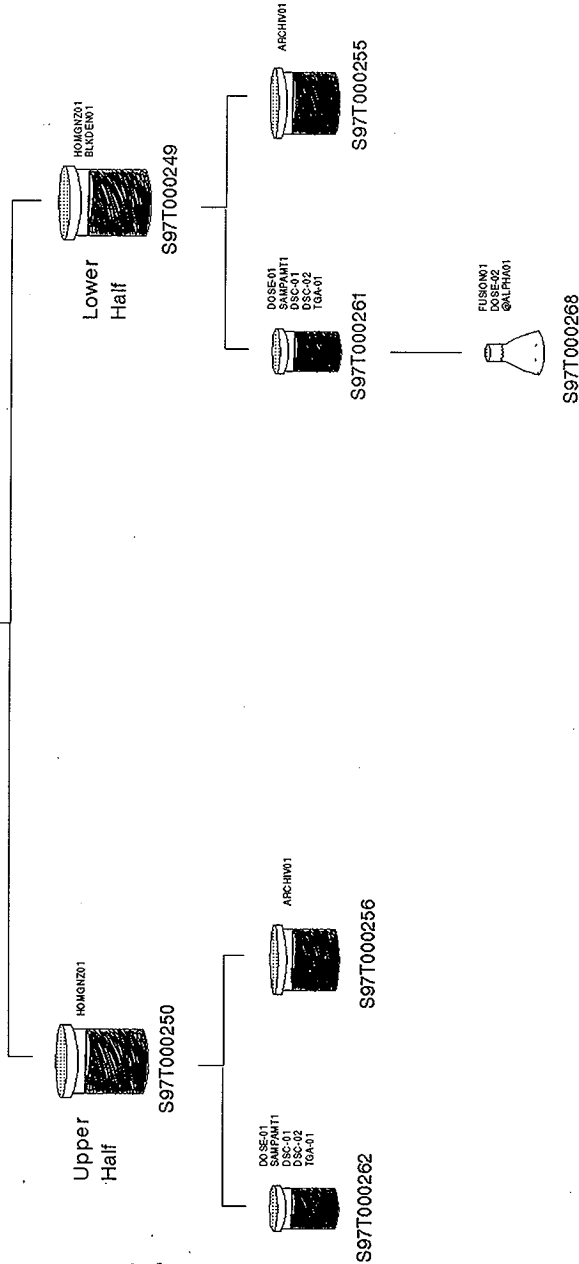
S97T000153

Attachment 1



T-110
Core:180
Seg: 2 (97-2)
S97T000154

Attachment 1



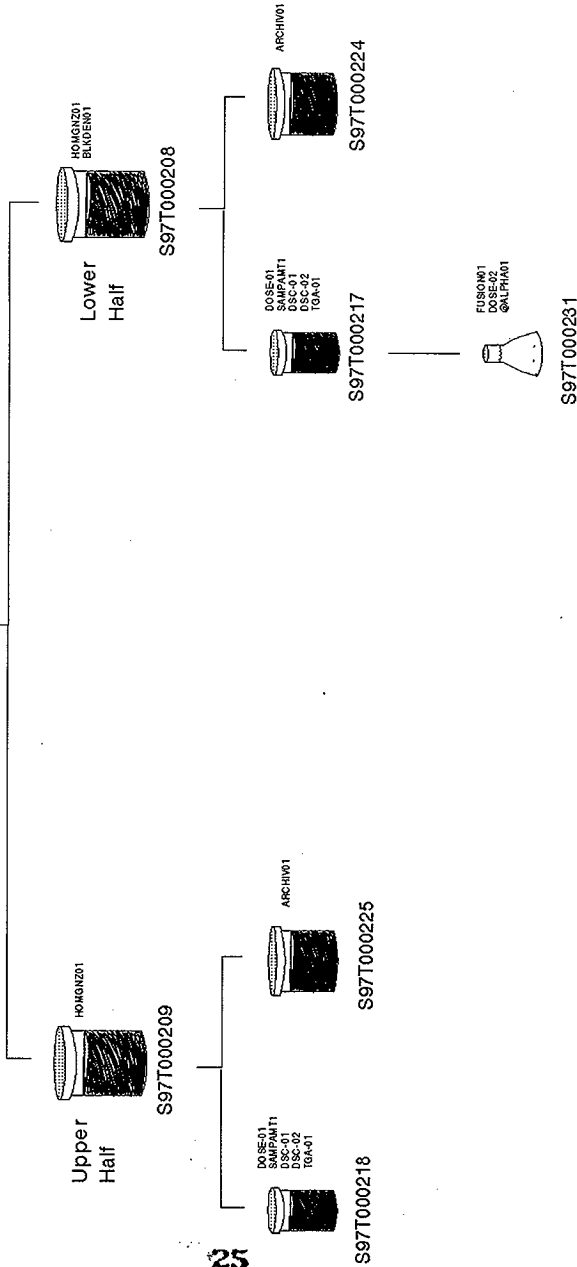
T-110

Core:180

Seg: 3 (97-3)

S97T000155

Attachment 1



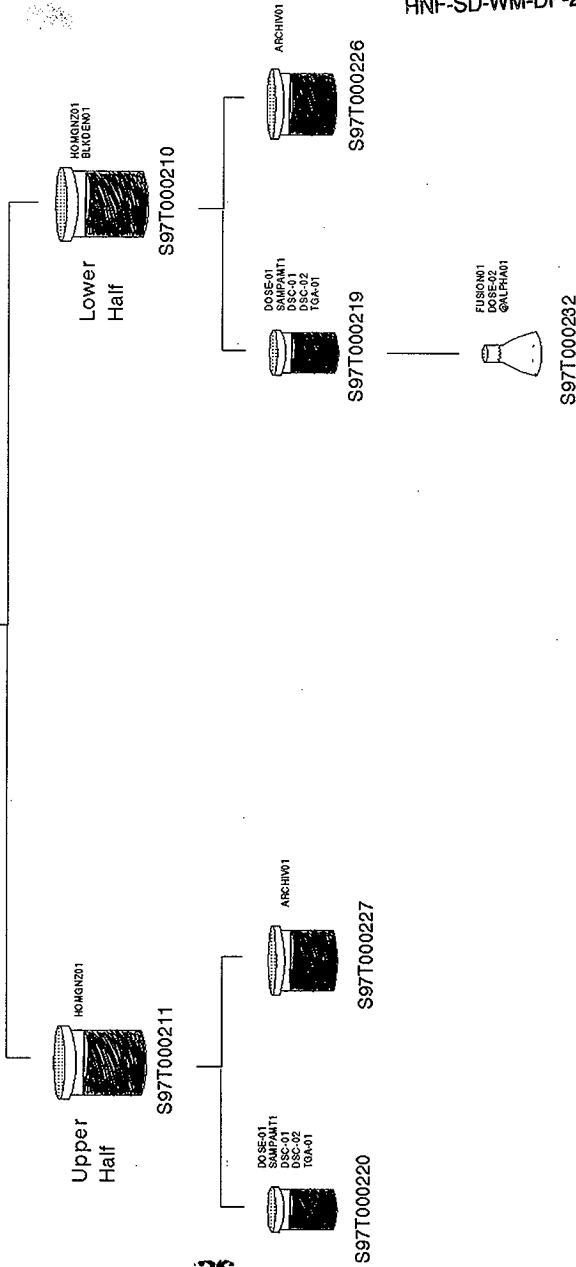
T-110

Core:180

Seg: 4 (97-4)

S97T000187

Attachment 1



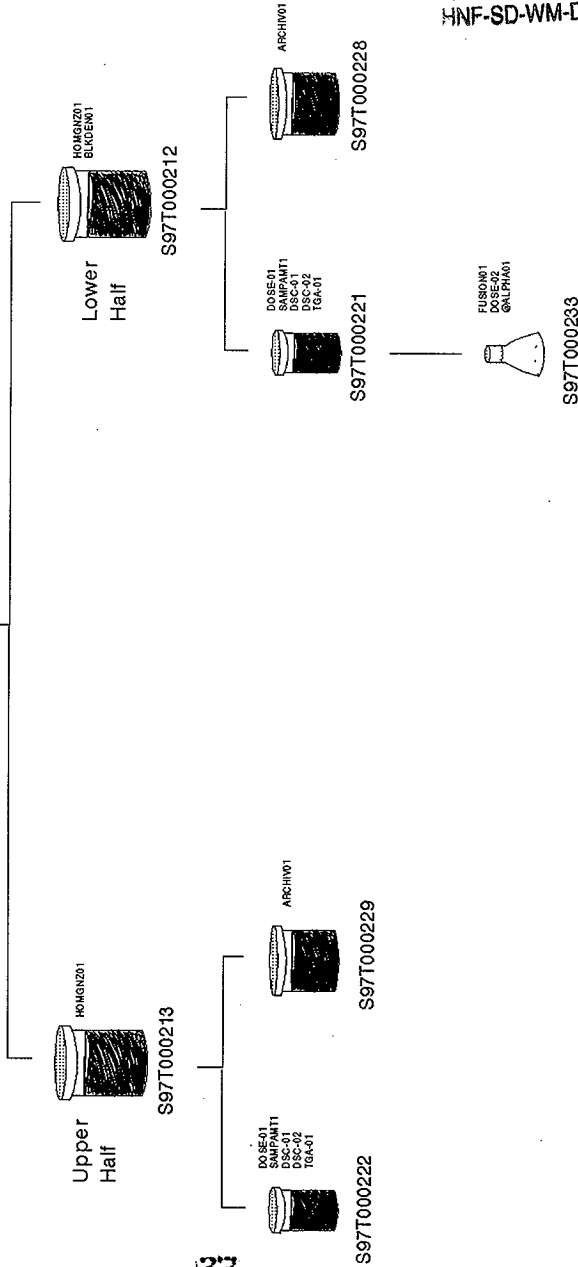
T-110

Core:180

Seg: 6 (97-6)

S97T000189

Attachment 1



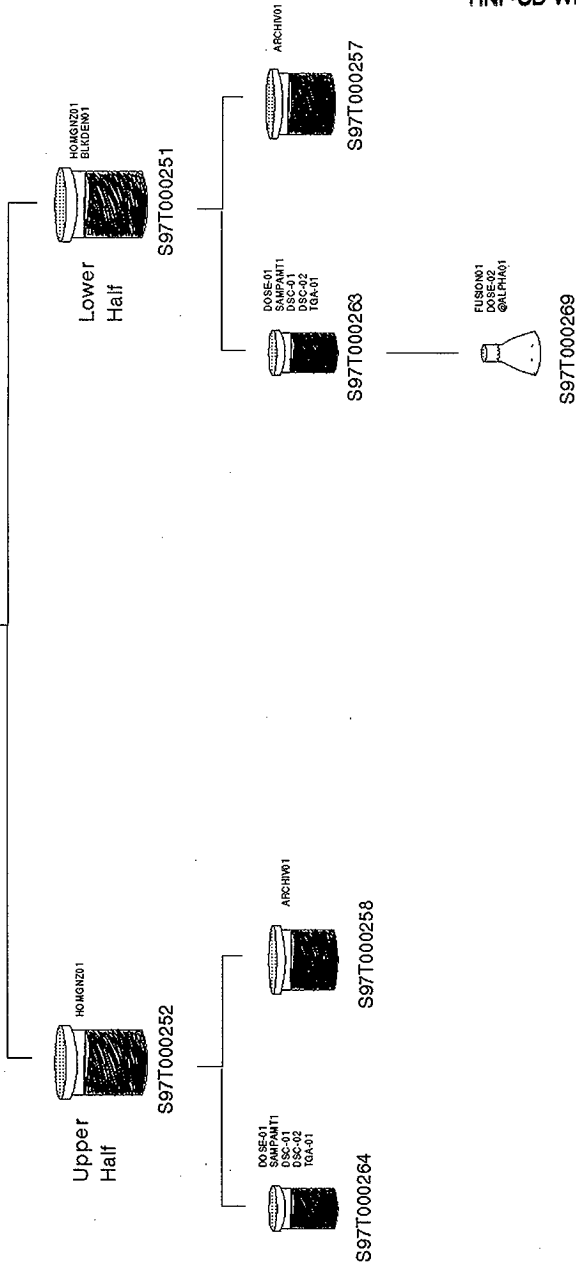
T-110

Core:180

Seg: 7 (97-7)

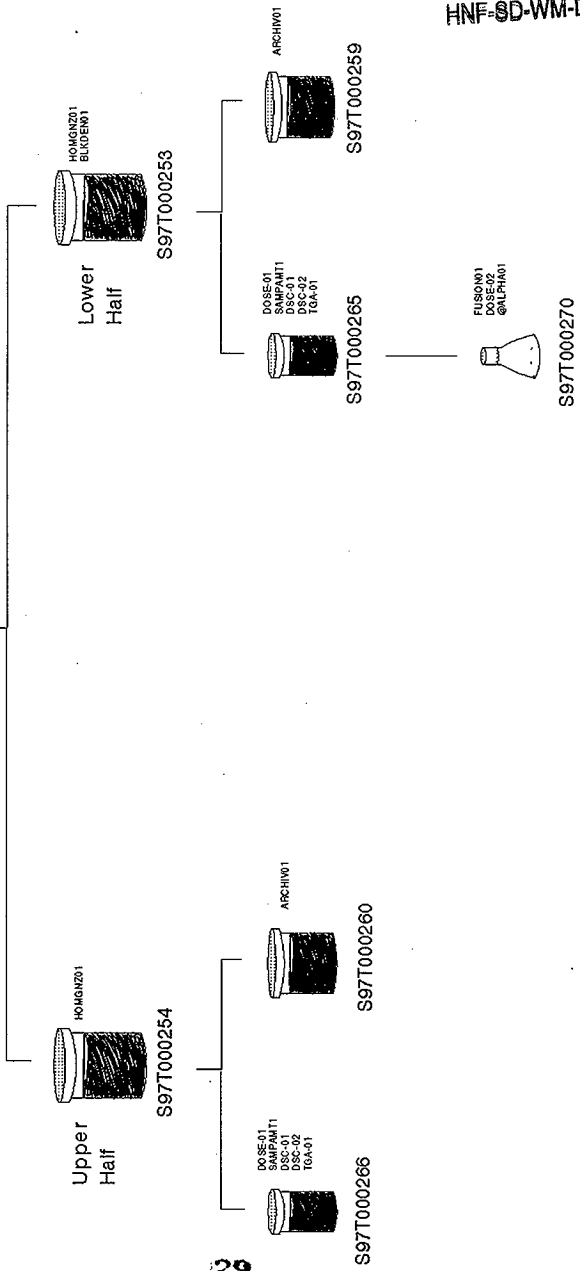
S97T000183

Attachment 1



T-110
Core:180
Seg: 8 (97-8)
S97T000182

Attachment 1



HNF-SD-WM-DP-238, REV. 0

SAMPLE DATA SUMMARY

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Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97I000216		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97I000216		DSC Exotherm on Perkin Elmer	Joules/g	91.39	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97I000216		% Water by TGA on Perkin Elmer	%	99.24	n/a	76.98	77.40	77.19	0.54	n/a	n/a	n/a

L Lower Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97I000206		Bulk Density of Sample	g/mL	n/a	n/a	1.290	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97I000214		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97I000214		DSC Exotherm on Perkin Elmer	Joules/g	94.52	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97I000214		% Water by TGA using Mettler	%	99.65	n/a	77.27	77.18	77.22	0.12	n/a	n/a	n/a
S97I000214		% Water by TGA on Perkin Elmer	%	99.29	n/a	9.280	76.91	45.09	157	n/a	n/a	n/a
S97I000230	F	Alpha of Digested Solid	UCI/g	85.50	<1,64e-03	4.47e-02	4.65e-02	4.55e-02	3.52	56.70	3.00e-03	1.60E+01

Table 3. Data Summary Table
I-110

CORE NUMBER: 180
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	RI#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S971000262		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000262		DSC Exotherm on Perkin Elmer	Joules/g	94.76	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000262		% Water by TGA using Mettler	%	98.81	n/a	77.10	76.36	76.73	0.95	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	RI#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S971000249		Bulk Density of Sample	g/mL	n/a	n/a	1.250	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S971000261		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000261		DSC Exotherm on Perkin Elmer	Joules/g	94.76	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000261		% Water by TGA using Mettler	%	96.81	n/a	75.84	75.60	75.72	0.32	n/a	n/a	n/a	n/a
S971000268		F Alpha of Digested Solid	ug/g	86.00	<1.47e-03	4.41e-02	3.90e-02	4.16e-02	12.3	n/a	3.00e-03	1.55E+01	

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S971000218		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000218		DSC Exotherm on Perkin Elmer	Joules/g	91.39	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000218		% Water by TGA on Perkin Elmer	%	99.24	n/a	76.61	76.03	76.32	0.76	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S971000208		Bulk Density of Sample	g/mL	n/a	n/a	1.320	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S971000217		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000217		DSC Exotherm on Perkin Elmer	Joules/g	91.39	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000217		% Water by TGA on Perkin Elmer	%	99.24	n/a	76.27	76.76	76.52	0.64	n/a	n/a	n/a	n/a
S971000231	F	Alpha of Digested Solid	uc/g	85.50	<1.64e-03	2.88e-02	3.35e-02	3.21e-02	20.8	n/a	3.00e-03	2.00E+01	2.00E+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R AP#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000220		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000220		DSC Exotherm on Perkin Elmer	Joules/g	91.70	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000220		% Water by TGA on Perkin Elmer	%	98.70	n/a	77.15	76.60	76.88	0.72	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R AP#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000210		Bulk Density of Sample	g/mL	n/a	n/a	1.310	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T000219		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000219		DSC Exotherm on Perkin Elmer	Joules/g	91.70	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000219		% Water by TGA on Perkin Elmer	%	98.70	n/a	76.26	74.80	75.53	1.93	n/a	n/a	n/a
S97T000232	F	Alpha of Digested Solid	luc/g	86.00	<1.47e-03	4.56e-02	6.28e-02	5.47e-02	31.4	66.20	4.00e-03	1.67e+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 6

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #/F	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000222		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000222		DSC Exotherm on Perkin Elmer	Joules/g	93.74	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000222		% Water by TGA on Perkin Elmer	%	93.86	n/a	72.80	74.37	73.56	2.80	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R #/F	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000212		Bulk Density of Sample	g/mL	n/a	n/a	1.500	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T000221		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000221		DSC Exotherm on Perkin Elmer	Joules/g	93.74	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000221		% Water by TGA on Perkin Elmer	%	93.86	n/a	71.95	71.32	71.63	0.88	n/a	n/a	n/a
S97T000233		F Alpha of Digested Solid	luc/g	86.00	<1.47e-03	4.04e-02	6.03e-02	5.03e-02	39.5	n/a	4.00e-03	1.89E+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 7

SEGMENT PORTION: U Upper Half of Segment

Sample#	R AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97I000264		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97I000264		DSC Exotherm on Perkin Elmer	Joules/g	94.76	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97I000264		% Water by TGA using Mettler	%	98.87	n/a	74.23	74.27	74.25	0.05	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97I000251		Bulk Density of Sample	g/mL	n/a	n/a	1.250	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S97I000263		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97I000263		DSC Exotherm on Perkin Elmer	Joules/g	94.76	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97I000263		% Water by TGA using Mettler	%	98.87	n/a	72.59	75.22	72.91	0.36	n/a	n/a	n/a	n/a
S97I000269	F	Alpha of Digested Solid	uCi/g	97.00	<1.92e-03	7.78e-02	7.22e-02	7.50e-02	7.47	32.79	3.00e-03	1.17E+01	

Table 3. Data Summary Table
T-110

CORE NUMBER: 180
SEGMENT #: 8

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #/ Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000266	DSC Exotherm using Mettler	Joules/g	89.98	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000266	DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000266	% Water by TGA using Mettler	%	99.90	n/a	74.77	74.82	74.79	0.07	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R #/ Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000253	Bulk Density of Sample	g/mL	n/a	n/a	1.230	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T000265	DSC Exotherm using Mettler	Joules/g	89.98	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000265	DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000265	% Water by TGA using Mettler	%	99.90	n/a	74.15	74.01	74.08	0.19	n/a	n/a	n/a
S97T000270	F. Alpha of Digested Solid	lci/g	97.00	<1.92e-03	8.59e-02	7.69e-02	8.29e-02	16.2	n/a	3.00e-03	1.21E+01

Table 3. Beta Summary Table
1-110

13-may-1997 08:32:31
A-0002-1

CORE NUMBER: 181
SEGMENT #: Field Blank

SEGMENT PORTION: Field Blank

Sample #	R#	Analyte	Unit	Standard %	Blank	Result	Duplicates	Average	RPD %	Spk Rec %	Det Limit	Count Error
S97T00019	D	NSC Exciternm Dry Calculated	Joules/g Dry	n/a	n/a	0.00±0.00	0.00±0.00	0.00±0.00	0.00	n/a	n/a	n/a
S97T00019	D	NSC Exciternm in Perkin Elmer	Source/g	2.06	n/a	0.00±0.00	0.00±0.00	0.00±0.00	0.00	n/a	n/a	n/a
S97T00019	D	Specific Gravity	Sp.G.	0.72	n/a	0.99±0.01	0.99±0.01	0.99±0.01	0.00	n/a	1.00e-02	n/a
S97T00019	D	Water TGA	Perkin Elmer %	99.54	n/a	99.54	99.54	99.54	0.04	n/a	1.00e-02	n/a
S97T00019	D	Al/VC-ACP Acid Dil.	ug/ml	88.00	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Al/VC-ACP Acid Dil.	ug/ml	89.00	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Asenite-ICP-Acid Dil.	ug/ml	105.0	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	n/a	7.00e-01	n/a
S97T00019	D	Asenite-ICP-Acid Dil.	ug/ml	105.0	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	n/a	7.00e-01	n/a
S97T00019	D	Beryllium-ICP-Acid Dil.	ug/ml	99.66	<5.00e-02	<5.00e-02	<5.00e-02	1.455	2.03	n/a	3.50e-01	n/a
S97T00019	D	Beryllium-ICP-Acid Dil.	ug/ml	102.0	<5.00e-02	<5.00e-02	<5.00e-02	n/a	n/a	n/a	3.50e-02	n/a
S97T00019	D	Bismuth-ICP-Acid Dil.	ug/ml	105.0	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	n/a	7.00e-01	n/a
S97T00019	D	Calcium-ICP-Acid Dil.	ug/ml	88.20	<1.00e-01	<1.00e-01	<1.00e-01	16.10	0.00	n/a	7.00e-01	n/a
S97T00019	D	Cerium-ICP-Acid Dil.	ug/ml	100.0	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	n/a	7.00e-01	n/a
S97T00019	D	Chromium-ICP-Acid Dil.	ug/ml	101.2	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Cobalt-ICP-Acid Dil.	ug/ml	100.2	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	n/a	7.00e-01	n/a
S97T00019	D	Copper-ICP-Acid Dil.	ug/ml	107.6	<5.00e-02	<5.00e-02	<5.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Iron-ICP-Acid Dil.	ug/ml	105.6	<5.00e-01	<5.00e-01	<5.00e-01	n/a	n/a	n/a	3.50e-01	n/a
S97T00019	D	Potassium-ICP-Acid Dil.	ug/ml	95.60	<5.00e-01	<5.00e-01	<5.00e-01	n/a	n/a	n/a	3.50e-01	n/a
S97T00019	D	Lanthanum-ICP-Acid Dil.	ug/ml	102.2	<5.00e-02	<5.00e-02	<5.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Lithium-ICP-Acid Dil.	ug/ml	100.4	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Magnesium-ICP-Acid Dil.	ug/ml	100.4	<1.00e-01	<1.00e-01	<1.00e-01	3.560	1.18	n/a	7.00e-02	n/a
S97T00019	D	Manganese-ICP-Acid Dil.	ug/ml	98.40	<1.00e-02	<1.00e-02	<1.00e-02	3.580	0.74	n/a	7.00e-02	n/a
S97T00019	D	Nickel-ICP-Acid Dil.	ug/ml	102.4	<5.00e-02	<5.00e-02	<5.00e-02	2.71e-01	0.74	n/a	7.00e-02	n/a
S97T00019	D	Niobium-ICP-Acid Dil.	ug/ml	103.2	<5.00e-02	<5.00e-02	<5.00e-02	n/a	n/a	n/a	3.50e-01	n/a
S97T00019	D	Sodium-ICP-Acid Dil.	ug/ml	101.6	<1.00e-01	<1.00e-01	<1.00e-01	11.60	1.72	n/a	7.00e-01	n/a
S97T00019	D	Neodymium-ICP-Acid Dil.	ug/ml	100.2	<2.00e-02	<2.00e-02	<2.00e-02	n/a	n/a	n/a	7.00e-01	n/a
S97T00019	D	Nickel-ICP-Acid Dil.	ug/ml	102.0	<2.00e-02	<2.00e-02	<2.00e-02	n/a	n/a	n/a	1.40e-01	n/a
S97T00019	D	Phosphorus-ICP-Acid Dil.	ug/ml	98.60	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	n/a	1.40e-01	n/a
S97T00019	D	Sulfur-ICP-Acid Dil.	ug/ml	99.20	<1.00e-01	<1.00e-01	<1.00e-01	8.950	2.91	n/a	7.00e-01	n/a
S97T00019	D	Antimony-ICP-Acid Dil.	ug/ml	97.60	<6.00e-02	<6.00e-02	<6.00e-02	n/a	n/a	n/a	7.00e-01	n/a
S97T00019	D	Selenium-ICP-Acid Dil.	ug/ml	96.40	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	n/a	4.20e-01	n/a
S97T00019	D	Silicon-ICP-Acid Dil.	ug/ml	99.20	<5.00e-02	<5.00e-02	<5.00e-02	4.725	1.05	n/a	3.50e-01	n/a
S97T00019	D	Strontium-ICP-Acid Dil.	ug/ml	100.2	<1.00e-02	<1.00e-02	<1.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Titanium-ICP-Acid Dil.	ug/ml	100.4	<1.00e-02	<1.00e-02	<1.00e-02	7.37e-02	0.41	n/a	7.00e-02	n/a
S97T00019	D	Thallium-ICP-Acid Dil.	ug/ml	99.80	<1.00e-01	<1.00e-01	<1.00e-01	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Vanadium-ICP-Acid Dil.	ug/ml	97.90	<5.00e-01	<5.00e-01	<5.00e-01	n/a	n/a	n/a	3.500	n/a
S97T00019	D	Zinc-ICP-Acid Dil.	ug/ml	102.2	<5.00e-02	<5.00e-02	<5.00e-02	n/a	n/a	n/a	7.00e-02	n/a
S97T00019	D	Zirconium-ICP-Acid Dil.	ug/ml	100.4	<1.00e-02	<1.00e-02	<1.00e-02	4.50e-01	0.89	n/a	7.00e-02	n/a
S97T000381	D	Alpha in Liquid Sameless	ug/ml	92.50	<2.85e-07	<2.85e-07	<2.85e-07	5.51e-07	5.08	n/a	4.00e-02	1.16E+02
S97T000381	D	TIC by Act/Countometry	ug/ml	101.3	<5.000	<5.000	<5.000	14.10	14.45	100.1	5.000	n/a
S97T000381	D	TOC by Persulfate/Countometry	ug/ml	95.30	<1.00e-01	<40.00	<40.00	n/a	n/a	96.30	40.00	n/a

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000381		Pu-239/240 by TRU-SPEC Resin	uCi/mL	92.66	<3.40e-06	<3.38e-06	<3.48E-6	n/a	n/a	n/a	3.38e-06	1.00E+02
S97T000381		Fluoride-IC-Dionex 4000/4500	ug/mL	103.6	<1.20e-02	4.95e-01	5.19e-01	5.07e-01	4.73	n/a	1.32e-01	n/a
S97T000381		Chloride-IC-Dionex 4000/4500	ug/mL	97.85	<1.70e-02	7.653	8.150	7.902	6.33	n/a	1.87e-01	n/a
S97T000381		Nitrite-IC - Dionex 4000/4500	ug/mL	94.65	<1.05e-01	< 1.188	<1.19e0	n/a	n/a	n/a	1.188	n/a
S97T000381		Bromide by Ion Chromatograph	ug/mL	100.2	<1.25e-01	< 1.375	<1.38e0	n/a	n/a	n/a	1.375	n/a
S97T000381		Nitrate by IC-Dionex 4000/4500	ug/mL	105.9	2.08e-01	7.611	7.090	7.351	7.07	n/a	1.325	n/a
S97T000381		Phosphate-IC-Dionex 4000/4500	ug/mL	90.62	<1.20e-01	< 1.320	<1.32e0	n/a	n/a	n/a	1.320	n/a
S97T000381		Sulfate by IC-Dionex 4000/4500	ug/mL	103.3	<1.38e-01	16.76	17.20	16.98	2.35	n/a	1.518	n/a
S97T000381		Oxalate by IC-Dionex 4000/4500	ug/mL	97.56	<1.05e-01	< 1.155	<1.16e0	n/a	n/a	n/a	1.155	n/a

Table 3. Data Summary Table
T-110

CORE NUMBER: 181
SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #/F	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000141		DSC Exotherm using Mettler	Joules/g	88.58	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000141		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000141		% Water by TGA using Mettler	%	100.8	n/a	79.12	77.80	78.46	1.68	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R #/F	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000124		Bulk Density of Sample	g/mL	n/a	n/a	1.160	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S97T000125		DSC Exotherm using Mettler	Joules/g	88.58	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000125		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000125		% Water by TGA using Mettler	%	100.8	n/a	79.73	79.69	79.71	0.05	n/a	n/a	n/a	n/a
S97T000148		F Alpha of Digested Solid	µCi/g	89.50	<1.45e-03	7.50e-02	6.68e-02	7.09e-02	11.6	77.37	3.00e-03	1.25E+01	1.25E+01

Table 3. Data Summary Table
I-110

CORE NUMBER: 181
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicates	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S971000143		DSC Exotherm Dry	Calculated Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000143		DSC Exotherm on Perkin Elmer	Joules/g	92.62	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000143		% Water by Tgt on Perkin Elmer	%	97.97	n/a	73.94	76.13	76.03	0.25	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicates	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S971000128		Bulk Density of Sample	g/ml	n/a	n/a	1.180	1.180	1.180	0.00	n/a	5.00e-01	n/a	n/a
S971000142		DSC Exotherm Dry	Calculated Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000142		DSC Exotherm on Perkin Elmer	Joules/g	92.62	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S971000142		% Water by Tgt on Perkin Elmer	%	97.97	n/a	77.31	76.07	76.79	1.88	n/a	n/a	n/a	n/a
S971000149		F Alpha of Digested Solid	lci/g	89.50	<1.45e-03	4.66e-02	5.12e-02	4.89e-02	9.41	n/a	3.00e-03	1.49E+01	1.49E+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 181
SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #/ Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det. Limit	Count	Err%
S977000145	DSC Exotherm using Mettler	Joules/g	89.98	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S977000145	DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S977000145	% Water by TGA using Mettler	%	99.78	n/a	78.29	85.13	81.71	8.37	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R #/ Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det. Limit	Count	Err%
S977000130	Bulk Density of Sample	g/mL	n/a	n/a	1.210	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S977000144	DSC Exotherm using Mettler	Joules/g	89.98	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S977000144	DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S977000144	% Water by TGA using Mettler	%	99.78	n/a	78.82	75.47	76.14	7.05	n/a	n/a	n/a	n/a
S977000150	F Alpha of Digested Solid	ug/l/g	69.50	<1.75e-04	3.42e-02	3.02e-02	3.22e-02	12.4	n/a	4.04e-04	8.15E+00	n/a

Table 3. Data Summary Table
T-110

CORE NUMBER: 181
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000147		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000147		DSC Exotherm on Perkin Elmer	Joules/g	93.08	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000147		% Water by TGA on Perkin Elmer	%	98.99	n/a	76.00	76.80	76.40	1.05	n/a	n/a	n/a	n/a

L Lower Half of Segment

Sample#	R #	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000132		Bulk Density of Sample	g/mL	n/a	n/a	1.200	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S97T000146		DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000146		DSC Exotherm on Perkin Elmer	Joules/g	93.08	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000146		% Water by TGA on Perkin Elmer	%	98.99	n/a	75.50	75.90	75.70	0.53	n/a	n/a	n/a	n/a
S97T000151	F	Alpha of Digested Solid	uc/l/g	69.50	<1.75e-04	3.97e-02	3.98e-02	3.94e-02	1.77	n/a	4.35e-04	7.79E+00	n/a

Table 3. Data Summary Table
1-110

CORE NUMBER: 181
SEGMENT #: 5

SEGMENT PORTION: U Upper Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000170		DSC Exotherm using Mettler	Joules/g	89.98	n/a	12.60	0.00e+00	6.300	200	n/a	n/a	n/a	n/a
S97T000170		DSC Exotherm Dry Calculated	Joules/g	n/a	n/a	51.27	0.00e+00	25.64	200	n/a	n/a	n/a	n/a
S97T000170		% Water by TGA using Mettler	%	99.61	n/a	75.28	75.57	75.42	0.38	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000165		Bulk Density of Sample	g/mL	n/a	n/a	1.230	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S97T000168		DSC Exotherm using Mettler	Joules/g	89.98	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000168		DSC Exotherm Dry Calculated	Joules/g	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000168		% Water by TGA using Mettler	%	99.61	n/a	74.89	75.12	75.00	0.31	n/a	n/a	n/a	n/a
S97T000169		IF Alpha of Digested Solid	uc/1g	84.50	<8.52e-04	4.29e-02	5.32e-02	4.80e-02	21.4	n/a	2.00e-03	n/a	1.65E+01

Table 3. Data Summary Table
I-110

CORE NUMBER: 181
SEGMENT #: 6

SEGMENT PORTION: U Upper Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000175		OSC Exotherm Dry, Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000175		OSC Exotherm on Perkin Elmer	Joules/g	96.77	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000175		% Water by TGA using Mettler	%	100.5	n/a	65.37	75.33	70.35	14.2	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000172		Bulk Density of Sample	g/ml	n/a	n/a	1.290	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S97T000172		OSC Exotherm Dry, Calculated	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000174		OSC Exotherm on Perkin Elmer	Joules/g	96.77	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000174		% Water by TGA using Mettler	%	100.5	n/a	76.26	75.78	76.02	0.63	n/a	n/a	n/a	n/a
S97T000178		F Alpha of Digested Solid	UG/g	84.50	<8.52e-04	5.22e-02	5.04e-02	5.28e-02	9.09	n/a	2.00e-03	1,49E+01	1.49E+01

15-apr-1997 14:49:20
A-0002-1

Table 3. Data Summary Table
T-110

CORE NUMBER: 181
SEGMENT #: 7

SEGMENT PORTION: U Upper Half of Segment

Sample#	R AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000159		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000159		DSC Exotherm on Perkin Elmer	Joules/g	93.04	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000159		% Water by TGA on Perkin Elmer	%	99.14	n/a	74.80	73.80	74.30	1.35	n/a	n/a	n/a

L Lower Half of Segment

Sample#	R AP	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S97T000156		Bulk Density of Sample	g/ml	n/a	n/a	1.230	n/a	n/a	n/a	n/a	5.00e-01	n/a
S97T000158		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000158		DSC Exotherm on Perkin Elmer	Joules/g	93.04	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a
S97T000158		% Water by TGA on Perkin Elmer	%	99.14	n/a	71.27	72.82	72.04	2.15	n/a	n/a	n/a
S97T000162	F	Alpha of Digested Solid	µCi/g	84.50	<8.52e-04	6.05e-02	6.51e-02	6.28e-02	7.32	68.44	2.00e-03	1.44E+01

Table 3. Data Summary Table
T-110

CORE NUMBER: 181
SEGMENT #: 8

SEGMENT PORTION: U Upper Half of Segment

Sample#	R AF	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000193		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000193		DSC Exotherm on Perkin Elmer	Joules/g	94.52	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000193		% Water by TGA on Perkin Elmer	%	99.29	n/a	72.14	72.64	72.39	0.69	n/a	n/a	n/a	n/a

L Lower Half of Segment: L Lower Half of Segment

Sample#	R AF	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S97T000190		Bulk Density of Sample	g/mL	n/a	n/a	1.280	n/a	n/a	n/a	n/a	5.00e-01	n/a	n/a
S97T000192		DSC Exotherm Dry	Joules/g Dry	n/a	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000192		DSC Exotherm on Perkin Elmer	Joules/g	94.52	n/a	0.00e+00	0.00e+00	0.00e+00	0.00	n/a	n/a	n/a	n/a
S97T000192		% Water by TGA on Perkin Elmer	%	99.29	n/a	73.08	72.65	72.87	0.59	n/a	n/a	n/a	n/a
S97T000196	F	Alpha of Digested Solid	UC/g	85.50	<1.64e-03	5.88e-02	6.14e-02	6.01e-02	4.33	53.07	3.00e-03	1.58E+01	1.58E+01

HNF-SD-WM-DP-238, REV. 0

CHAIN OF CUSTODY FORMS

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COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200W-08-TF (2) Sample Number 97-1 (3) Supervisor David Arp (8) Cask Serial Number SN-226
 (4) Tank T-110 (5) Riser 6 (6) Segment 1 (7) Core _____

(10) Shipment Description
 A. Work Package Number WS-96-00253
 B. Cask Seal Number 12207
 C. Sampler Serial Number 96-22255
 D. Date and Time Sampler Unseated 2/6/97, 1837 hrs
 E. Expected Liquid Content 90%
 F. Expected Solid Content 20%
 G. Dose Rate Through Drill String 1.5 mS/hr
 H. Expected Sample Length 151

(9) FIELD (33) LABORATORY
 Over Top Dose Rate 2.5 20.5
 Side Dose Rate 2.5 20.5
 Bottom Dose Rate 2.5 20.5
 Smear/Me Contamination 2.0 20.0 (Alpha)
AK <1K (Beta-Gamma)
 RCT* (HPT) Mally RCT* (HPT) W. Egan (Signature)
 (Signature) (Signature)

HNF-SD-WM-DP-238, REV. 0

(11) INFORMATION (include statement of laboratory tests to be performed.)

51

(12) Field Comments
1st Sec. Only a 15" stroke,
small amount of moisture in
bottom of cask.

(34) Laboratory Comments

(13) Point of Origin <u>T-110</u>	(14) Destination <u>222-5</u>	(15) Sender Name (Sign and PRINT) <u>James Sickets</u>	(16) Date/Time <u>2-10-97</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>James Sickets</u>	(19) Received By (Sign and PRINT) <u>Kevin E. Hamilton</u>	(20) Received By (Sign and PRINT) <u>Kevin E. Hamilton</u>	(21) Date/Time <u>2-10-97</u>	(22) Receiver Comments
(23) Relinquished By (Sign and PRINT) <u>Kevin E. Hamilton</u>	(24) Received By (Sign and PRINT) <u>Kevin E. Hamilton</u>	(25) Date/Time <u>2/10/97</u>	(26) Receiver Comments	(27) Relinquished By (Sign and PRINT)
(28) Relinquished By (Sign and PRINT)	(29) Received By (Sign and PRINT)	(30) Receiver Comments	(31) Receiver Comments	(32) Receiver Comments

(31) Sealed Intact Upon Receipt? Yes No
 (32) Sealed Data Consistent with this Record? Yes No

Shipment No. Yes No
 Cask Seal No. Yes No

(18) Sealed Intact Upon Release? Yes No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43
 Sample No. Yes No BC-8000-308 (0)

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Feb. 18, 1997 11:59AM

WHC 222S LAB ROOM 2F BACKSIDE

No. 0668 P. 1/1

Shipment Number 200V-08-TF (2) Sample Number # 91-2 (3) Supervisor David Oya (8) Cask Serial Number C-2000
 Tank T-110 (5) Riser 6 (6) Segment # 2 (7) Core 180

(10) Shipment Description

A. Work Package Number WS-76-00253
 B. Cask Seal Number 12203
 C. Sampler Serial Number 46-090-5618916
 D. Date and Time Sampler Unseated 2/16/97, 2:30 hrs
 E. Expected Liquid Content 50.70
 F. Expected Solid Content 2.02
 G. Dose Rate Through Drill String 6.5 mS/hr
 H. Expected Sample Length 19"

(33) LABORATORY

(9) FIELD

Over Top Dose Rate 6.5
 Side Dose Rate 6.5
 Bottom Dose Rate 6.5
 Smearable Contamination 2.0
 (Alpha)
4/4
 (Beta-Gamma)
 ACT* Mally
 (HPT) (Signature)
 (HPT) (Signature)
 (Beta-Gamma)
 (Signature)

HNF-SD-WM-DP-238, REV. 0

1) INFORMATION (include statement of laboratory tests to be performed.)

(34) Laboratory Comments

2) Field Comments
small amount of moisture in bottom of cask.

3) Point of Origin <u>T-110</u>	15) Sender Name (Sign and PRINT) <u>Amos Sickett</u>	16) Date/Time <u>2-10-97</u>	17) Sender Comments
6) Relinquished By (Sign and PRINT) <u>Amos Sickett</u>	20) Received By (Sign and PRINT) <u>Kevin E Hamilton</u>	21) Date/Time <u>2-10-97</u>	22) Receiver Comments
7) Relinquished By (Sign and PRINT) <u>Kevin E Hamilton</u>	24) Received By (Sign and PRINT) <u>Kevin E Hamilton</u>	25) Date/Time <u>2-10-97 12:23</u>	26) Receiver Comments
8) Relinquished By (Sign and PRINT)	28) Received By (Sign and PRINT)	29) Date/Time	30) Receiver Comments

(18) Seal Intact Upon Release? Yes No

(31) Seal Intact Upon Receipt? Yes No

(32) Seal Data Consistent with this Record? Yes No

Shipment No. Yes No

Cask Seal No. Yes No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S-8-95 Goldenrod - Tank Farm Operations, S-4-43

BC-6000-309 (02/94)

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipments Number 1001 Nov-08-TF (2) Sample Number 97-3 (3) Supervisor R. Frank (4) Tank 1 (5) Riser 6 (6) Segment 3 (7) Core 180 (8) Cask Serial Number C-1020

Radiation Survey Data:

Over Top Dose Rate 2.5
 Side Dose Rate 2.5
 Bottom Dose Rate 2.5
 Smearable Contamination 220

(33) LABORATORY

20.5
20.5
20.5
220
21K (Alpha)
 (Beta-Gamma) RCR
 (HPT) AD (Signature)

(110) Shipment Description

A. Work Package Number 105-96-253
 B. Cask Seal Number 1180
 C. Sampler Serial Number 96-204
 D. Date and Time Sampler Unseated 2-7-97 / 0255
 E. Expected Liquid Content 35%
 F. Expected Solid Content 65%
 G. Dose Rate Through Drill String 4.5 mR
 H. Expected Sample Length 19"

(11) INFORMATION (include statement of laboratory tests to be performed.)

55

HNF-SD-WM-DP-238, REV. 0

(12) Field Comments

(a) - sampler has small amount of waste on bottom
 (b) - small amount of moisture in bottom of cask.

(34) Laboratory Comments

(13) Point of Origin <u>R-4</u>	(14) Destination <u>2223 Lab</u>	(15) Sender Name (Sign and PRINT) <u>Ames Sicks</u>	(16) Date/Time <u>2-10-97</u>	(17) Sender Comments
(19) Relinquished By (Sign and PRINT) <u>Ames Sicks</u>	(20) Received By (Sign and PRINT) <u>James E Hamilton</u>	(21) Date/Time <u>2-10-97</u>	(22) Receiver Comments	
(23) Relinquished By (Sign and PRINT) <u>James E Hamilton</u>	(24) Received By (Sign and PRINT) <u>James E Hamilton</u>	(25) Date/Time <u>2-10-97</u>	(26) Receiver Comments	
(27) Relinquished By (Sign and PRINT)	(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments	

(18) Seal Intact Upon Release? Yes No

(31) Seal Intact Upon Receipt? Yes No

(132) Seal Date Consistent with this Record?

Shipment No. Yes No

Cask Seal No. Yes No

Sample No. Yes No

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Jones

(1) Shipment Number 2002-08-TR (2) Sample Number 97-4 (3) Supervisor M.C. Jones (8) Check Serial Number 27-6
 (4) Tank T-110 (5) Floor 6 (6) Segment 4 (7) Core 180

(9) FIELD (33) LABORATORY

Residuum Survey Data:
 Over Top Dose Rate 6.5
 Side Dose Rate 2.5
 Bottom Dose Rate 2.5
 Separable Contamination 220

(Alpha) 2.1K
 (Beta-Gamma) 2.1K
 (Total Gamma) 2.1K
 (Signature) Muddy

RET* (HPT) Muddy RCT* (HPT) [Signature]
 (Alpha) 2.1K (Beta-Gamma) 2.1K (Signature) [Signature]

(10) Shipment Description
 A. Work Package Number WS 96-00253
 B. Check Seal Number 12429
 C. Sampler Serial Number 96-203
 D. Date and Time Sampler Unsealed 2-7-97 0951
 E. Expogated Liquid Content 5000
 F. Expogated Solid Content 5000
 G. Dose Rate Through Drill String 5. MR/MR
 H. Expogated Sample Length 19"

(11) INFORMATION (include element of laboratory tests to be performed.)
 HNF-SD-WM-DP-238, REV. 0

(12) Field Comments:
 (34) Laboratory Comments

(13) Point of Origin <u>T-110</u>	(14) Destination <u>222-S</u>	(15) Sender Name (Sign and PRINT) <u>James Sicketts</u>	(16) Date/Time <u>2-10-97</u>	(17) Sender Comments
(19) Relinquished By (Sign and PRINT) <u>James Sicketts James Sicketts</u>	(20) Received By (Sign and PRINT) <u>William Wallace Virginia Wallace</u>	(21) Date/Time <u>2-10-97 1318</u>	(22) Receiver Comments	
(23) Relinquished By (Sign and PRINT) <u>William Wallace Virginia Wallace</u>	(24) Received By (Sign and PRINT) <u>[Signature]</u>	(25) Date/Time <u>2-10-97 1340</u>	(26) Receiver Comments	
(27) Relinquished By (Sign and PRINT)	(28) Received By (Sign and PRINT)	(29) Date/Time	(30) Receiver Comments	

(18) Seal Intact Upon Release? Yes No (31) Seal Intact Upon Receipt? Yes No

(19) Seal Date Consistent with the Record? Yes No (32) Seal Date Consistent with the Record? Yes No

Shipment No. Yes No Check Seal No. Yes No

Verifications: M.C. Jones, William Wallace, Virginia Wallace, John Smith, John Doe
 Title: Analyst, Analyst, Analyst, Analyst
 License: 12345, 67890, 11223, 44556
 State: VA, VA, VA, VA
 Employer: Trank Farm Operations, S4-43, Trank Farm Operations, S4-43, Trank Farm Operations, S4-43, Trank Farm Operations, S4-43
 Date: 2/10/97, 2/10/97, 2/10/97, 2/10/97

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number Z000-08-IF (2) Sample Number 97-5 (3) Supervisor M.C. Jones (4) Tank T-10 (5) Floor 6 (6) Segment 5 (7) Core 180 (8) Cook Serial Number SN-77

Reclamation Survey Data:

(9) FIELD (10) Shipment Description

Over Top Dose Rate 6.5 (A. Work Package Number 00253)

Side Dose Rate 6.5 (B. Cook Seal Number 12425)

Bottom Dose Rate 6.5 (C. Sampler Serial Number 96-208)

Smearable Contamination 2.0 (D. Date and Time Sampler Unseated 2-7-97/1120)

(Alpha) 2.8 (E. Expected Liquid Content 50%)

(Beta-Gamma) 2.8 (F. Expected Solid Content 50%)

(HPT) Melby (Signature) (G. Dose Rate Through Diffusion .5 MP/HR)

(HPT) 2.8 (Signature) (H. Expected Sample Length 19)

(11) INFORMATION (include statement of laboratory tests to be performed.)

HNF-SD-WM-DR-238, REV. 0

(12) Field Comments

(13) Point of Origin <u>F-10</u>	(14) Destination <u>223-5</u>	(15) Sender Name (Sign and PRINT) <u>James Seels</u>	(16) Receiver Comments <u>20 received by (Sign and PRINT)</u>	(17) Sender Comments
(18) Requisitioned By (Sign and PRINT) <u>James Seels</u>	(19) Date/Time <u>2-10-97</u>	(20) Requisitioned By (Sign and PRINT) <u>Virginia Wallace</u>	(21) Receiver Comments <u>2-10-97</u>	(22) Receiver Comments
(23) Requisitioned By (Sign and PRINT) <u>Virginia Wallace</u>	(24) Date/Time <u>2-10-97</u>	(25) Requisitioned By (Sign and PRINT) <u>James Seels</u>	(26) Receiver Comments <u>2-10-97 1340</u>	(27) Receiver Comments
(28) Requisitioned By (Sign and PRINT)	(29) Date/Time	(30) Requisitioned By (Sign and PRINT)	(31) Receiver Comments	(32) Receiver Comments

(18) Seal Intact Upon Receipt? Yes No

(19) Seal Intact Upon Release? Yes No

(20) Seal Data Correlates with this Record? Yes No

(21) Shipper's Seal No. Yes No

(22) Sample No. Yes No

Volusia - Reclamation of Sample Plink - Core Sampling, S8-B5 Goldenrod - Tank Farm Operations, S4-43

Investigational, Volusia - Office of Coastal Management

BC-5600-309 (03/78)

COPY

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number 200w-08-TF (2) Sample Number # 27-k (3) Supervisor Cheryl Perry (4) Tank T-110 (5) Rotor 6 (6) Segment # 6 (7) Core 180 (8) Cask Seal Number WS-96-00253 12283 96-201 2/10/97 1720 hrs 8090 2090 2.5 in/hr 19H

(10) Shipment Description

(9) FIELD

Radiation Survey Date: 4.5

Over Top Dose Rate 4.5

Side Dose Rate 4.5

Bottom Dose Rate 4.5

Screenable Contamination 270 (Alpha)

2K (Alpha)

RCPT* (HPT) Maddy (Signature)

RCPT* (HPT) [Signature] (Signature)

(11) Laboratory

A. Work Package Number WS-96-00253

B. Cask Seal Number 12283

C. Sampler Serial Number 96-201

D. Date and Time Sampler Unseated 2/10/97 1720 hrs

E. Expected Liquid Content 8090

F. Expected Solid Content 2090

G. These Rates Through Drill String 2.5 in/hr

H. Expected Sample Length 19H

(11) INFORMATION (include statement of laboratory tests to be performed.)

HNF-SD-WM-DP-238, REV. 0

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(12) Field Comments

(84) Laboratory Comments

(13) Point of Origin <u>T-110</u>	(14) Destination <u>222-5 Lbs</u>	(15) Sender Name (Sign and PRINT) <u>Gene Dickel</u>	(16) Date/Time <u>2-10-97</u>	(17) Sender Comments
(18) Relinquished By (Sign and PRINT) <u>Gene Dickel James Sickel</u>	(19) Received By (Sign and PRINT) <u>Virginia Wallace Virginia Wallace</u>	(20) Sender Name (Sign and PRINT) <u>Gene Dickel</u>	(21) Date/Time <u>2-10-97</u>	(22) Receiver Comments
(23) Relinquished By (Sign and PRINT) <u>Virginia Wallace Virginia Wallace</u>	(24) Received By (Sign and PRINT) <u>Gene Dickel James Sickel</u>	(25) Sender Name (Sign and PRINT) <u>Gene Dickel</u>	(26) Date/Time <u>2-10-97</u>	(27) Receiver Comments
(28) Relinquished By (Sign and PRINT) <u>Gene Dickel James Sickel</u>	(29) Received By (Sign and PRINT) <u>Virginia Wallace Virginia Wallace</u>	(30) Sender Name (Sign and PRINT) <u>Gene Dickel</u>	(31) Date/Time <u>2-10-97</u>	(32) Receiver Comments

(30) Seal Intact Upon Receipt? Yes No

(31) Seal Intact Upon Receipt? Yes No

(32) Seal Data Consistent with this Receipt? Yes No

(33) Cask Seal No. Yes No

(34) Shipment No. Yes No

(35) Sample No. Yes No

Printed Name of Cask Seal: Gene Dickel Tank - Core Sammling, SG-85 Goldenrod - Tank Farm Operations, S4-43

Printed Name of Receiver: Virginia Wallace Tank - Core Sammling, SG-85 Goldenrod - Tank Farm Operations, S4-43

5477000382

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number 2001-08-TF (2) Sample Number # 97-7 (3) Supervisor David Day (8) Cask Serial Number C-2017
Tank T-110 (5) Riser 6 (6) Segment 7 (7) Core 180

(9) FIELD (33) LABORATORY

Radiation Survey Date: _____

Over Top Dose Rate 4.5 mR/hr (A) Work Package Number WS-96-00253

Side Dose Rate 4.5 mR/hr (B) Cask Seal Number 12205

Bottom Dose Rate 4.5 mR/hr (C) Sampler Serial Number 96-202

Smearable Contamination 20 dpm/100cm² (Alpha) (D) Date and Time Sampler Unseated 2/7/97, 1835 hr

41 K dpm/100cm² (Beta-Gamma) (E) Expected Liquid Content 80g

R. J. [Signature] (Signature) (F) Expected Solid Content 20g

RC⁺ (HPT) [Signature] (G) Dose Rate Through Drill String 4.5 mR/hr

(Signature) (H) Expected Sample Length 1711

INFORMATION (include statement of laboratory tests to be performed.)

(13) Point of Origin	(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
T-110	222-5 L-65	James Sickett	2-14-97	
Relinquished By (Sign and PRINT)		James Sickett	2-14-97	(22) Receiver Comments
Relinquished By (Sign and PRINT)		Jeff Tolson	2-14-97	(26) Receiver Comments
Relinquished By (Sign and PRINT)		R. J. [Signature]	2-14-97	(30) Receiver Comments

(18) Seal Intact Upon Release? Yes No

(19) Seal Intact Upon Receipt? Yes No

(20) Shipment No. Yes No

(21) Cask Seal No. Yes No

(22) Sample No. Yes No

(23) (24) (25) (26) (27) (28) (29) (30) Receiver Comments

(31) Seal Data Consistent with this Record? Yes No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipments Number: 2000-08-TF (2) Sample Number: #975 (3) Supervisor: Ronald Berg
 (4) Tank: T-110 (5) Riser: 6 (6) Segments: 45 (7) Core: 150 (8) Cask Serial Number: SN-64

(9) FIELD (10) LABORATORY

Radioisotope Survey Date: 2.5 mcf/hr (11) Work Package Number: US-9C-0025-3
 Over Top Dose Rate: 2.5 mcf/hr (12) Cask Seal Number: 96-205
 Side Dose Rate: 2.5 mcf/hr (13) Sampler Serial Number: 7797 201045
 Bottom Dose Rate: 2.00 dpm/100cm (14) Date and Time Sampler Unsealed: 20 Feb
 Susceptible Contamination: 1.5 mcf/hr (15) Expected Liquid Content: 191

ECT* (16) RCT (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

HNF-SD-WM-DP-238, REV. 0

COPY

X-Ray Standard Sample 1003 Fall 1

(13) Point of Origin <u>T-110</u>	(14) Destination <u>200-5 Coals</u>	(15) Sender Name (Sign and PRINT) <u>Donald Viskochil James Seckels</u>	(16) Received By (Sign and PRINT) <u>Jeff Tucker</u>	(17) Sender Comments
(18) Point of Origin <u>Donald Viskochil James Seckels</u>	(19) Destination <u>200-5 Coals</u>	(20) Sender Name (Sign and PRINT) <u>Donald Viskochil James Seckels</u>	(21) Received By (Sign and PRINT) <u>Jeff Tucker</u>	(22) Receiver Comments
(23) Point of Origin <u>Donald Viskochil James Seckels</u>	(24) Destination <u>200-5 Coals</u>	(25) Sender Name (Sign and PRINT) <u>Donald Viskochil James Seckels</u>	(26) Received By (Sign and PRINT) <u>Jeff Tucker</u>	(27) Receiver Comments
(28) Point of Origin <u>Donald Viskochil James Seckels</u>	(29) Destination <u>200-5 Coals</u>	(30) Sender Name (Sign and PRINT) <u>Donald Viskochil James Seckels</u>	(31) Received By (Sign and PRINT) <u>Jeff Tucker</u>	(32) Receiver Comments

(18) Seal Intact Upon Release? Yes No

(19) Seal Intact Upon Receipt? Yes No

(20) Seal Obtained Consistent with this Record? Yes No

Sample No. Yes No

86-6000-309 02/94

ISBUION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-95 Goldroad - Tank Farm Operations, S4-43

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number 200w-08-TF (2) Sample Number Blank (3) Supervisor R. Frank Frost
 Tank T-110 (5) Riser 2 (6) Segment Blank (7) Core 181 (8) Cask Serial Number S-2007
 (10) Shipment Description _____

(9) FIELD (33) LABORATORY

Over Top Dose Rate LC 15 LC 15 LC 15 LC 20 (Alpha) LC 15 (Beta-Gamma) _____
 Side Dose Rate _____
 Bottom Dose Rate _____
 Measurable Contamination _____

RCT* (HPT) CA Meyer RCT* (HPT) _____
 (Signature) (Signature)

A. Work Package Number WS-96-00852
 B. Cask Seal Number 1179
 C. Sampler Serial Number 96-213
 D. Date and Time Sampler Unseated 2-3-97 0830
 E. Expected Liquid Content 100%
 F. Expected Solid Content 0%
 G. Dose Rate Through Drill String _____
 H. Expected Sample Length _____

1) INFORMATION (include statement of laboratory tests to be performed.)

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2) Field Comments Blank (T-110) (Riser #2)
deionized H₂O

(34) Laboratory Comments _____

(15) Sender Name (Sign and PRINT) <u>James Sickels</u>	(16) Date/Time <u>2-3-97</u>	(17) Sender Comments _____
(20) Received By (Sign and PRINT) <u>Paula Bailey</u>	(21) Date/Time <u>2-3-97</u>	(22) Receiver Comments _____
(24) Received By (Sign and PRINT) <u>Paula Bailey</u>	(25) Date/Time <u>2-3-97 1210</u>	(26) Receiver Comments _____
(28) Received By (Sign and PRINT) _____	(29) Date/Time _____	(30) Receiver Comments _____

(32) Seal Data Consistent with this Record? _____

(31) Seal Intact Upon Release? Yes No

(18) Seal Intact Upon Receipt? _____

Shipment No. Yes No

Cask Seal No. Yes No

Sample No. Yes No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number 2001-08-77 (2) Sample Number 97-09 (3) Supervisor M. C. Jones
 Tank F-110 (5) Riser 2 (6) Segment 1 (7) Core 131 (8) Cask Serial Number 4-6

(9) FIELD (10) Shipment Description

Over Top Dose Rate < 0.5 nR (A) Work Package Number WS-96-0252
 Side Dose Rate < 0.5 nR (B) Cask Seal Number # 149-17 1178
 Bottom Dose Rate < 0.5 nR (C) Sampler Serial Number 96-198
 Smearable Contamination < 20 dpm (D) Date and Time Sampler Unseated 5/29/96 10:20:03
 (Alpha) (E) Expected Liquid Content 50%
 (Beta-Gamma) (F) Expected Solid Content 50%
 RCT* (HPT) (Signature) CA Hays (G) Dose Rate Through Drill String < 5 nR/nR
 RCT* (HPT) (Signature) [Signature] (H) Expected Sample Length 15

1) INFORMATION (include statement of laboratory tests to be performed.)

2) Field Comments

X-Ray Shows Sampler Empty
 Has some liquid in it.

HNF-SD-WM-DP-238, REV. 0

(31) Point of Origin		(14) Description	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
F-110	R-2	222S LABS	James Seckels James Seckels	2-3-97	
(5) Relinquished By (Sign and PRINT)			Paula Bailey Paula Bailey	2-3-97	(22) Receiver Comments
(3) Relinquished By (Sign and ERINT)			R.C. Sanders R.C. Sanders	2-3-97/11/97	(25) Date/Time
(7) Relinquished By (Sign and PRINT)					(28) Receiver Comments

(18) Seal Intact Upon Release? Yes No

(31) Seal Intact Upon Receipt? Yes No

(32) Seal Data Consistent with this Record? Yes No

Shipment No. Yes No

Cask Seal No. Yes No

Sample No. Yes No

DISTRIBUTION: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, SB-85 Goldentrod - Tank Farm Operations, S4-43 BC-6000-309 (02/89)

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number 200W-08-TF (2) Sample Number 97-010 (3) Supervisor D. Hartley (8) Cask Serial Number C1029
 (4) Tank F110 (5) Riser 2 (6) Segment 2 (7) Core 181

10) Shipment Description
 A. Work Package Number WS-96-10252/0
 B. Cask Seal Number 13004
 C. Sampler Serial Number 96-183
 D. Date and Time Sampler Unseated 1-30-97, 1333
 E. Expected Liquid Content 30%
 F. Expected Solid Content 70%
 G. Dose Rate Through Drill String 4.5 mR/hr
 H. Expected Sample Length 19'

11) LABORATORY (12) LABORATORY
 (13) LABORATORY
 (14) LABORATORY
 (15) LABORATORY
 (16) LABORATORY
 (17) LABORATORY
 (18) LABORATORY
 (19) LABORATORY
 (20) LABORATORY
 (21) LABORATORY
 (22) LABORATORY
 (23) LABORATORY
 (24) LABORATORY
 (25) LABORATORY
 (26) LABORATORY
 (27) LABORATORY
 (28) LABORATORY
 (29) LABORATORY
 (30) LABORATORY
 (31) LABORATORY
 (32) LABORATORY
 (33) LABORATORY
 (34) LABORATORY

ACT* (HPT) CR Hays (Signature) RCT* (HPT) [Signature] (Signature)
 (Beta-Gamma) 11K class 100 cm²
 (Alpha) 20 dpm
 (Beta-Gamma) 1000 dpm

1) INFORMATION (Include statement of laboratory tests to be performed.)

2) Field Comments
Sampler X-rayed, sampler full possible liquid

(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
2225	James Sicks James Sicks	2-3-97	
	Relinquished By (Sign and PRINT)	2-3-97	(22) Receiver Comments
	Paula Bailey Paula Bailey	2-3-97	(28) Receiver Comments
	Relinquished By (Sign and PRINT)	2-3-97	(30) Receiver Comments
	Paula Bailey Paula Bailey	2-3-97	(28) Receiver Comments
	Relinquished By (Sign and PRINT)	2-3-97	(30) Receiver Comments

(18) Seal Intact Upon Release? Yes No (31) Seal Intact Upon Receipt? Yes No
 (19) Seal Data Consistent with this Record? Yes No (32) Seal Data Consistent with this Record? Yes No
 Shipment No. Yes No Cask Seal No. Yes No
 Sample No. Yes No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number 200W-08-TF (2) Sample Number 97-11 (3) Supervisor R. Leach (8) Cask Serial Number 7-6
 Tank T-110 (5) Riser 2 (6) Segment 3 (7) Core 181

Radiation Survey Data:		(9) FIELD	(33) LABORATORY	(10) Shipment Description
Over Top Dose Rate	<u>0.5 mR @ C</u>	<u>0.5</u>	A. Work Package Number	<u>W.S. 96-00252</u>
Side Dose Rate	<u>0.5 mR @ C</u>	<u>0.5</u>	B. Cask Seal Number	<u>44587-97 1173</u>
Bottom Dose Rate	<u>0.5 mR @ C</u>	<u>0.5</u>	C. Sampler Serial Number	<u>96-199</u>
Smearable Contamination	<u>0.20</u> (Alpha)	<u>0.20</u> (Alpha)	D. Date and Time Sampler Unseated	<u>1-30-97/1707</u>
	<u>0.1K</u> (Beta-Gamma)	<u>< 1000</u> (Beta-Gamma)	E. Expected Liquid Content	<u>50%</u>
ACT* (HPT)	<u>CA</u> (Signature)	ACT* (HPT)	F. Expected Solid Content	<u>50%</u>
			G. Dose Rate Through Drill String	<u>4.5 mR</u>
			H. Expected Sample Length	<u>19"</u>

1) INFORMATION (include statement of laboratory tests to be performed.)

HNF-SD-WM-DP-238, REV. 0

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2) Field Comments		(34) Laboratory Comments	
(a) small amount of waste on bottom of sample. (b) X-rayed sample - 100% recovery solid			
3) Point of Origin <u>R-3</u>	(14) Destination <u>T-110</u>	(16) Date/Time <u>2-3-97</u>	(17) Sender Comments
4) Reinquished By (Sign and PRINT) <u>James Sekele</u>	5) Received By (Sign and PRINT) <u>James Sekele</u>	(21) Date/Time <u>2-3-97</u>	(22) Receiver Comments
6) Reinquished By (Sign and PRINT) <u>Ginny Wallace</u>	7) Received By (Sign and PRINT) <u>Ginny Wallace</u>	(25) Date/Time <u>2-3-97/1045</u>	(26) Receiver Comments
8) Reinquished By (Sign and PRINT) <u>Ginny Wallace</u>	9) Received By (Sign and PRINT) <u>James Sekele</u>	(29) Date/Time <u>2-3-97/1130</u>	(30) Receiver Comments
(18) Seal Intact Upon Release? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(32) Seal Data Consistent with this Record? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
(31) Seal Intact Upon Receipt? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Cask Seal No. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number 2001-08-17F (2) Sample Number 97-12 (3) Supervisor R. Frank Lead
 Tank T-110 (5) Riser 2 (6) Segment 4 (7) Core 181 (8) Cask Serial Number 17-B

Radiation Survey Date: (9) FIELD

Over Top Dose Rate LO.5
 Side Dose Rate LO.5
 Bottom Dose Rate LO.5
 Smearable Contamination L20 (Alpha)
L1K (Beta-Gamma)

ACT* (HPT) CA Meyer (Signature) RCT* (HPT) _____

(33) LABORATORY

Work Package Number W-5-96-00252
 Cask Seal Number 2537 777 1169
 Sampler Serial Number 96-194
 Date and Time Sampler Unseated 1-30-97/1810
 Expected Liquid Content 40%
 Expected Solid Content 60%
 Dose Rate Through Drill String 4.5 MR
 Expected Sample Length 19"

(10) Shipment Description

(1) INFORMATION (Include statement of laboratory tests to be performed.)

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HNF-SD-WM-DP-238, REV. 0

(34) Laboratory Comments

(2) Field Comments
 (a) sample X-rayed - 100% solids
 (b) some amount of waste on bottom of sampler 1/2"

(3) Point of Origin <u>R-2</u> (14) Destination <u>222's Lab</u>	(15) Sender Name (Sign and PRINT) <u>Doree Leck James Sickets</u>	(16) Date/Time <u>2-5-97</u>	(17) Sender Comments
(5) Relinquished By (Sign and PRINT) <u>Doree Leck James Sickets</u>	(20) Received By (Sign and PRINT) <u>Glanny Wallace / Glanny Wallace</u>	(21) Date/Time <u>2-5-97</u>	(22) Receiver Comments
(6) Relinquished By (Sign and PRINT) <u>Doree Leck James Sickets</u>	(24) Received By (Sign and PRINT) <u>Glanny Wallace / Glanny Wallace</u>	(25) Date/Time <u>2-5-97</u>	(28) Receiver Comments
(7) Relinquished By (Sign and PRINT) _____	(28) Received By (Sign and PRINT) <u>Glanny Wallace / Glanny Wallace</u>	(29) Date/Time <u>2-29-97</u>	(30) Receiver Comments

(18) Seal Intact Upon Release? Yes No (31) Seal Intact Upon Receipt? Yes No

(32) Seal Data Consistent with this Record? Yes No

Shipment No. Yes No Cask Seal No. Yes No

Sample No. Yes No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number 200W-08-TT (2) Sample Number 97-13 (3) Supervisor R. Frank Ford
 4) Tank T-110 (5) Riser 2 (6) Segment 5 (7) Core 181 (8) Cask Serial Number SN-67

(9) FIELD		(10) Shipment Description
Over Top Dose Rate	<u>L0.5</u>	A. Work Package Number <u>W5-96-00252</u>
Side Dose Rate	<u>L0.5</u>	B. Cask Seal Number <u>19815-3810353</u>
Bottom Dose Rate	<u>L0.5</u>	C. Sampler Serial Number <u>96-195</u>
Smearable Contamination	<u>L20</u>	D. Date and Time Sampler Unseated <u>1-30-97/1918</u>
	<u>L1K</u> (Alpha)	E. Expected Liquid Content <u>40%</u>
	<u>L1000</u> (Beta-Gamma)	F. Expected Solid Content <u>100%</u>
	<u>LAChap</u> (Signature)	G. Dose Rate Through Drill String <u>4.5 mR</u>
RCT* (HPT)		H. Expected Sample Length <u>19"</u>

1) INFORMATION (Include statement of laboratory tests to be performed.)

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HNF-SD-WM-DP-238, REV. 0

(34) Laboratory Comments

2) Field Comments
 a) small amount of waste on bottom of sample 1/2"
 b) sample x-rayed - 100% solids

(16) Date/Time	(17) Sender Comments
<u>2-3-97</u>	
(21) Date/Time	(22) Receiver Comments
<u>2-3-97</u>	
(25) Date/Time	(26) Receiver Comments
<u>2-9-97</u>	
(29) Date/Time	(30) Receiver Comments
<u>2-9-97 11:30</u>	

(18) Seal Intact Upon Release?	(31) Seal Intact Upon Receipt?	(32) Seal Data Consistent with this Record?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Shipment No. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cask Seal No. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Tank T-110 (2) Sample Number 97-14 (3) Supervisor B. Frank Frost

(4) Riser 2 (5) Segment 6 (6) Core 181 (7) Cask Serial Number 10-6

(8) Shipment Description
 A. Work Package Number W.S-96-00252
 B. Cask Seal Number 10314
 C. Sampler Serial Number 96-218
 D. Date and Time Sampler Unseated 1-30-97/2012
 E. Expected Liquid Content 40%
 F. Expected Solid Content 60%
 G. Dose Rate Through Drill String 2 mR
 H. Expected Sample Length 19"

(9) FIELD
 (10) LABORATORY
 (11) RCT* (HPT) LA Hays (Signature)
 (12) RCT* (HPT) amby (Signature)

(13) Radiation Survey Date:
 Over Top Dose Rate LO.5
 Side Dose Rate LO.5
 Bottom Dose Rate LO.5
 Smearable Contamination LO.5
 (Alpha) LO.5
 (Beta-Gamma) LO.5
 (Gamma) LO.5

1) INFORMATION (Include statement of laboratory tests to be performed.)

HNF-SD-WM-DP-238, REV. 0

2) Field Comments
 (a) small amount of waste on bottom of sample
 (b) sample x-rayed - 100% full solids

(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
James Sickels	2-3-97	
Paula Bailey	2-3-97	
James Sickels	2-3-97	
Paula Bailey	2-3-97	
James Sickels	2-3-97	
Paula Bailey	2-3-97	

(18) Seal Intact Upon Release? Yes No
 (19) Seal Intact Upon Receipt? Yes No
 (20) Shipment No. Yes No
 (21) Seal Data Consistent with this Record? Yes No
 (22) Sample No. Yes No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number 200708-7F (2) Sample Number 97-15 (3) Supervisor R. Leach East
 Tank T-110 (5) Riser 2 (6) Segment 7 (7) Core 181 (8) Cask Serial Number SN-70

Radiation Survey Date: (9) FIELD

Over Top Dose Rate 10.5
 Side Dose Rate 10.5
 Bottom Dose Rate 10.5
 Smearable Contamination 20
 (Alpha) L/K
 (Beta-Gamma) L/K
 (Signature) CA Hayz

ACT* (HPT) CA Hayz RCT* (HPT) [Signature]

(33) LABORATORY

(10) Shipment Description

A. Work Package Number WS-96-00252
 B. Cask Seal Number 1170
 C. Sampler Serial Number 96-207
 D. Date and Time Sampler Unseated 1-30-97/ 2012
 E. Expected Liquid Content 40%
 F. Expected Solid Content 60%
 G. Dose Rate Through Drill String 4.5 mR
 H. Expected Sample Length 19"

1) INFORMATION (include statement of laboratory tests to be performed.)

2) Field Comments
 (a) sampler clean
 (b) sample x-rayed - 100% solids

HNF-SD-WM-DP-238, REV. 0

(34) Laboratory Comments		(16) Date/Time	(17) Sender Comments
(15) Sender Name (Sign and PRINT)	<u>James Sicket</u>	<u>2-3-97</u>	
(20) Received By (Sign and PRINT)	<u>Paula Bailey</u>	<u>2-3-97</u>	(22) Receiver Comments
(24) Received By (Sign and PRINT)	<u>Paula Bailey</u>	<u>2-3-97</u>	(26) Receiver Comments
(28) Received By (Sign and PRINT)	<u>Paula Bailey</u>	<u>2-3-97</u>	(30) Receiver Comments

(32) Seal Data Consistent with this Record?
 Shipment No. Yes No
 Cask Seal No. Yes No

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

1) Shipment Number SNW-08-TF (2) Sample Number 97-16 (3) Supervisor R. Frank East
 4) Tank T-110 (5) Riser 2 (6) Segment 8 (7) Core 181 (8) Cask Serial Number C-2013

addition Survey Date: (9) FIELD (33) LABORATORY

Over Top Dose Rate <0.5 mr/h <0.5 mr/h
 Side Dose Rate <0.5 mr/h <0.5 mr/h
 Bottom Dose Rate <0.5 mr/h <0.5 mr/h
 Measurable Contamination <20 dpm 100 cpm <20 dpm (Alpha)
<1K dpm 100 cpm <20 dpm (Beta-Gamma)
 RCT* (HPT) LA Hays (Signature) RCT* (HPT) [Signature] (Signature)

(10) Shipment Description
 A. Work Package Number M.S-96-00252
 B. Cask Seal Number 1172
 C. Sampler Serial Number 96-207
 D. Date and Time Sampler Unseated 1-31-97/1743
 E. Expected Liquid Content 100%
 F. Expected Solid Content 0%
 G. Dose Rate Through Drill String <.5 mR
 H. Expected Sample Length 19"

1) INFORMATION (include statement of laboratory tests to be performed.)
 2) Field Comments
a) small drops of water on bottom of sample
b) sample X-rayed - 100% recovery - solids

(14) Destination	(15) Sender Name (Sign and PRINT)	(16) Date/Time	(17) Sender Comments
322's Lab	James Skeels	2-3-97	
Relinquished By (Sign and PRINT)	Paula Bailey	2-3-97	
Relinquished By (Sign and PRINT)	James Skeels	2-3-97	
Relinquished By (Sign and PRINT)	Paula Bailey	2-3-97	
Relinquished By (Sign and PRINT)	James Skeels	2-3-97	
Relinquished By (Sign and PRINT)	Paula Bailey	2-3-97	

(18) Seal Intact Upon Release? Yes No (31) Seal Intact Upon Receipt? Yes No
 (19) Seal Data Consistent with this Record? Yes No
 Shipment No. Yes No
 Sample No. Yes No

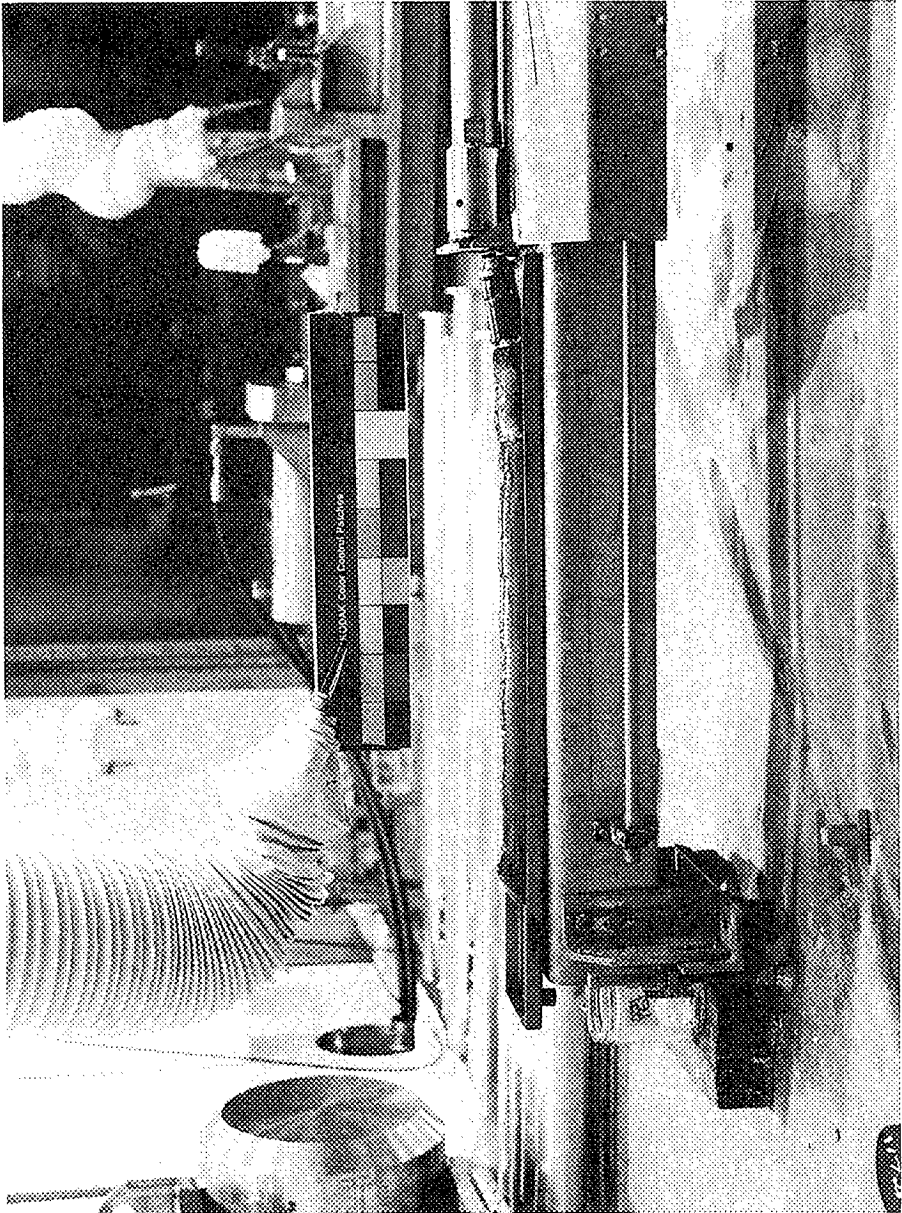
PHOTOGRAPHS

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2/18/97

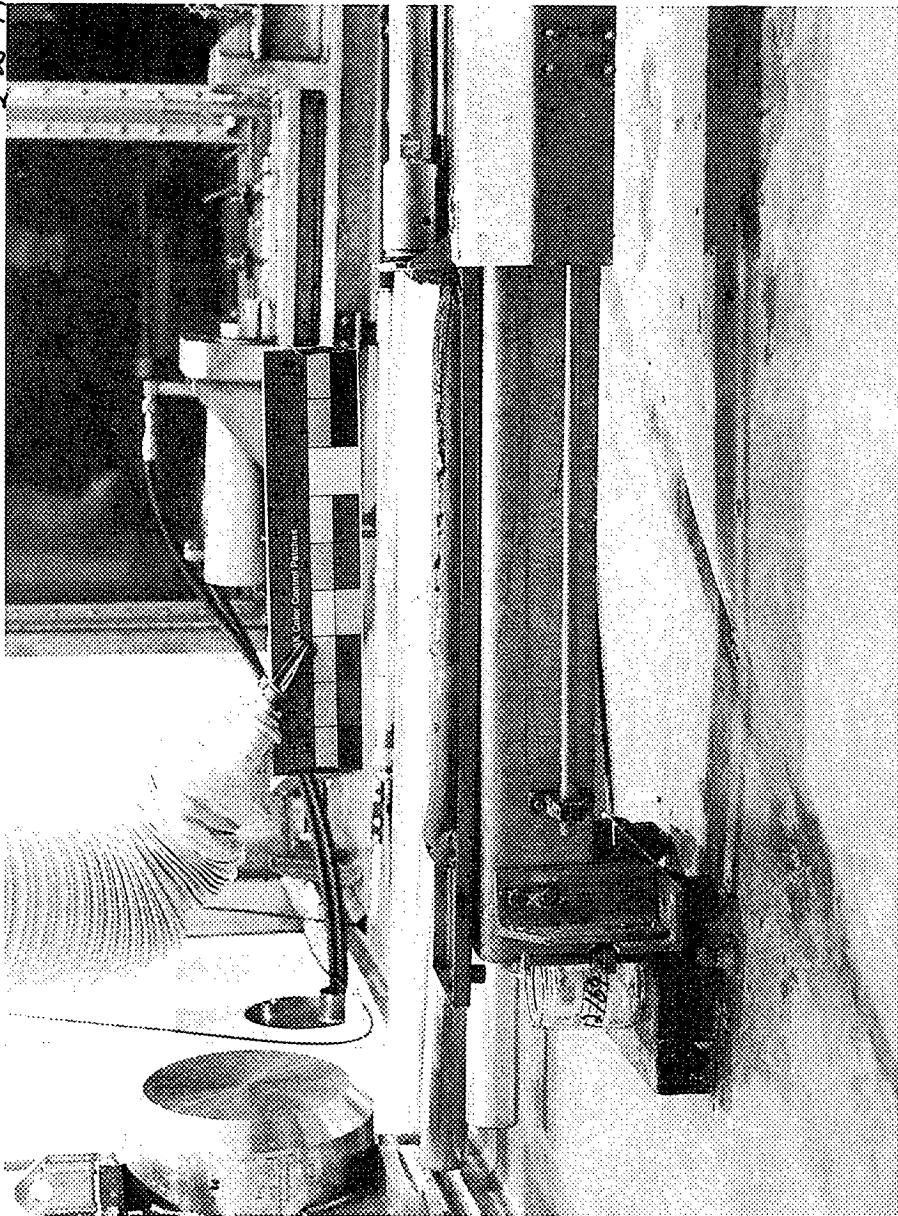
Seg 1

T-110 C180



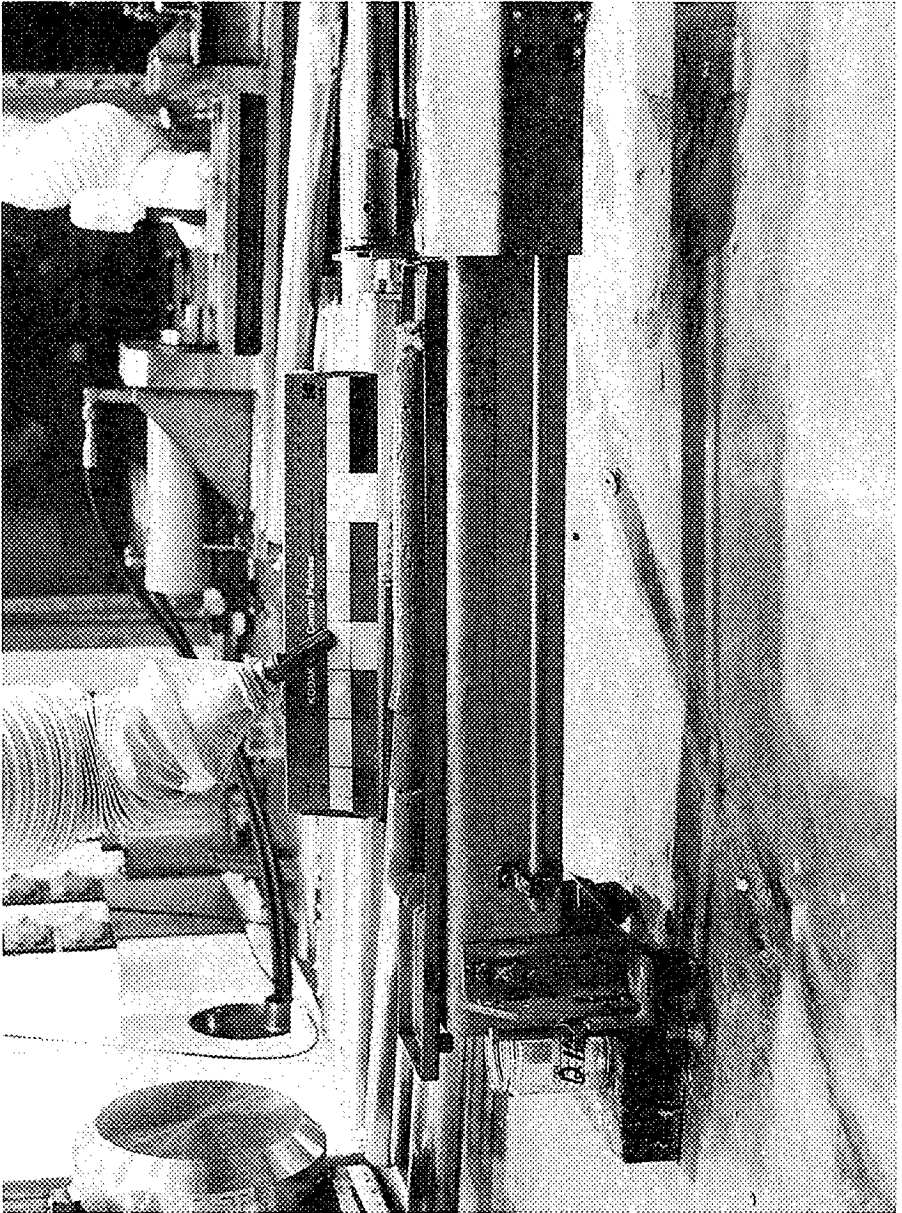
T-110 Core 180 Segment 2

2-28-97



T-110 Core 180 Segment 3

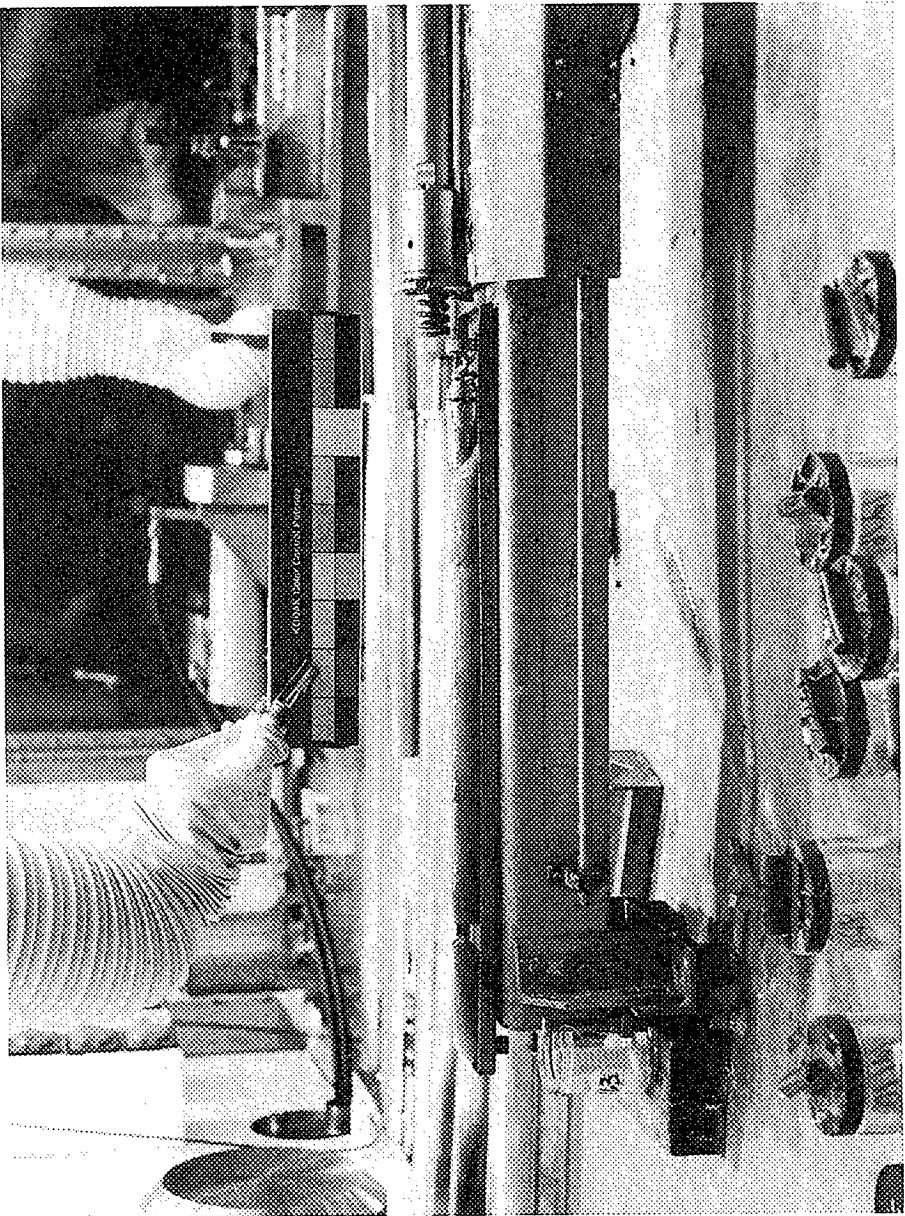
2-18-97



T-110 C180

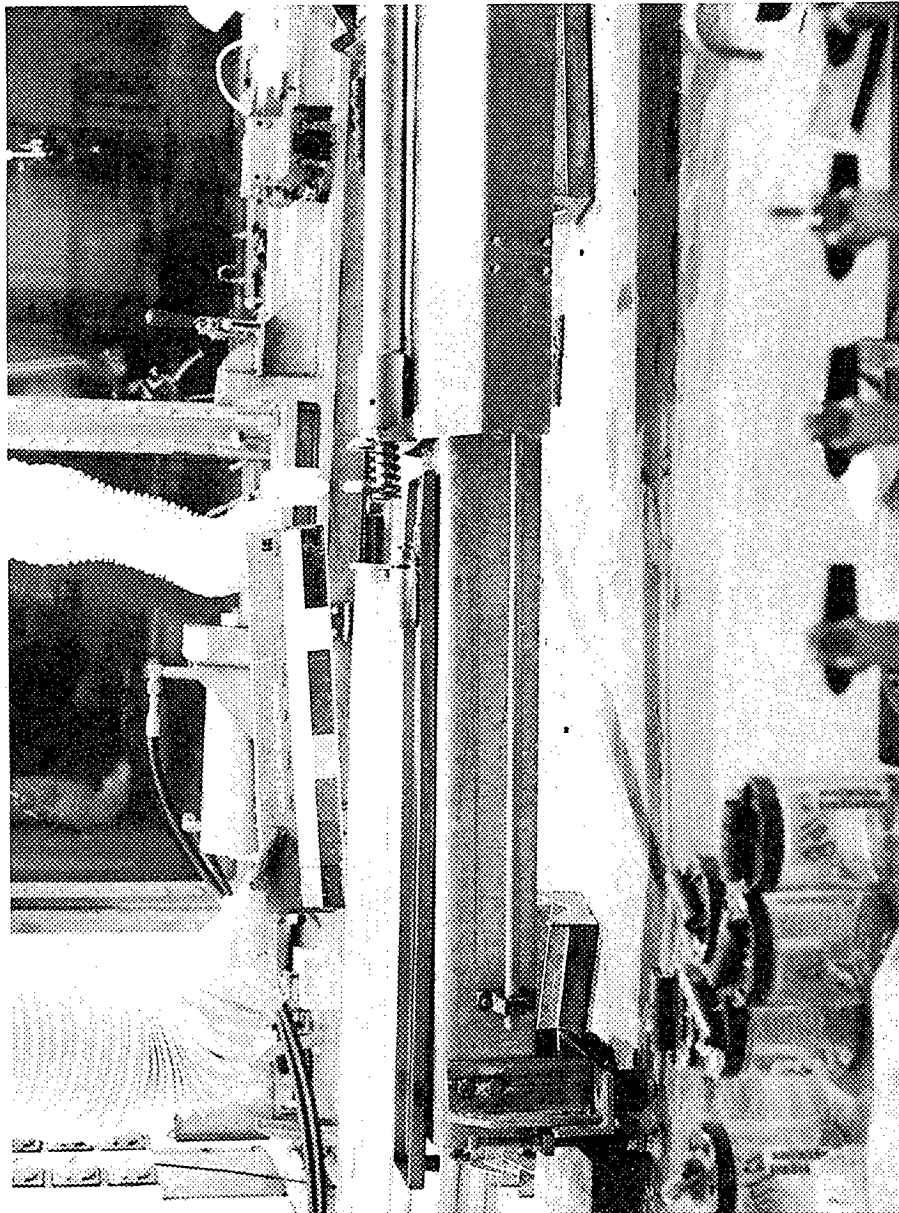
Seg 4

2/18/97



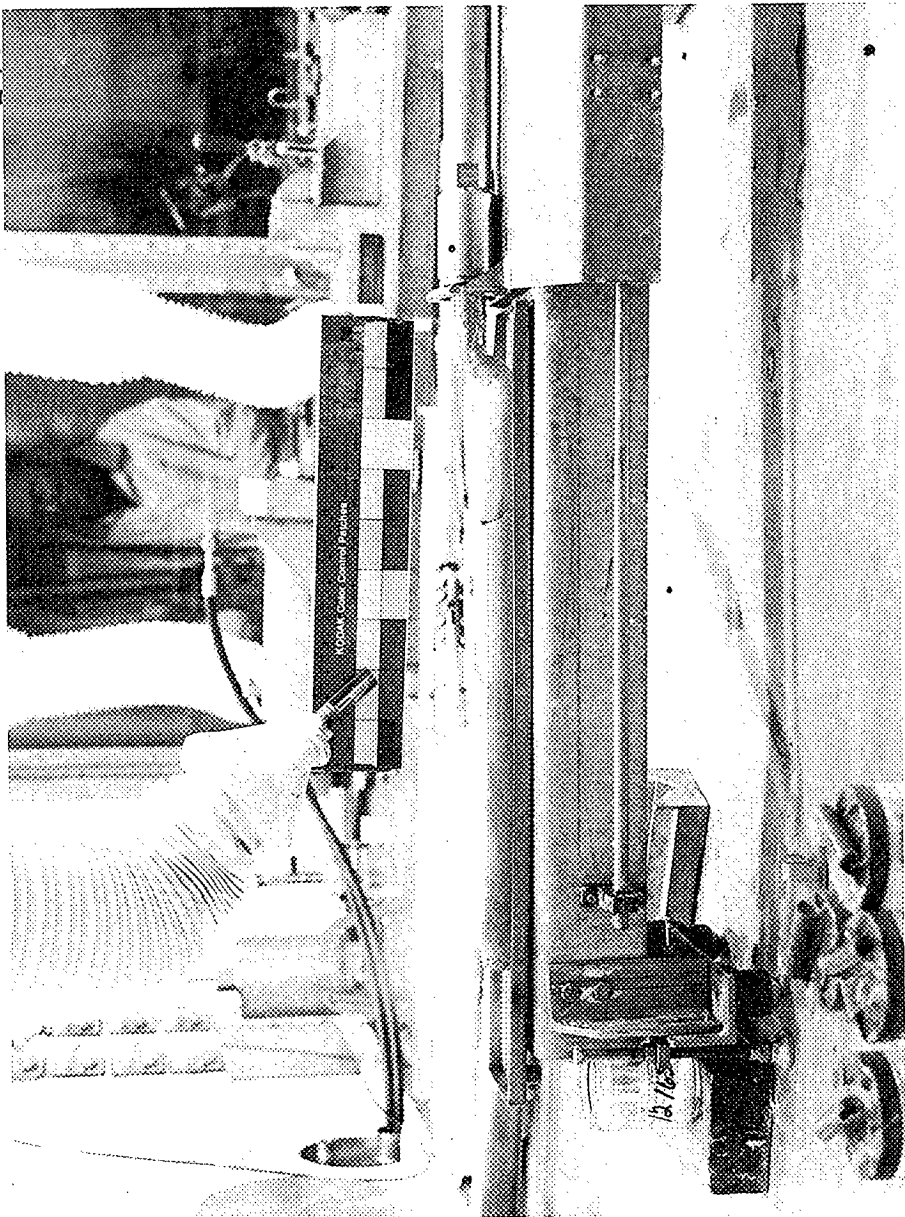
2/18/97

T-110 C180 Seg 5



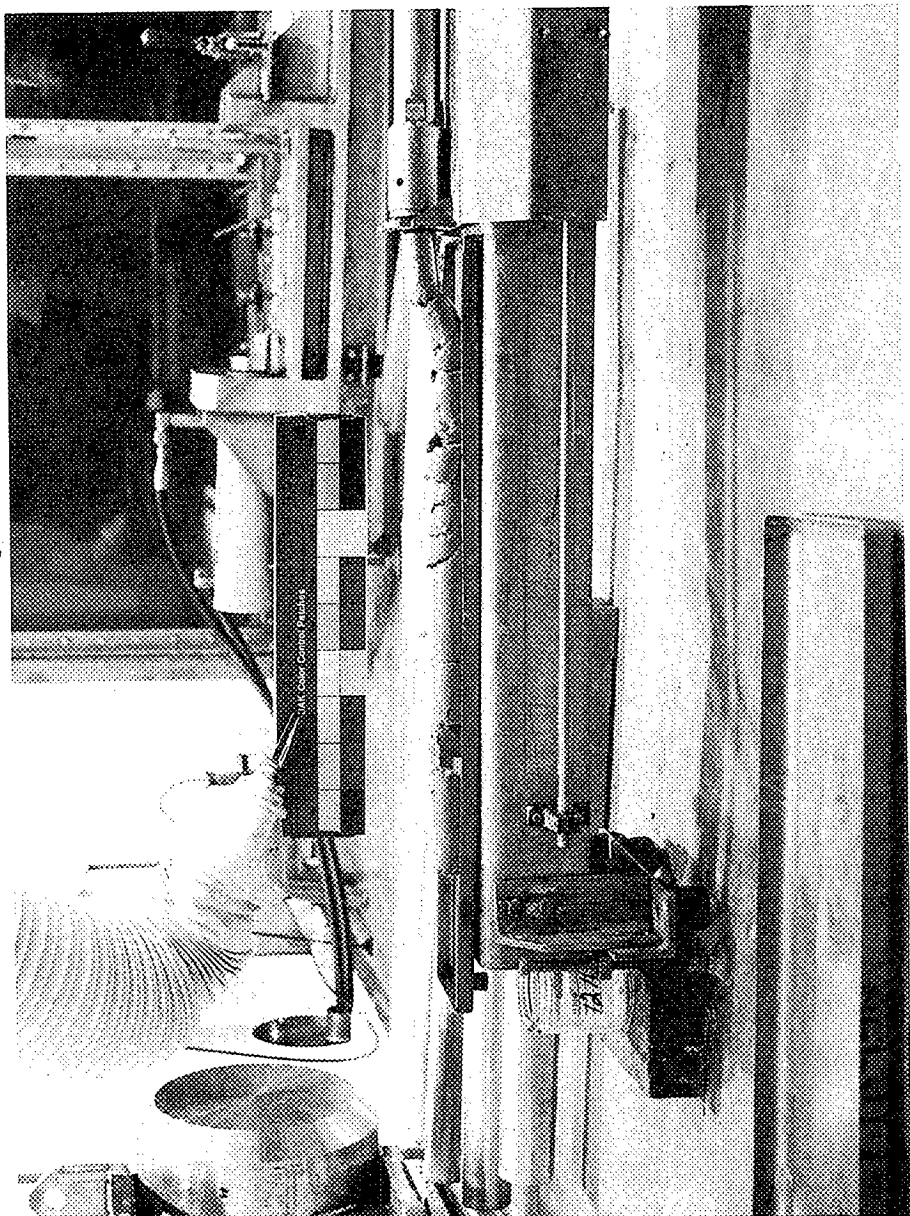
2-18-97

T-110 core 180 Segment 6



T-110 C180 Sec 7

2/26/97

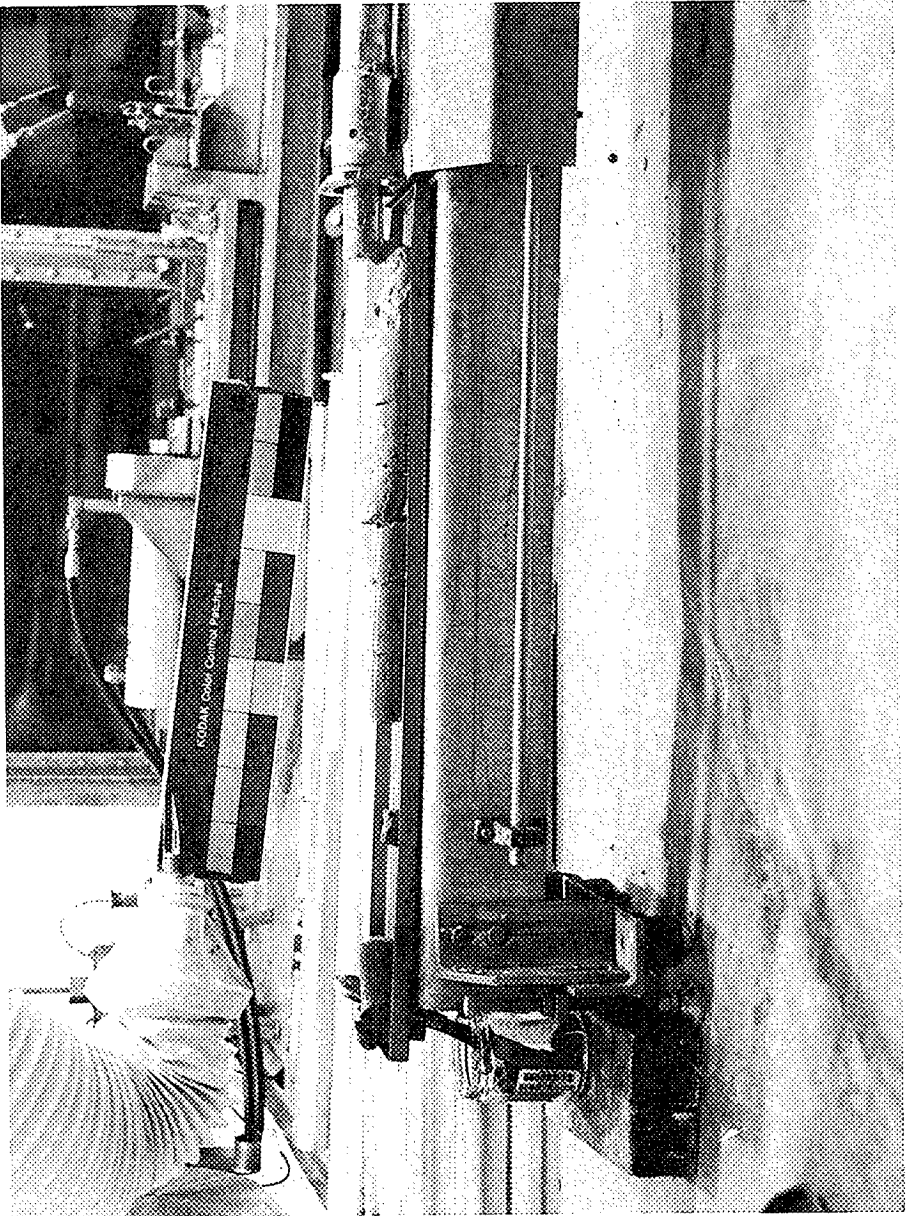


2/27/97

Seg 8

C180

T-110

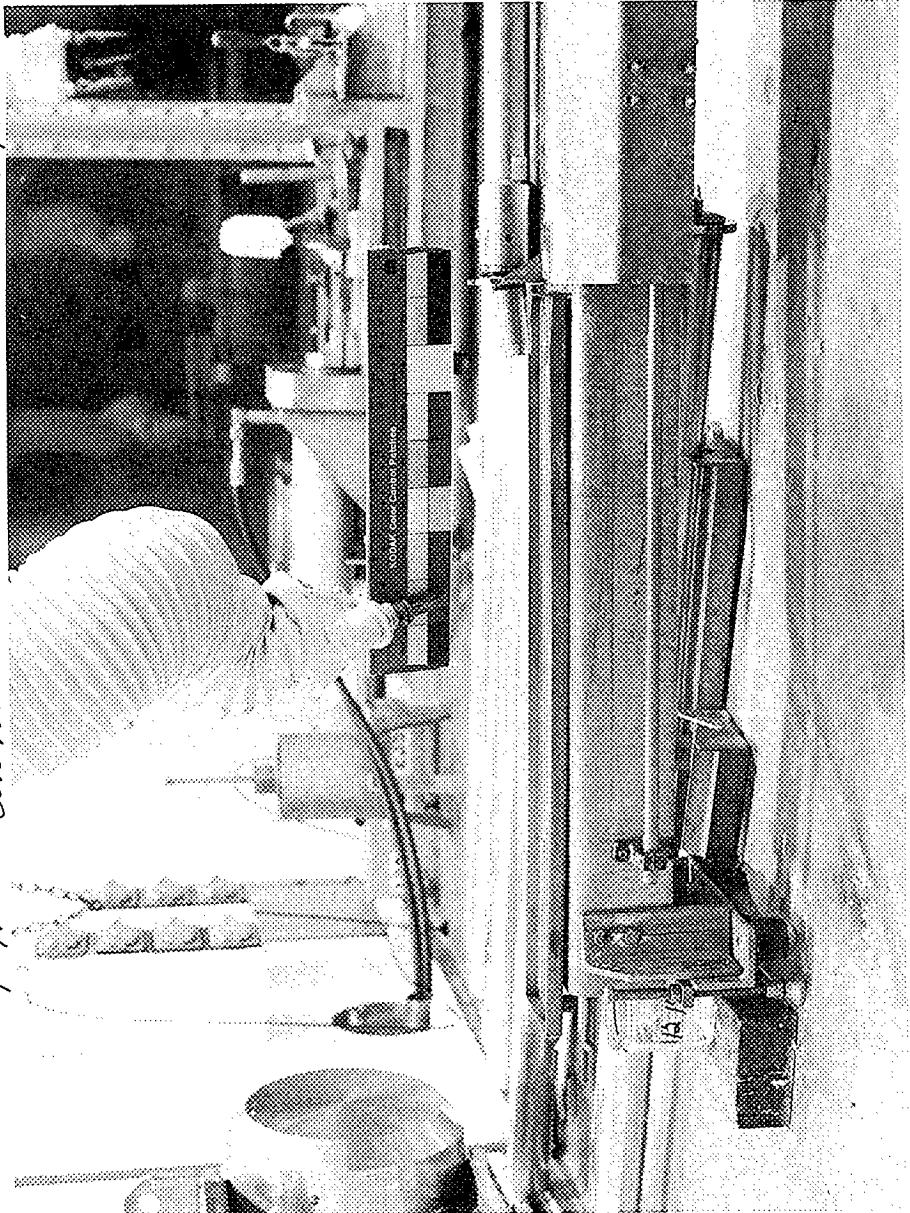


26/97

F.B.

Core 181

T-110

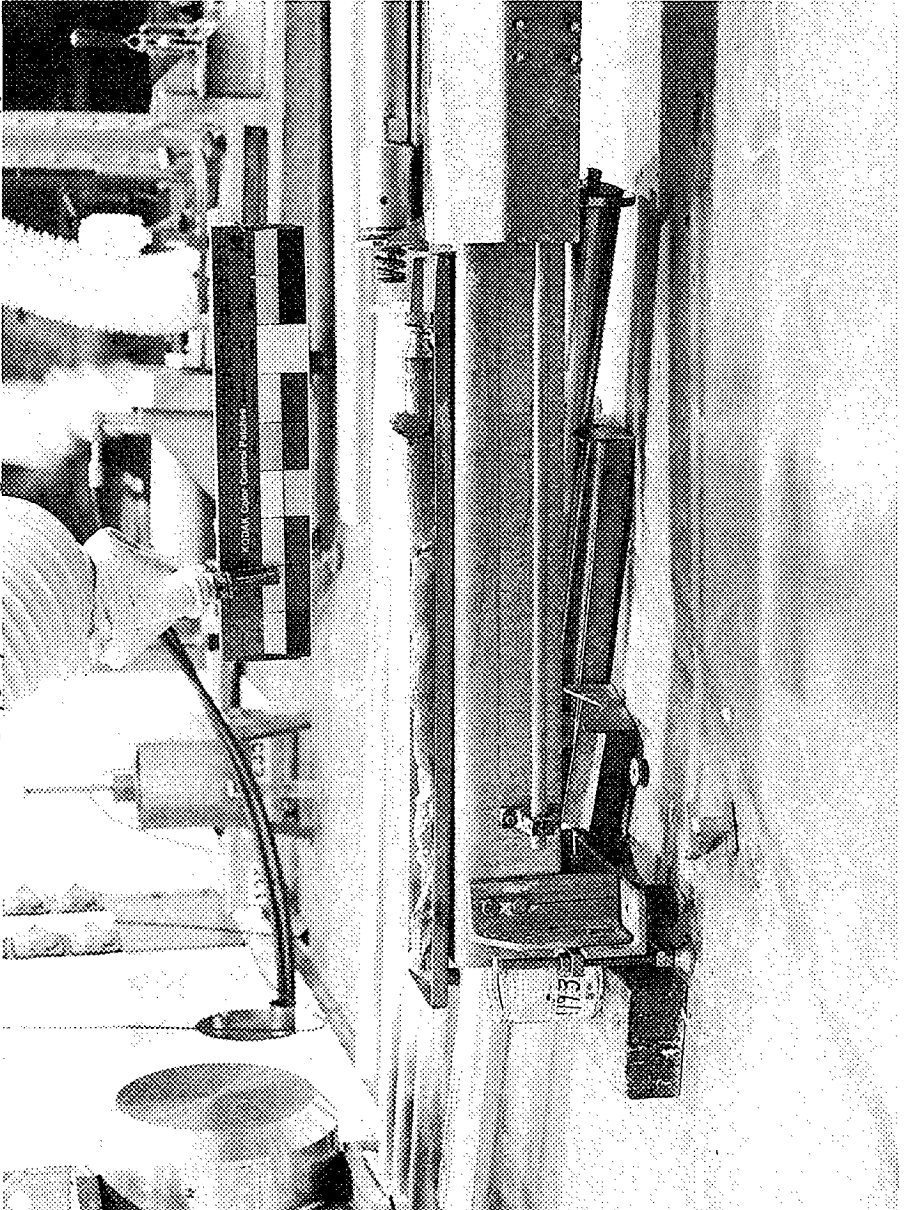


2/7/82

Log. 1

Case #1

T-110

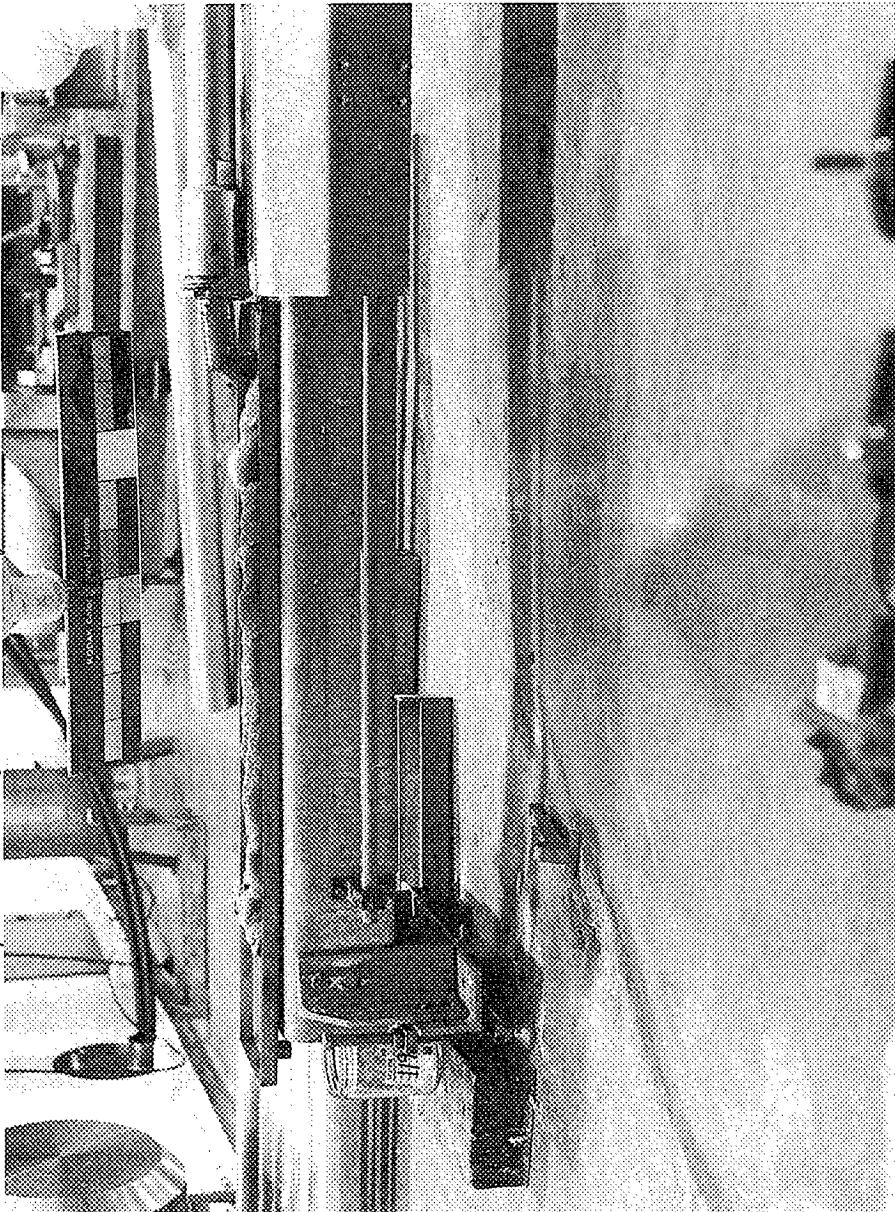


8/6/97

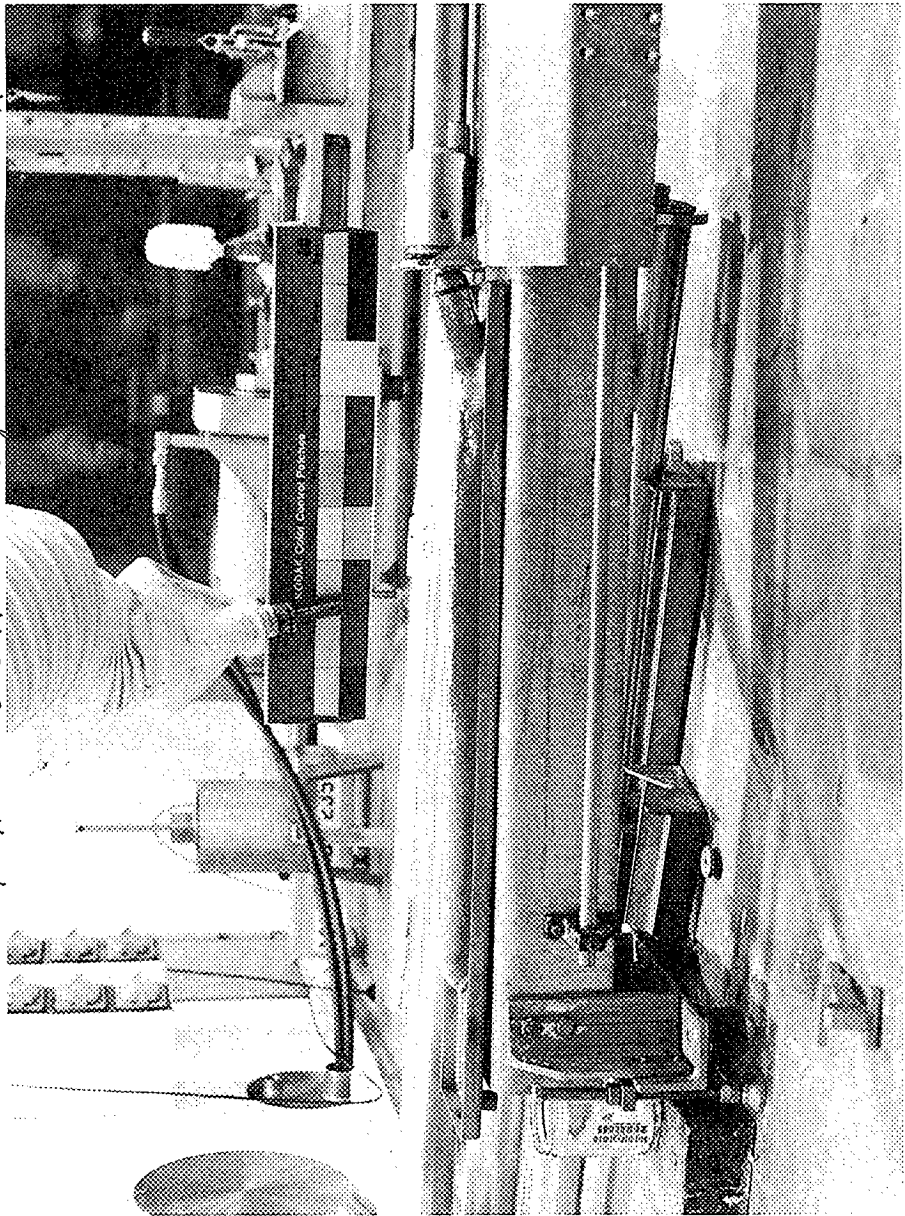
Log. 2

Core 181

T-110

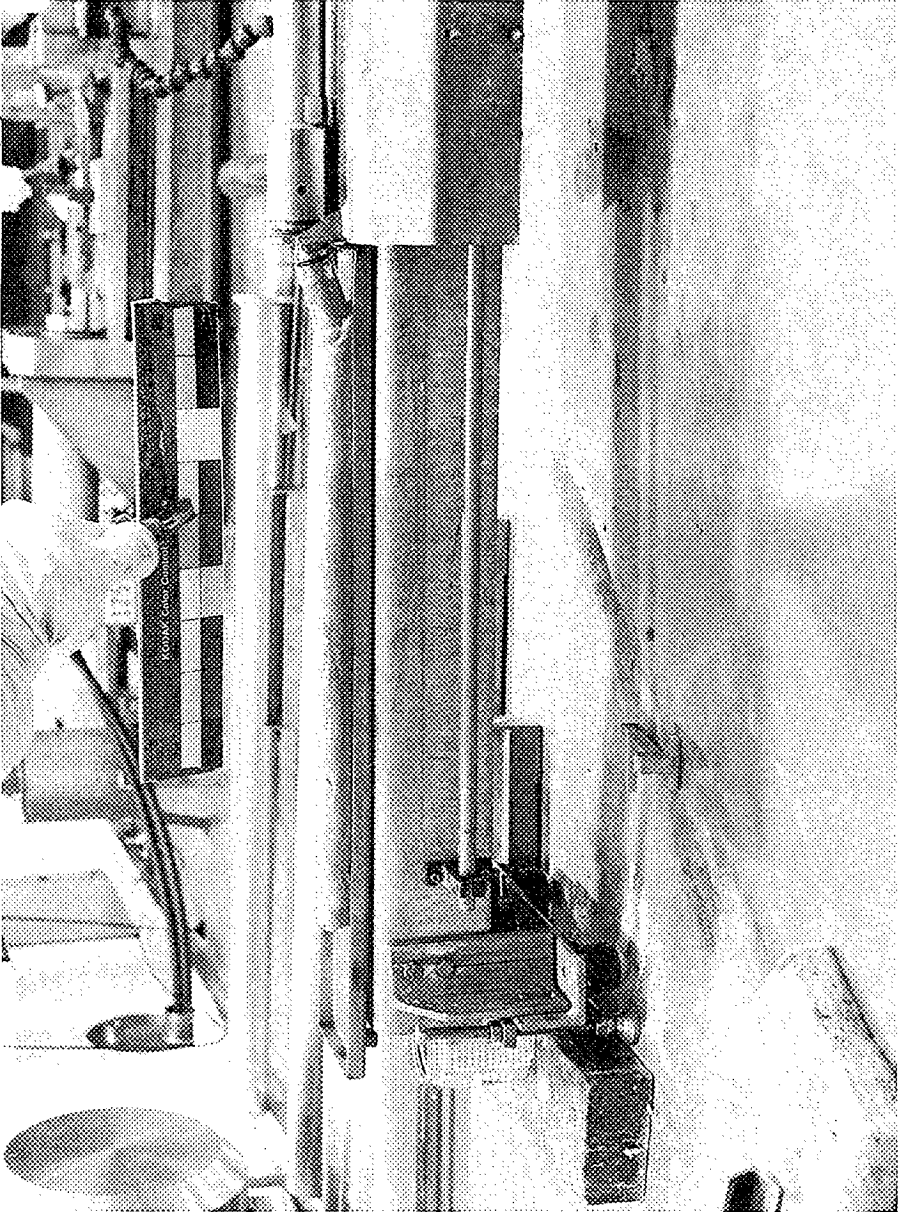


T-110 CME 191 Aug. 3 9/7/97



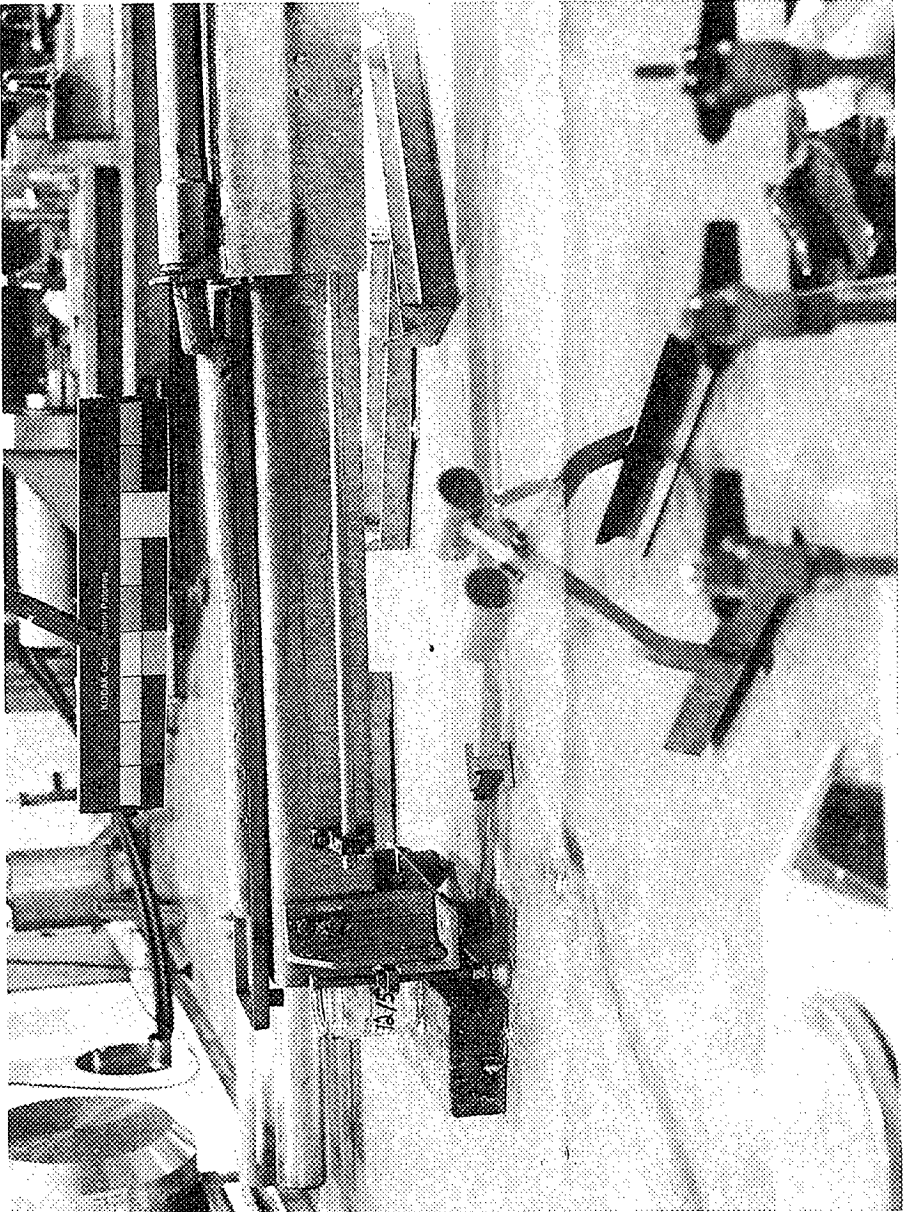
T-110 Core 181 Aug. 4

2/6/97



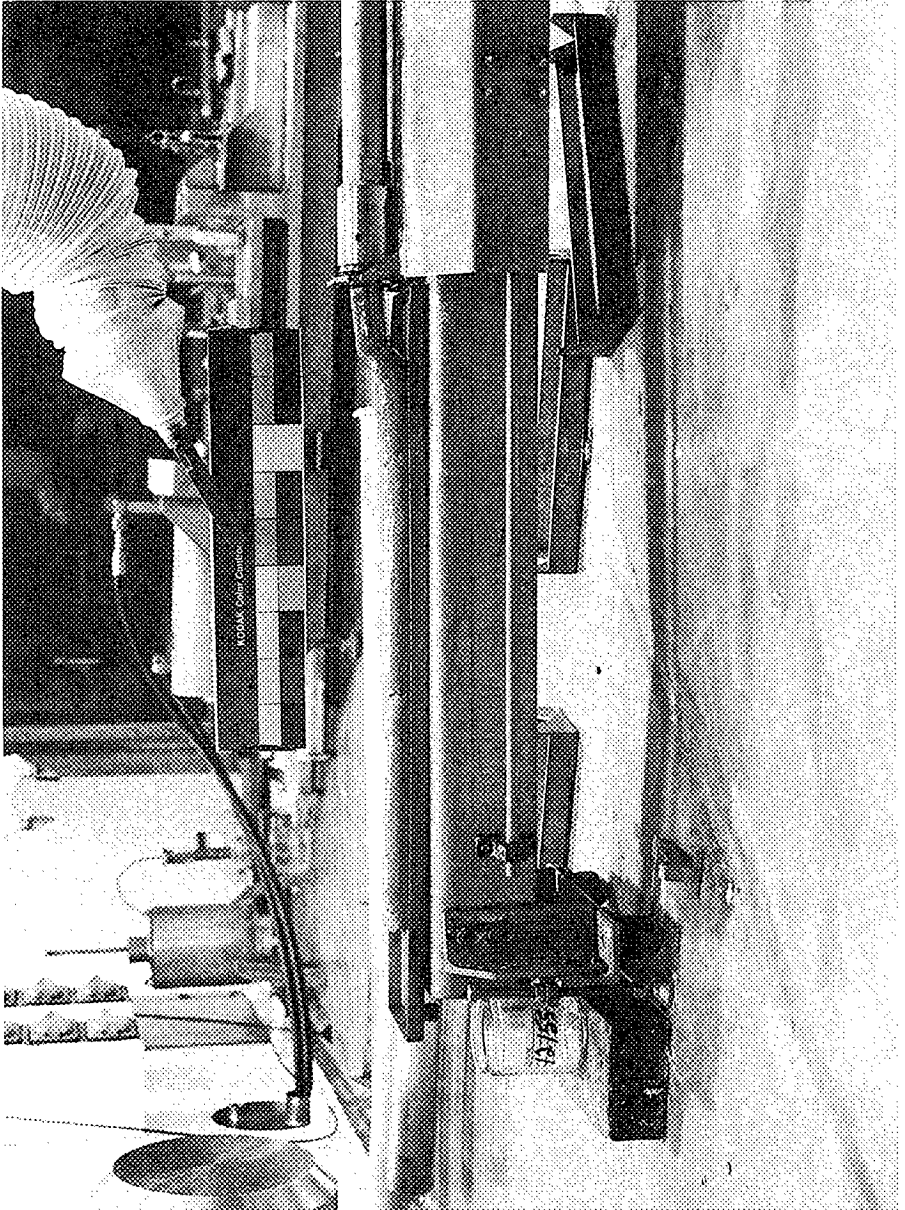
2/5/97

T-110 C181 Seg 5



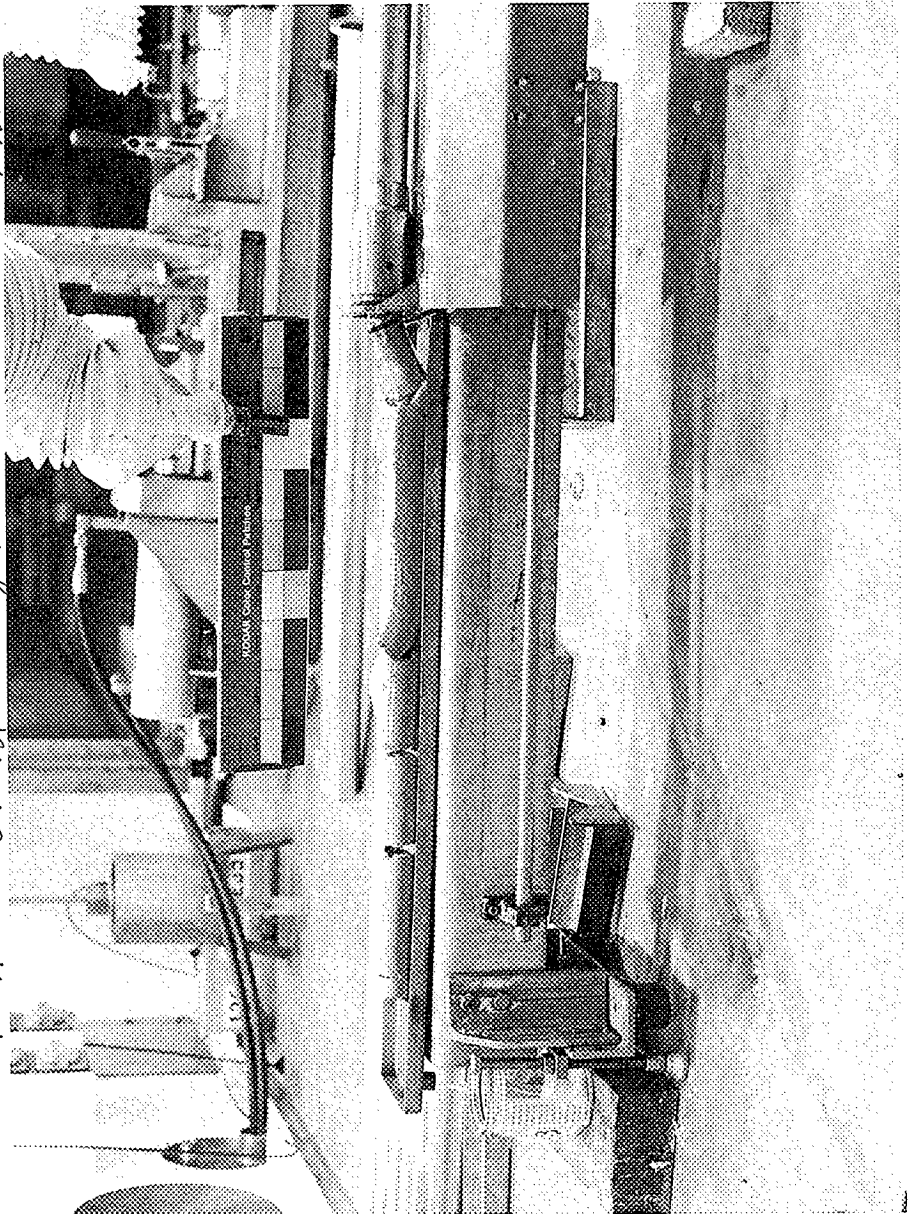
2/13/97

T-110 C181 Seg 6



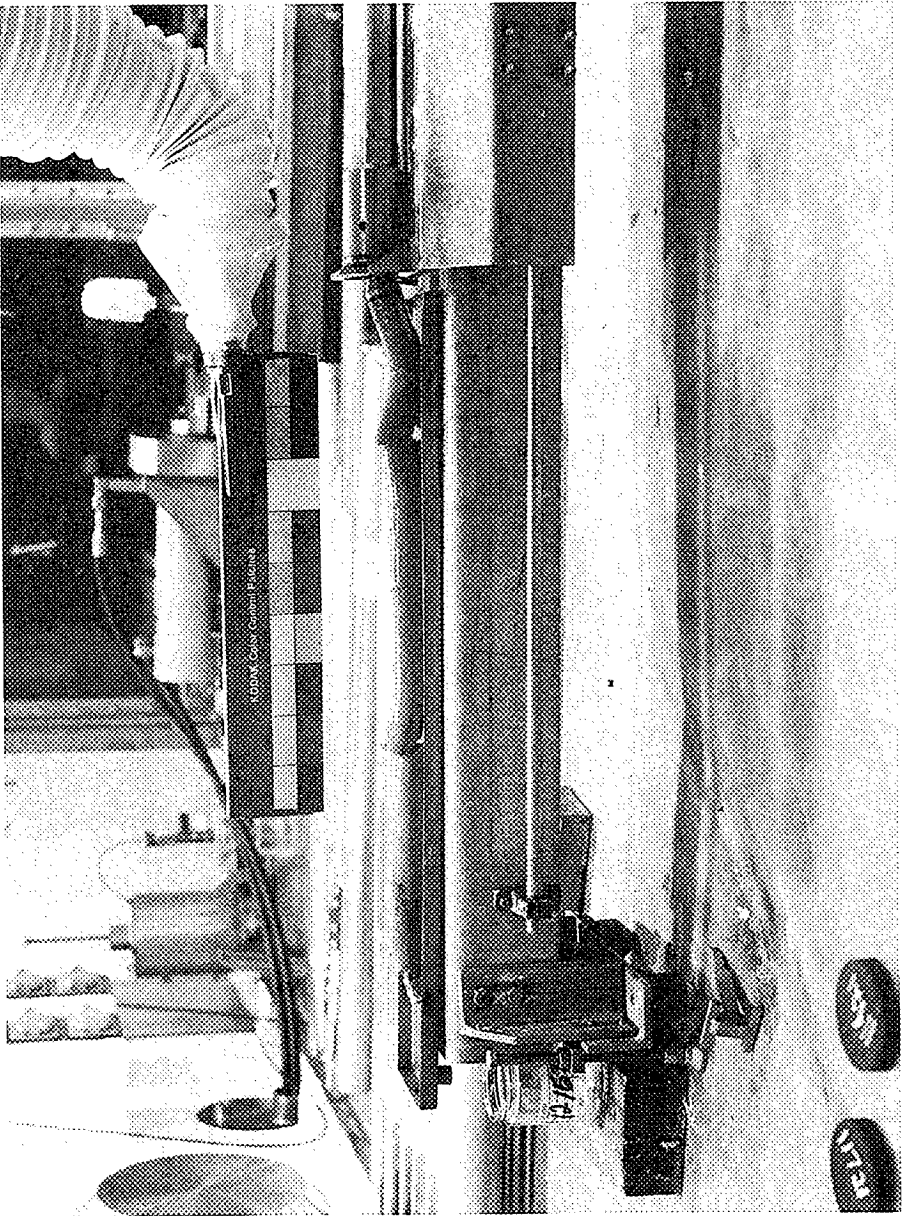
T-110 CNE 181 Aug. 7

9/11/67



T-110 Core 181 Segment 8

2-18-97



HNF-SD-WM-DP-238, REV. 0

BULK DENSITY WORKSHEETS

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Bulk Density Worksheet

Requestor: F. Steer

Date: 2-26-97

Tank: T-110

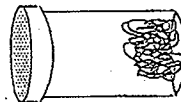
Core: 180

Seg: 1 lower half

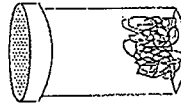
Auger: _____

Sample ID: 597 Fax 206

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____
Jar#: 12159
Jar/Vial Size: 250 mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

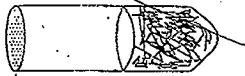


Start Time: _____
End Time: _____
Homogenization Time (Min.): _____
Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

89



Cone#: _____
Final Vol: 10.0 mL
Initial Weight: 7.43 g
Final Weight: 20.56 g
Net Weight: 12.93 g
Sample ID: _____



Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g
Sample ID: _____

Appearance/Narrative: _____

Appearance/Narrative: _____

12.93 / 10.0 = 1.29

5/30/97

77

Bulk Density Worksheet

Date: _____

Requestor: U L ALU ZUM

Tank: T-110
Core: 1K0
Seg: 2 LH
Auger: ←
Sample ID: 597600249

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____



Jar# _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone# _____
Final Vol: 9.5 mL
Initial Weight: 7.47 g
Final Weight: 19.35 g
Net Weight: 11.88 g

Sample ID: _____
Appearance/Narrative: _____

11.88 = 1.25
9.5

U6/9/15 208

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____



Jar# _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone# _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Sample ID: _____
Appearance/Narrative: _____

Bulk Density Worksheet

Date: 2-27-97

HNF-SD-WM-DP-238, REV. 0

Requestor: _____

Tank: F-110

Core: 186

Seg: 3 LH

Auger: _____

Sample ID: 597700208

Start Time: _____

End Time: _____

Homogenization Time (Min.): _____

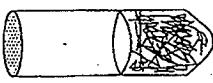
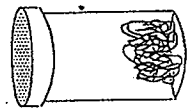
Jar#: 12161

Jar/Vial Size: 250 mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g



Cone#: _____

Final Vol: 9.0 mL

Initial Weight: 7.67 g

Final Weight: 19.53 g

Net Weight: 11.86 g

Sample ID: _____

Appearance/Narrative: _____

11.86 g = 1.32

Tank: _____

Core: _____

Seg: _____

Auger: _____

Sample ID: _____

Start Time: _____

End Time: _____

Homogenization Time (Min.): _____

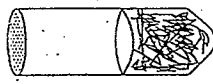
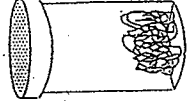
Jar#: _____

Jar/Vial Size: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g



Cone#: _____

Final Vol: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: _____

ts/ose

AK

Bulk Density Worksheet

Requestor: F. Steen

Date: 2-27-97

HNF-SD-WM-DP-238, REV. 0

Tank: _____
 Core: _____
 Seg: _____
 Auger: _____
 Sample ID: _____

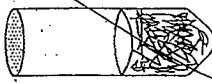
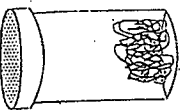
6/02/98

Start Time: _____
 End Time: _____
 Homogenization Time (Min.): _____
 Jar #: 12163
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

Jar #: _____
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

Cone #: _____
 Final Vol: 10.0 mL
 Initial Weight: 7.48 g
 Final Weight: 20.59 g
 Net Weight: 13.11 g
 Sample ID: _____

Cone #: _____
 Final Vol: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g
 Sample ID: _____



Appearance/Narrative: _____

Appearance/Narrative: 13.11

Bulk Density Worksheet

Requestor: F. Steer

Date: 2-26-97


Tank: E-110
Core: 180
Seg: 6 LH
Auger: _____
Sample ID: 597A00212

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

ts/02/6 97

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

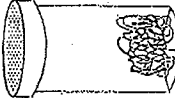
Jar#: 12/65 Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g




LC
EC
226-97

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____


Jar#: _____ Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g



Cone#: _____
Final Vol: 9.25 mL
Initial Weight: 7.46 g
Final Weight: 19.49 g
Net Weight: 12.03 g
Sample ID: _____



Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g
Sample ID: _____



Appearance/Narrative: 12.03/9.25 = 1.30

Appearance/Narrative: _____

Bulk Density Worksheet

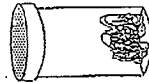
Date: 3-6-97

Requestor: 3L 2420H

Tank: 1440
Core: 180
Seg: 7 LH
Auger: _____
Sample ID: 597T 000 256

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 12167
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g



Cone#: 67
Final Vol: 11.25 mL
Initial Weight: 7.97 g
Final Weight: 24.30 g
Net Weight: 13.83 g

Sample ID: 597T 000 256

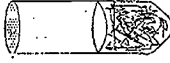
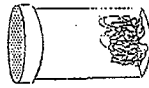
Appearance/Narrative: _____

BK Density = 12.3 / 11.25 = 1.23 g/ml

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: 3.65 g



Cone#: DN
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: _____

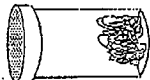
Bulk Density Worksheet

Date: 3-6-97

Requestor: IL 04268

Tank: T-110
Core: 180
Seg: 84H
Auger:
Sample ID: 5977000253

Tank:
Core:
Seg:
Auger:
Sample ID:

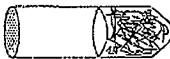


Jar#
Jar/Vial Size: mL
Initial Weight: g
Final Weight: g
Net Weight: g

5977

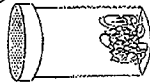
Jar#
Jar/Vial Size: mL
Initial Weight: g
Final Weight: g
Net Weight: g

95



Conc# 71
Final Vol: 10.25 mL
Initial Weight: 2.48 g
Final Weight: 20.09 g
Net Weight: 17.61 g
Sample ID:

Appearance/Narrative: 616.8600 = 12.61 / 10.25 = 1.223 g/mL



Jar#
Jar/Vial Size: mL
Initial Weight: g
Final Weight: g
Net Weight: g

5977

Jar#
Jar/Vial Size: mL
Initial Weight: g
Final Weight: g
Net Weight: g



Conc#
Final Vol: mL
Initial Weight: g
Final Weight: g
Net Weight: g
Sample ID:

Appearance/Narrative:

Bulk Density Worksheet

HNF-SD-WM-DP-238, REV. 0.

Requestor: J. NUZUM

Date: 2/10/97

Tank: F110
Core: 181
Seg: 14H
Auger: _____

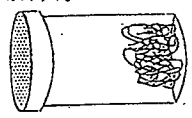
Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

Sample ID: S977000124

U
W
2-2

16/16/16
01/01/01

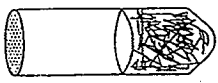
Start Time: _____
End Time: _____
Homogenization Time (Min.): _____



Jar#: 11931
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g



Cone#: 11931
Final Vol: 12.0 mL
Initial Weight: 7.46 g
Final Weight: 21.58 g
Net Weight: 13.92 g

Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Sample ID: _____

Sample ID: _____

Appearance/Narrative: _____

Appearance/Narrative: _____

Bulk Dens = 1397 / 12.0 = 1.16 gm/ml

HNF-SD-WM-DP-238, REV. 0

Bulk Density Worksheet

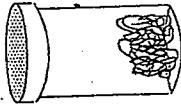
Requestor: J. Nuzum

Date: 2-11-97

Tank: 7110
Core: 187
Seg: 244
Auger: _____
Sample ID: S97D00128

V.D. 10-512

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____



Jar#: 1929 Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone#: 11929
Final Vol: 2.8 mL
Initial Weight: 7.47 g
Final Weight: 2.86 g
Net Weight: _____ g

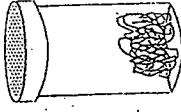
Sample ID: _____

Appearance/Narrative: _____

BK Den 15/10 = 1.8 g/mL

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

Start Time: _____
End Time: _____
Homogenization Time (Min.): _____



Jar#: 1929 Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: _____

Bulk Density Worksheet

Date: 2-13-97

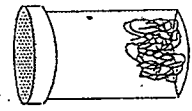
HNF-SD-WM-DP-238, REV. 0

Requestor: J. Muzum

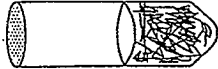
Tank: _____
 Core: _____
 Seg: _____
 Auger: _____
 Sample ID: _____

Tank: 1-110
 Core: 18
 Seg: 3 LH
 Auger: _____
 Sample ID: 5971000130

Start Time: _____
 End Time: _____
 Homogenization Time (Min.): _____



Jar#: 12149
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: 51319 g
 Net Weight: _____ g

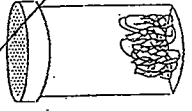


Cone#: _____
 Final Vol: 11.5 mL
 Initial Weight: 7.46 g
 Final Weight: 21.32 g
 Net Weight: 13.86 g

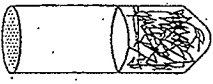
Sample ID: _____

Appearance/Narrative: 13.86 / 11.5 = 1.21

Start Time: _____
 End Time: _____
 Homogenization Time (Min.): _____



Jar#: _____
 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g



Cone#: _____
 Final Vol: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: _____

HNF-SD-WM-DP-238, REV. 0

Bulk Density Worksheet

Date: 2/13/97

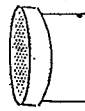
Requestor: J. Muzum

Tank: E-110

Core: 181
4 44 LH

Auger: _____

Sample ID: 5977000132



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

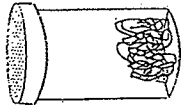
Jar#: 11934

Jar/Vial Size: _____ mL

Initial Weight: _____ g

Final Weight: 92.5 g

Net Weight: 13.17 g



Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

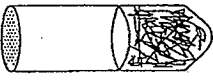
Jar#: _____

Jar/Vial Size: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g



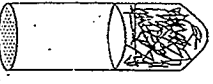
Cone#: 1193

Final Vol: 122 mL

Initial Weight: 7.45 g

Final Weight: 22.17 g

Net Weight: 14.69 g



Cone#: _____

Final Vol: _____ mL

Initial Weight: _____ g

Final Weight: _____ g

Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: 1.20
Bulk Dens = 92.5 / 77 = 1.20 gm/ml

08c
2/13/97

Appearance/Narrative: _____

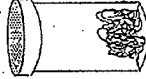
Bulk Density Worksheet

Date: 3-7-97

Requestor: J. L. Akers

Tank: 1-110
Core: 161
Seg: 5BH
Auger: _____
Sample ID: 5977erro/bs

Start Time: _____
End Time: _____
Homogenization Time (Min): _____



Jar#: 12153
Jar/Vial Size: _____ mL
Initial Weight: 0.82 g
Final Weight: 3.897 g
Net Weight: _____ g



Conc#: 19153
Final Vol: 11.25 mL
Initial Weight: 7.52 g
Final Weight: 21.93 g
Net Weight: 14.41 g

Sample ID: _____

Appearance/Narrative: _____

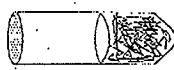
812 pcc 01 = 14.41 / 11.25 = 1.239 / mL

Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

Start Time: _____
End Time: _____
Homogenization Time (Min): _____



Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g



Conc#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: _____

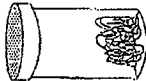
Bulk Density Worksheet

Requestor: J. L. ALAZUELA

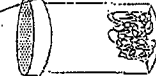
Date: 3-7-97

Tank: T-110
Core: 181
Seg: 6.1H
Auger:
Sample ID: 5771-172

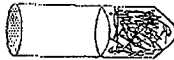
Tank:
Core:
Seg:
Auger:
Sample ID:



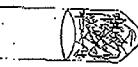
Jar #: 12155
Jar/Vial Size: mL
Initial Weight: g
Final Weight: 182 g
Net Weight: 3787



Jar #: 915
Jar/Vial Size: mL
Initial Weight: g
Final Weight: 79 g
Net Weight: g



Conc#: 12155
Final Vol: 10.80 mL
Initial Weight: 7.43 g
Final Weight: 21.4 g
Net Weight: 13.97 g
Sample ID:



Conc#:
Final Vol: mL
Initial Weight: g
Final Weight: g
Net Weight: g
Sample ID:

Appearance/Narrative: SLKDEUC = 13.97 / 10.80 = 1.299/mL

Appearance/Narrative:

Bulk Density Worksheet

Date: 2-13-97

Requestor: 3.L. Alk. 249A

Tank: E110
Core: 181
Seg: 1LH
Auger: 1
Sample ID: 5977000156

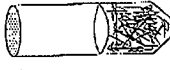
Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: 12152
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: 20.58 g
Net Weight: 2.18 g

Cone#: 52
Final Vol: 10.5 mL
Initial Weight: 7.67 g
Final Weight: 20.58 g
Net Weight: 12.91 g

Sample ID: _____

Appearance/Narrative: 12.3/16.5 = 1.23



Tank: _____
Core: _____
Seg: _____
Auger: _____
Sample ID: _____

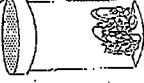
Start Time: _____
End Time: _____
Homogenization Time (Min.): _____

Jar#: _____
Jar/Vial Size: _____ mL
Initial Weight: _____ g
Final Weight: 7.12 g
Net Weight: 2.18 g

Cone#: _____
Final Vol: _____ mL
Initial Weight: _____ g
Final Weight: _____ g
Net Weight: _____ g

Sample ID: _____

Appearance/Narrative: _____



LC
16-51-8

HNF-SD-WM-DP-238, REV. 0

Bulk Density Worksheet

Requestor: Nuzum

Date: 2-27-97

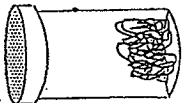
Tank: T-110
 Core: 181
 Seg: 81A
 Auger: _____
 Sample ID: S97T000190

Tank: _____
 Core: _____
 Seg: _____
 Auger: _____
 Sample ID: _____

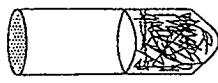
PLA # 6161/10

Start Time: _____
 End Time: _____
 Homogenization Time (Min.): _____

Jar#: 12154 Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g



→



Cone#: _____
 Final Vol: 9.5 mL
 Initial Weight: 7.50 g
 Final Weight: 19.66 g
 Net Weight: 12.16 g
 Sample ID: S97T000190

Appearance/Narrative: 12.16/9.5 = 1.28

Start Time: _____
 End Time: _____
 Homogenization Time (Min.): _____

Jar#: _____ Jar/Vial Size: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g

Cone#: _____
 Final Vol: _____ mL
 Initial Weight: _____ g
 Final Weight: _____ g
 Net Weight: _____ g
 Sample ID: _____

Appearance/Narrative: _____

HNF-SD-WM-DP-238, REV. 0

DATA VERIFICATION AND DELIVERABLE SUMMARY REPORT
(ATTACHMENT 2)

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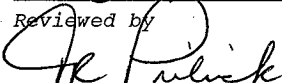
SDG 97000111
Contact J. L. Nuzum

Client TWRS
Tank T-110

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S	
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Sample Summaries	3
Prep Batch Summary	5
Work Summary	6
Method Blanks	9
Lab Control Samples	10
Duplicates	11
Matrix Spikes	18
Data Sheets	21
Method Summaries	28
Report Guides	31
End of Section	46

F i n a l R e p o r t


Reviewed by _____

Approved by _____

Lab id 222-S
Protocol SST
Version 1.0
Form DVD-TOC
Version 3.08
Report date 03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

A B O U T T H E D A T A S U M M A R Y S E C T I O N

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

S A M P L E S U M M A R I E S

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

P R E P A R A T I O N B A T C H S U M M A R Y

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

W O R K S U M M A R Y

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

M E T H O D B L A N K S

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

L A B C O N T R O L S A M P L E S

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

D U P L I C A T E S

F i n a l R e p o r t

R E P O R T G U I D E S

Page 1

S U M M A R Y D A T A S E C T I O N

Page 1

Lab id 222-S
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Form DVD-RG
Version 3.08
Report date 03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180

SDG 97000111
Contact J. L. Nuzum

GUIDE, cont.

Client TWRS
Tank T-110

A B O U T T H E D A T A S U M M A R Y S E C T I O N

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Final Report

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

Lab id 222-S
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Version 1.0
Form DVD-RG
Version 3.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SAMPLE SUMMARY

SDG 97000111
 Contact J. L. Nuzum

Client TWRS
 Tank T-110

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	PRIORITY COLLECTED	RECEIVED
T110 C180S1 LH FUSION	R: 6 S: 1 C: 180	FUSION	SOLID	S97T000230		02/19/97 13:03
T110 C180S1 LH FUSION-DU	R: 6 S: 1 C: 180	FUSION	SOLID	S97T000230S		
T110 C180S1 LH FUSION-SP	R: 6 S: 1 C: 180	FUSION	SOLID	S97T000230S		
T110 C180S2 LH FUSION	R: 6 S: 2 C: 180	FUSION	SOLID	S97T000268		02/28/97 12:46
T110 C180S2 LH FUSION-DU	R: 6 S: 2 C: 180	FUSION	SOLID	S97T000268D		
T110 C180S3 LH FUSION	R: 6 S: 3 C: 180	FUSION	SOLID	S97T000231		02/19/97 13:05
T110 C180S3 LH FUSION-DU	R: 6 S: 3 C: 180	FUSION	SOLID	S97T000231D		
T110 C180S4 LH FUSION	R: 6 S: 4 C: 180	FUSION	SOLID	S97T000232		02/19/97 13:05
T110 C180S4 LH FUSION-DU	R: 6 S: 4 C: 180	FUSION	SOLID	S97T000232D		
T110 C180S4 LH FUSION-SP	R: 6 S: 4 C: 180	FUSION	SOLID	S97T000232S		
T110 C180S6 LH FUSION	R: 6 S: 6 C: 180	FUSION	SOLID	S97T000233		02/19/97 13:05
T110 C180S6 LH FUSION-DU	R: 6 S: 6 C: 180	FUSION	SOLID	S97T000233D		
T110 C180S7 LH FUSION	R: 6 S: 7 C: 180	FUSION	SOLID	S97T000269		02/28/97 12:46
T110 C180S7 LH FUSION-DU	R: 6 S: 7 C: 180	FUSION	SOLID	S97T000269D		
T110 C180S7 LH FUSION-SP	R: 6 S: 7 C: 180	FUSION	SOLID	S97T000269S		
T110 C180S8 LH FUSION	R: 6 S: 8 C: 180	FUSION	SOLID	S97T000270		02/28/97 12:46
T110 C180S8 LH FUSION-DU	R: 6 S: 8 C: 180	FUSION	SOLID	S97T000270D		
Method Blank			SOLID	B17065-2		
Method Blank			SOLID	B17068-2		
Method Blank			SOLID	B17072-2		
Lab Control Sample			SOLID	S17065-1		
Lab Control Sample			SOLID	S17068-1		
Lab Control Sample			SOLID	S17072-1		

Final Report

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-CS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

QC SUMMARY

SDG 97000111
 Contact J. L. Nuzum

Client TWRS
 Tank T-110

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS FROM/TO			LAB SAMPLE ID	DEPARTMENT SAMPLE ID	
							COLL RCDV	RPTD	RPTD			
97000111-F		T110 C180S1 LH FUSION	FUSION	SOLID						35	S97T000230	
		T110 C180S2 LH FUSION	FUSION	SOLID						26	S97T000268	
		T110 C180S3 LH FUSION	FUSION	SOLID						35	S97T000231	
		T110 C180S4 LH FUSION	FUSION	SOLID						35	S97T000232	
		T110 C180S6 LH FUSION	FUSION	SOLID						35	S97T000233	
		T110 C180S7 LH FUSION	FUSION	SOLID						26	S97T000269	
		T110 C180S8 LH FUSION	FUSION	SOLID						26	S97T000270	
		T110 C180S1 LH FUSION-DU	FUSION	SOLID						35	S97T000230D	
		T110 C180S1 LH FUSION-SP	FUSION	SOLID						35	S97T000230S	
		T110 C180S2 LH FUSION-DU	FUSION	SOLID						26	S97T000268D	
		T110 C180S3 LH FUSION-DU	FUSION	SOLID						35	S97T000231D	
		T110 C180S4 LH FUSION-DU	FUSION	SOLID						35	S97T000232D	
		T110 C180S4 LH FUSION-SP	FUSION	SOLID						35	S97T000232S	
		T110 C180S6 LH FUSION-DU	FUSION	SOLID						35	S97T000233D	
		T110 C180S7 LH FUSION-DU	FUSION	SOLID						26	S97T000269D	
		T110 C180S7 LH FUSION-SP	FUSION	SOLID						26	S97T000269S	
		T110 C180S8 LH FUSION-DU	FUSION	SOLID						26	S97T000270D	
	SOLID		Method Blank		SOLID							B17065-2
		Method Blank		SOLID							B17068-2	
		Method Blank		SOLID							B17072-2	
		Lab Control Sample		SOLID							S17065-1	
		Lab Control Sample		SOLID							S17068-1	
		Lab Control Sample		SOLID							S17072-1	

Final Report

QC SUMMARY
 Page 1
 SUMMARY DATA SECTION
 Page 4

Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-9S
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

PREP BATCH SUMMARY

SDG 97000111
 Contact J. L. Nuzum

Client THRS
 Tank T-110

TEST	MATRIX	METHOD	PREPARATION ERROR			PLANCHETS ANALYZED				QUALI- FIERS
			BATCH	2σ %	CLIENT MORE	RE	BLANK	LCS	DUP/ORIG	
Gas Proportional Counting										
AT	SOLID	Alpha Analysis	97000988	15.0	3		1	1	3/3	1/1
			97000991	15.0	2		1	1	2/2	1/1
			97000995	15.0	2		1	1	2/2	1/1

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
 Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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222-S LABORATORY

TANK 241-T-110 CORE 180

WORK SUMMARY

SDG 97000111
Contact J. L. NuzumClient THRS
Tank T-110

CLIENT SAMPLE ID	LAB SAMPLE ID	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	FIX	ANALYZED	REVIEWED	BY	METHOD
LOCATION			RECEIVED								
CUSTODY	Priority										
T110 C180S1 LH FUSION R: 6 S: 1 C: 180	FUSION SOLID	S97T000230	17072-7	AT	02	03/20/97			SLF	Alpha Analysis	02/19/97
T110 C180S1 LH FUSION-DU R: 6 S: 1 C: 180	FUSION SOLID	S97T000230D	17072-8	AT	02	03/20/97			SLF	Alpha Analysis	02/19/97
T110 C180S1 LH FUSION-SP R: 6 S: 1 C: 180	FUSION SOLID	S97T000230S	17072-9	AT	02	03/20/97			SLF	Alpha Analysis	02/19/97
T110 C180S2 LH FUSION R: 6 S: 2 C: 180	FUSION SOLID	S97T000268	17065-9	AT	01	03/18/97			SLF	Alpha Analysis	02/28/97
T110 C180S2 LH FUSION-DU R: 6 S: 2 C: 180	FUSION SOLID	S97T000268D	17065-10	AT	01	03/18/97			SLF	Alpha Analysis	02/28/97
T110 C180S3 LH FUSION R: 6 S: 3 C: 180	FUSION SOLID	S97T000231	17072-10	AT	02	03/20/97			SLF	Alpha Analysis	02/19/97
T110 C180S3 LH FUSION-DU R: 6 S: 3 C: 180	FUSION SOLID	S97T000231D	17072-11	AT	02	03/20/97			SLF	Alpha Analysis	02/19/97
T110 C180S4 LH FUSION R: 6 S: 4 C: 180	FUSION SOLID	S97T000232	17065-4	AT	01	03/18/97			SLF	Alpha Analysis	02/19/97
T110 C180S4 LH FUSION-DU R: 6 S: 4 C: 180	FUSION SOLID	S97T000232D	17065-5	AT	01	03/18/97			SLF	Alpha Analysis	02/19/97
T110 C180S4 LH FUSION-SP R: 6 S: 4 C: 180	FUSION SOLID	S97T000232S	17065-6	AT	01	03/18/97			SLF	Alpha Analysis	02/19/97

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222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111

Contact J. L. Nuzum

Client THRS

Tank T-110

WORK SUMMARY, cont.

CLIENT SAMPLE ID LOCATION CUSTODY	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
T110 C180S6 LH FUSION R: 6 S: 6 C: 180		FUSION SOLID	S97T000233 02/19/97	17065-7	AT	01	03/18/97		SLF	Alpha Analysis
T110 C180S6 LH FUSION-DU R: 6 S: 6 C: 180		FUSION SOLID	S97T000233D 02/19/97	17065-8	AT	01	03/18/97		SLF	Alpha Analysis
T110 C180S7 LH FUSION R: 6 S: 7 C: 180		FUSION SOLID	S97T000269 02/28/97	17068-4	AT	01	03/18/97		SLF	Alpha Analysis
T110 C180S7 LH FUSION-DU R: 6 S: 7 C: 180		FUSION SOLID	S97T000269D 02/28/97	17068-5	AT	01	03/18/97		SLF	Alpha Analysis
T110 C180S7 LH FUSION-SP R: 6 S: 7 C: 180		FUSION SOLID	S97T000269S 02/28/97	17068-6	AT	01	03/18/97		SLF	Alpha Analysis
T110 C180S8 LH FUSION R: 6 S: 8 C: 180		FUSION SOLID	S97T000270 02/28/97	17068-7	AT	01	03/18/97		SLF	Alpha Analysis
T110 C180S8 LH FUSION-DU R: 6 S: 8 C: 180		FUSION SOLID	S97T000270D 02/28/97	17068-8	AT	01	03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	B17065-2 03/18/97	17065-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	B17068-2 03/18/97	17068-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	B17072-2 03/20/97	17072-2	AT		03/20/97		SLF	Alpha Analysis
Lab Control Sample		SOLID	S17065-1 03/18/97	17065-1	AT		03/18/97		SLF	Alpha Analysis

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222-S LABORATORY

TANK 241-T-110 CORE 180

WORK SUMMARY, cont.

SDG 97000111
 Contact J. L. Nuzum

Client THRS
 Tank T-110

CLIENT SAMPLE ID	MATRIX	LAB SAMPLE ID	SUF-	REVIEWED BY	METHOD				
LOCATION	CUSTODY	Priority	COLLECTED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED BY	METHOD
Lab Control Sample		S17068-1	17068-1	AT	03/18/97	SLF	Alpha Analysis		
	SOLID								
Lab Control Sample		S17072-1	17072-1	AT	03/20/97	SLF	Alpha Analysis		
	SOLID								

TEST	Priority	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AT		Alpha Analysis	222-S Lab Analytical Procedure	7			3	3	7	3	23
TOTALS				7			3	3	7	3	23

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222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111
 Contact J. L. Nuzum

BLANKS

Client TWRS
 Tank T-110

Lab sample id <u>B17065-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix _____ SOLID					
ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	3.7E-03		3.7E-03		U	AT 97000988

Lab sample id <u>B17068-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix _____ SOLID					
ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	3.2E-03		3.2E-03		U	AT 97000991

Lab sample id <u>B17072-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix _____ SOLID					
ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	3.0E-03		3.0E-03		U	AT 97000995

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222-S LABORATORY

TANK 241-T-110 CORE 180

LAB CONTROL SAMPLES

SDG 97000111
 Contact J. L. Nuzum

Client THRS
 Tank T-110

Lab sample id <u>S17065-1</u>						Client sample id <u>Lab Control Sample</u>					
Dept sample id _____						Material/Matrix _____ SOLID					
ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	8.60E-02	15	3.7E-04		AT	1.00E-2	5.0	86	79-121	70-130	97000988

Lab sample id <u>S17068-1</u>						Client sample id <u>Lab Control Sample</u>					
Dept sample id _____						Material/Matrix _____ SOLID					
ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	9.20E-02	15	3.1E-04		AT	9.48E-2	5.0	97	76-124	70-130	97000991

Lab sample id <u>S17072-1</u>						Client sample id <u>Lab Control Sample</u>					
Dept sample id _____						Material/Matrix _____ SOLID					
ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	8.34E-02	16	3.0E-04		AT	9.76E-2	5.0	85	79-121	70-130	97000995

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222-S LABORATORY

TANK 241-T-110 CORE 180

DUPLICATE

S97T000230D

T110 C180S1 LH FUSION

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T000230D</u>	Lab sample id <u>S97T000230</u>
Dept sample id _____	Client sample id <u>T110 C180S1 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 6 S: 1 C: 180</u> <u>SOLID</u>
	Received <u>02/19/97</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE	2σ TPU	MDA	RDL	QUALI-	ORIGINAL	2σ TPU	MDA	QUALI-	RPD	3σ	PROT
	uCi/g	%	uCi/g	uCi/g	FIERS		TEST	uCi/g	%	uCi/g	FIERS	%
Total Alpha	4.63E-02	22	3.1E-03			AT	4.47E-02	22	3.1E-03	4	47	20

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TANK 241-T-110 CORE 180

S97T000231D

T110 C180S3 LH FUSION

DUPLICATE

SDG <u>97000111</u>		Client <u>TVRS</u>
Contact <u>J. L. Nuzum</u>		Tank <u>I-110</u>
DUPLICATE	ORIGINAL	
Lab sample id <u>S97T000231D</u>	Lab sample id <u>S97T000231</u>	Client sample id <u>T110 C180S3 LH FUSION</u> <u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix <u>R: 6 S: 3 C: 180</u> <u>SOLID</u>
	Received <u>02/19/97</u>	Collected _____
		Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	3.55E-02	23	3.0E-03			AT	2.88E-02	25	3.0E-03		21	51	20

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222-S LABORATORY
TANK 241-T-110 CORE 180

DUPLICATE

S97T000232D

T110: C180S4: LH: FUSION:

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T000232D</u>	Lab sample id <u>S97T000232</u>
Dept sample id _____	Dept sample id _____
Received <u>02/19/97</u>	Client sample id <u>T110 C180S4 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 6 S: 4 C: 180</u> <u>SOLID</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	6.26E-02	21	4.0E-03			AT	4.56E-02	22	3.7E-03		31	46	20

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222-S LABORATORY
TANK 241-T-110 CORE 180

S97T000233D

T110 C180S6 LH FUSION

DUPLICATE

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T000233D</u>	Lab sample id <u>S97T000233</u>
Dept sample id _____	Client sample id <u>T110 C180S6 LH FUSION</u> <u>FUSION</u>
Received <u>02/19/97</u>	Location/Matrix <u>R: 6 S: 6 C: 180</u> <u>SOLID</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	6.05E-02	20	3.8E-03			AT	4.04E-02	24	4.0E-03		40	47.20

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222-S LABORATORY

TANK 241-T-110 CORE 180

DUPLICATE

S97T000268D

T110-C180S2 LH FUSION

SDG <u>97000111</u>		Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>		Tank <u>T-110</u>
DUPLICATE	ORIGINAL	
Lab sample id <u>S97T000268D</u>	Lab sample id <u>S97T000268</u>	Client sample id <u>T110 C180S2 LH FUSION</u> <u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix <u>R: 6 S: 2 C: 180</u> <u>SOLID</u>
	Received <u>02/28/97</u>	Collected _____
		Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	3.90E-02	24	3.5E-03			AT	4.41E-02	22	3.4E-03		12	48 20

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222-S LABORATORY
TANK 241-T-110 CORE 180

DUPLICATE

S97T000269D

T110 C180S7 LH FUSION

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T000269D</u>	Lab sample id <u>S97T000269</u>
Dept sample id _____	Client sample id <u>T110 C180S7 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 6 S: 7 C: 180</u> <u>SOLID</u>
	Received <u>02/28/97</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ PROT TOT. LIMIT
Total Alpha	7.22E-02	19	3.5E-03			AT	7.78E-02	19	3.2E-03		7	41.20

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222-S LABORATORY

TANK 241-T-110 CORE 180

DUPLICATE

S97T0002700

T110 C180S8 LH FUSION

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T0002700</u>	Lab sample id <u>S97T000270</u>
Dept sample id _____	Dept sample id _____
Received <u>02/28/97</u>	Client sample id <u>T110 C180S8 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 6 S: 8 C: 180</u> <u>SOLID</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	7.62E-02	20	3.2E-03			AT	8.96E-02	19	3.2E-03		16	41 20

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222-S LABORATORY

TANK 241-T-110 CORE 180

MATRIX SPIKE

S97T000230S

T110 C180S1 LH FUSION

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
MATRIX SPIKE	ORIGINAL
Lab sample id <u>S97T000230S</u>	Lab sample id <u>S97T000230</u>
Dept sample id _____	Client sample id <u>T110 C180S1 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 6 S: 1 C: 180</u> <u>SOLID</u>
	Received <u>02/19/97</u>
	Collected _____
	Chain of custody id _____

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC 3σ % (TOTAL)	LMTS LIMITS	PROTOCOL LIMITS
Total Alpha	1.05E-01				AT	1.84E01	5.0	4.47E-02	22	57	85-115	75-125

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MATRIX SPIKES

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222-S LABORATORY
TANK 241-T-110 CORE 180

MATRIX SPIKE

S97I000232S

T110-C180S4-LH-FUSION

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
MATRIX SPIKE	ORIGINAL
Lab sample id <u>S97I000232S</u>	Lab sample id <u>S97I000232</u>
Dept sample id _____	Client sample id <u>T110-C180S4-LH-FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 6 S: 4 C: 180</u> <u>SOLID</u>
	Received <u>02/19/97</u>
	Collected _____
	Chain of custody id _____

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC 3σ % (TOTAL)	LMTS LIMITS	PROTOCOL
Total Alpha	1.19E-01				AT	1.79E01	5.0	4.56E-02	22	66	83-117	75-125

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222-S LABORATORY

TANK 241-T-110 CORE 180

MATRIX SPIKE

S97T000269S

T110: C180S7 LH FUSION

SDG <u>97000111</u>	Client <u>IWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
MATRIX SPIKE	ORIGINAL
Lab sample id <u>S97T000269S</u>	Lab sample id <u>S97T000269</u>
Dept sample id _____	Client sample id <u>T110 C180S7 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 6 S: 7 C: 180</u> <u>SOLID</u>
	Received <u>02/28/97</u>
	Collected _____
	Chain of custody id _____

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC 3σ % (TOTAL)	LMTS LIMITS	PROTOCOL
Total Alpha	9.04E-00				AT	1.70E01	5.0	7.78E-02	19	53	86-114	75-125

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MATRIX SPIKES

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222 - S LABORATORY
TANK 241-T-110 CORE 180

S97T000230

T110 C180S1 LH FUSION

D A T A S H E E T

SDG 97000111
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000230
Dept sample id _____
Received 02/19/97Client sample id T110 C180S1 LH FUSION FUSION
Location/Matrix R: 6 S: 1 C: 180 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.47E-02	22	3.1E-03			AT

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222-S LABORATORY
TANK 241-T-110 CORE 180

S97T000268

T110 C180S2 LH FUSION

DATA SHEET

SDG 97000111 Client TWRS
 Contact J. L. Nuzum Tank T-110
 Lab sample id S97T000268 Client sample id T110 C180S2 LH FUSION FUSION
 Dept sample id _____ Location/Matrix R: 6 S: 2 C: 180 SOLID
 Received 02/28/97 Collected _____
 Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.41E-02	22	3.4E-03			AT

Final Report

DATA SHEETS
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 Protocol SST
 Version 1.0
 Form DVD-DS
 Version 3.08
 Report date 03/26/97

222 - S. LABORATORY
TANK 241-T-110 CORE 180

S97T000231

T110 C180S3 LH FUSION

DATA SHEET

SDG 97000111
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000231
Dept sample id _____
Received 02/19/97Client sample id T110 C180S3 LH FUSION FUSION
Location/Matrix R: 6 S: 3 C: 180 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	2.68E-02	25	3.0E-03			AT

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DATA SHEETS

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Lab id	<u>222-S</u>
Protocol	<u>SST</u>
Version	<u>1.0</u>
Form	<u>DVD-DS</u>
Version	<u>3.08</u>
Report date	<u>03/26/97</u>

222-S LABORATORY
TANK 241-T-110 CORE 180

S97T000232

T110 C180S4 LH FUSION

DATA SHEET

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
Lab sample id <u>S97T000232</u>	Client sample id <u>T110 C180S4 LH FUSION</u> <u>FUSION</u>
Dept sample id _____	Location/Matrix <u>R: 6 S: 4 C: 180</u> <u>SOLID</u>
Received <u>02/19/97</u>	Collected _____
Chain of custody id _____	

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.56E-02	22	3.7E-03			AT

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SUMMARY DATA SECTION

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Lab id <u>222-S</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-DS</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY
TANK 241-T-110 CORE 180

S97T000233

T110 C180S6 LH FUSION

DATA SHEET

SDG 97000111
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000233
Dept sample id _____
Received 02/19/97Client sample id T110 C180S6 LH FUSION FUSION
Location/Matrix R: 6 S: 6 C: 180 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.04E-02	24	4.00E-03			AT

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SUMMARY DATA SECTION

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Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-DS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 180

S97T000269

T110 C180S7 LH FUSION

DATA SHEET

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
Lab sample id <u>S97T000269</u>	Client sample id <u>T110 C180S7 LH FUSION</u> <u>FUSION</u>
Dept sample id _____	Location/Matrix <u>R: 6 S: 7 C: 180</u> <u>SOLID</u>
Received <u>02/28/97</u>	Collected _____
	Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	7.78E-02	19	3.2E-03			AT

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DATA SHEETS

Page 6

SUMMARY DATA SECTION

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Lab id <u>222-S</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-DS</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY
TANK 241-T-110 CORE 180

S97T000270

T110 C180S8 LH FUSION

DATA SHEET

SDG <u>97000111</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
Lab sample id <u>S97T000270</u>	Client sample id <u>T110 C180S8 LH FUSION</u> <u>FUSION</u>
Dept sample id _____	Location/Matrix <u>R: 6 S: 8 C: 180</u> <u>SOLID</u>
Received <u>02/28/97</u>	Collected _____
	Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	6.96E-02	19	3.2E-03			AT

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DATA SHEETS

Page 7

SUMMARY DATA SECTION

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Lab id <u>222-S</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-DS</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY

TANK 241-T-110 CORE 180

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Test AT Matrix SOLID

SDG 97000111

Contact J. L. Nuzum

Client THRS

Tank T-110

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	1: Total	2: Americium	3: Sum, Alpha	RESULT RATIOS (%)						
					Alpha	241 (GEA)	Emitters	2+1	2 α	3+1	2 α			
Preparation batch 97000988														
T110	C180S2	LH FUSION	FU	S97T000268	01	17065-9	4.41E-02							
T110	C180S2	LH FUSION-DU	S97T000268D		01	17065-10	ok							
T110	C180S4	LH FUSION	FU	S97T000232	01	17065-4	4.56E-02							
T110	C180S4	LH FUSION-DU	S97T000232D		01	17065-5	OUT							
T110	C180S4	LH FUSION-SP	S97T000232S		01	17065-6	LOW							
T110	C180S6	LH FUSION	FU	S97T000233	01	17065-7	4.04E-02							
T110	C180S6	LH FUSION-DU	S97T000233D		01	17065-8	OUT							
Method Blank		B17065-2				17065-2	U							
Lab Control Sample		S17065-1				17065-1	ok							
Preparation batch 97000991														
T110	C180S7	LH FUSION	FU	S97T000269	01	17068-4	7.78E-02							
T110	C180S7	LH FUSION-DU	S97T000269D		01	17068-5	ok							
T110	C180S7	LH FUSION-SP	S97T000269S		01	17068-6	LOW							
T110	C180S8	LH FUSION	FU	S97T000270	01	17068-7	8.96E-02							
T110	C180S8	LH FUSION-DU	S97T000270D		01	17068-8	ok							
Method Blank		B17068-2				17068-2	U							
Lab Control Sample		S17068-1				17068-1	ok							
Preparation batch 97000995														
T110	C180S1	LH FUSION	FU	S97T000230	02	17072-7	4.47E-02							
T110	C180S1	LH FUSION-DU	S97T000230D		02	17072-8	ok							
T110	C180S1	LH FUSION-SP	S97T000230S		02	17072-9	LOW							
T110	C180S3	LH FUSION	FU	S97T000231	02	17072-10	2.88E-02							
T110	C180S3	LH FUSION-DU	S97T000231D		02	17072-11	OUT							
Method Blank		B17072-2				17072-2	U							
Lab Control Sample		S17072-1				17072-1	ok							

Nominal values and limits from method

RDLs (uCi/g)

100

80

Averages

Final Report

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

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Lab id 222-s
 Protocol SST
 Version 1.0
 Form DVD-CMS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

Test AT Matrix SOLID

SDG 97000111

Contact J. L. Nuzum

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client THRS

Tank T-110

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA uCi/g	ALIQ ml	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FMHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 97000988 2σ prep error 15.0 % Reference																
T110 C180S2	LH FUSION FU	S97T000268	01	3.4E-03	0.100 462	1.00		27	30				03/12/97	03/18		WB27806
T110 C180S2	LH FUSION-DU	S97T000268D	01	3.5E-03	0.100 477	1.00		27	30				03/12/97	03/18		WB27806
T110 C180S4	LH FUSION FU	S97T000232	01	3.7E-03	0.100 500	1.00		27	30				03/12/97	03/18		WB27806
T110 C180S4	LH FUSION-DU	S97T000232D	01	4.0E-03	0.100 546	1.00		27	30				03/12/97	03/18		WB27806
T110 C180S4	LH FUSION-SP	S97T000232S	01		0.100 500	1.00		27	30				03/12/97	03/18		WB27806
T110 C180S6	LH FUSION FU	S97T000233	01	4.0E-03	0.100 541	1.00		27	30				03/12/97	03/18		WB27806
T110 C180S6	LH FUSION-DU	S97T000233D	01	3.8E-03	0.100 508	1.00		27	30				03/12/97	03/18		WB27806
Method Blank		B17065-2		3.7E-03	0.100 500	1.00		27	30					03/18/97		WB27806
Lab Control Sample		S17065-1		3.7E-04	1.00 500	1.00		27	30					03/18/97		WB27806

Preparation batch 97000991 2σ prep error 15.0 % Reference																
T110 C180S7	LH FUSION FU	S97T000269	01	3.2E-03	0.100 474	1.00		27	30				03/11/97	03/18		WB26872
T110 C180S7	LH FUSION-DU	S97T000269D	01	3.3E-03	0.100 496	1.00		27	30				03/11/97	03/18		WB26872
T110 C180S7	LH FUSION-SP	S97T000269S	01		0.100 474	1.00		27	30				03/11/97	03/18		WB26872
T110 C180S8	LH FUSION FU	S97T000270	01	3.2E-03	0.100 490	1.00		27	30				03/11/97	03/18		WB26872
T110 C180S8	LH FUSION-DU	S97T000270D	01	3.2E-03	0.100 475	1.00		27	30				03/11/97	03/18		WB26872
Method Blank		B17068-2		3.2E-03	0.100 474	1.00		27	30					03/18/97		WB26872
Lab Control Sample		S17068-1		3.1E-04	1.00 474	1.00		27	30					03/18/97		WB26872

Preparation batch 97000995 2σ prep error 15.0 % Reference																
T110 C180S1	LH FUSION FU	S97T000230	02	3.1E-03	0.100 513	1.00		27	30				03/06/97	03/20		WB27806
T110 C180S1	LH FUSION-DU	S97T000230D	02	3.1E-03	0.100 513	1.00		27	30				03/06/97	03/20		WB27806
T110 C180S1	LH FUSION-SP	S97T000230S	02		0.100 513	1.00		27	30				03/06/97	03/20		WB27806
T110 C180S3	LH FUSION FU	S97T000231	02	3.0E-03	0.100 490	1.00		27	30				03/06/97	03/20		WB27806
T110 C180S3	LH FUSION-DU	S97T000231D	02	3.0E-03	0.100 494	1.00		27	30				03/06/97	03/20		WB27806
Method Blank		B17072-2		3.0E-03	0.100 488	1.00		27	30					03/20/97		WB27806
Lab Control Sample		S17072-1		3.0E-04	1.00 488	1.00		27	30					03/20/97		WB27806

Nominal values and limits from method

0.100

30

20-55

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METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id	222-S
Protocol	SST
Version	1.0
Form	DWD-CMS
Version	3.08
Report date	03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

METHOD SUMMARY, cont.

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Test AT _____ Matrix _____
 SDG 97000111 _____
 Contact J. L. Nuzum _____

Client TWRS _____
 Tank T-110 _____

PROCEDURES	REFERENCE	222-S Lab Analytical Procedure
LO-160-103	Core Segment Extrusion Process and Sample Preparation, rev 17	
LA-549-141	Fusion with Alkali Metal Hydroxide, rev 40	
LA-508-101A	Alpha in liquid samples, rev 42	
LA-508-11NA	Operation of the [Tennelec LB-5500 (n=0, A-5), LB-1000 (n=1, A-3), Gamma Products (n=4, A-2)] Alpha/Beta Counting Systems	

AVERAGES \pm 2 SD	MDA <u>2.9E-03</u> \pm <u>2.3E-03</u>
FOR 23 SAMPLES	EFFICIENCY <u>27</u> \pm <u>0</u>

Final Report

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id	222-s
Protocol	SST
Version	1.0
Form	DVD-CMS
Version	3.08
Report date	03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

S A M P L E S U M M A R Y

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
 - * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
 - * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
 - * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.
- QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.
- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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REPORT GUIDES

Page 1

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Protocol	<u>SST</u>
Version	<u>1.0</u>
Form	<u>DVD-RG</u>
Version	<u>3.08</u>
Report date	<u>03/26/97</u>

222 - S LABORATORY
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

REPORT GUIDE

Client TWRS
Tank T-110

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

Final Report

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-RG
Version 3.08
Report date 03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180

SDG 97000111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

W O R K S U M M A R Y

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

Final Report

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-RG
Version 3.08
Report date 03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

D A T A S H E E T

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.
- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).
If the MDA is blank, the ERROR is used as the limit.

Final Report

REPORT GUIDES

Page 4

SUMMARY DATA SECTION

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-RG
Version 3.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 9700Q111
Contact J. L. NuzumClient TWRS
Tank T-110

GUIDE, cont.

DATA SHEET

- J* The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B* A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L* Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H* Similar to 'L' except the recovery was high.
- P* The RESULT is 'preliminary'.
- X* Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2* There were two or more results available for this analyte. The reported result may not be the same as in the raw data.
- Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.
- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA

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REPORT GUIDES

Page 5

SUMMARY DATA SECTION

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222-S LABORATORY
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

GUIDE, cont.

Client TWRS
Tank T-110

DATA SHEET

may not be a good estimate of the 'real' minimum detectable activity.

- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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REPORT GUIDES

Page 6

SUMMARY DATA SECTION

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Lab id 222-S
 Protocol SST
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 Form DVD-RG
 Version 3.08
 Report date 03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

L A B C O N T R O L S A M P L E

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.
- * Laboratory control limits are defined in procedure LQ-543-101.

F i n a l R e p o r t

REPORT GUIDES

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SUMMARY DATA SECTION

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 Lab id 222-S
 Protocol SST
 Version 1.0
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 Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 180

SDG 97000111
Contact J. L. Nuzum

Client TWRS
Tank T-110

GUIDE, cont.

LAB CONTROL SAMPLE

DVD reported limits are based on total propagated uncertainty, a part of which is the laboratory control limits.

Final Report

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id 222-S
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Version 1.0
Form DVD-RG
Version 3.08
Report date 03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

D U P L I C A T E

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

Final Report

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-RG
Version 3.08
Report date 03/26/97

2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

G U I D E , c o n t .

Client TWRS
Tank T-110

D U P L I C A T E

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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REPORT GUIDES

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Version 1.0
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Version 3.08
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2 2 2 - S L A B O R A T O R Y

TANK 241-T-110 CORE 180

SDG 97000111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

M A T R I X S P I K E

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.
- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.
- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.

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 Protocol SST
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222-S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111
 Contact J. L. Nuzum

Client TWRS
 Tank T-110

GUIDE, cont.

MATRIX SPIKE

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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 Version 1.0
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 Version 3.08
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2 2 2 - S L A B O R A T O R Y
TANK 241-T-110 CORE 180SDG 9700Q111
Contact J. L. Nuzum

R E P O R T G U I D E

Client TWRS
Tank T-110

M E T H O D S U M M A R Y

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data' means no amount ADDED was specified. 'LOW' and 'HIGH'

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222 - S LABORATORY

TANK 241-T-110 CORE 180

SDG 97000111
Contact J. L. Nuzum

GUIDE, cont.

Client TWRS
Tank T-110

METHOD SUMMARY

correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
- * Preparation factors are underlined if greater than the nominal value specified for the QC batch.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.
- * Count times are underlined if less than the nominal value

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222 - S LABORATORY
TANK 241-T-110 CORE 180SDG 97000111
Contact J. L. Nuzum

GUIDE, cont.

Client TWRS
Tank T-110

METHOD SUMMARY

specified for the method.

- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held (Analyzed - Collected) are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included.

Final Report

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Lab id 222-S
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2 2 2 - S L A B O R A T O R Y

TANK 241-T-110 CORE 180

SDG 97000111
Contact J. L. Nuzum

G U I D E , c o n t .

Client TWRS
Tank T-110

M E T H O D S U M M A R Y

No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Protocol SST
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SDG 97000083
Contact J. L. Nuzum

Client TWRS
Tank T-110

S U M M A R Y D A T A S E C T I O N

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Final Report

J. L. Pulick

Reviewed by

J. L. Pulick

Approved by

Lab id 222-S
Protocol SST
Version 1.0
Form DVD-TOC
Version 3.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

SDG 97000083

Contact J. L. Nuzum

Client TWRS

Tank T-110

SAMPLE SUMMARY

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	PRIORITY COLLECTED	RECEIVED
T110 C181 FB DIR J11744	R: 2 S: Field Blank C: 1	LIQUID		S97T000119		02/10/97 08:24
T110 C181 FB DIR J11744-	R: 2 S: Field Blank C: 1	LIQUID		S97T0001190		
T110 C181 FB2 DIR V#1241	R: 2 S: Field Blank C: 1	LIQUID		S97T000381		03/12/97 13:36
T110 C181 FB2 DIR V#1241	R: 2 S: Field Blank C: 1	LIQUID		S97T000381D		
T110 C181S1 LH FUSION	R: 2 S: 1 C: 181	FUSION SOLID		S97T000148		02/10/97 09:52
T110 C181S1 LH FUSION-DU	R: 2 S: 1 C: 181	FUSION SOLID		S97T000148D		
T110 C181S1 LH FUSION-SP	R: 2 S: 1 C: 181	FUSION SOLID		S97T000148S		
T110 C181S2 LH FUSION	R: 2 S: 2 C: 181	FUSION SOLID		S97T000149		02/10/97 09:54
T110 C181S2 LH FUSION-DU	R: 2 S: 2 C: 181	FUSION SOLID		S97T000149D		
T110 C181S3 LH FUSION	R: 2 S: 3 C: 181	FUSION SOLID		S97T000150		02/10/97 09:54
T110 C181S3 LH FUSION-DU	R: 2 S: 3 C: 181	FUSION SOLID		S97T000150D		
T110 C181S4 LH FUSION	R: 2 S: 4 C: 181	FUSION SOLID		S97T000151		02/10/97 09:54
T110 C181S4 LH FUSION-DU	R: 2 S: 4 C: 181	FUSION SOLID		S97T000151D		
T110 C181S5 LH FUSION	R: 2 S: 5 C: 181	FUSION SOLID		S97T000169		02/13/97 14:31
T110 C181S5 LH FUSION-DU	R: 2 S: 5 C: 181	FUSION SOLID		S97T000169D		
T110 C181S6 LH FUSION	R: 2 S: 6 C: 181	FUSION SOLID		S97T000178		02/14/97 09:06
T110 C181S6 LH FUSION-DU	R: 2 S: 6 C: 181	FUSION SOLID		S97T000178D		
T110 C181S7 LH FUSION	R: 2 S: 7 C: 181	FUSION SOLID		S97T000162		02/11/97 13:33
T110 C181S7 LH FUSION-DU	R: 2 S: 7 C: 181	FUSION SOLID		S97T000162D		
T110 C181S7 LH FUSION-SP	R: 2 S: 7 C: 181	FUSION SOLID		S97T000162S		
T110 C181S8 LH FUSION	R: 2 S: 8 C: 181	FUSION SOLID		S97T000196		02/19/97 07:58
T110 C181S8 LH FUSION-DU	R: 2 S: 8 C: 181	FUSION SOLID		S97T000196D		
T110 C181S8 LH FUSION-SP	R: 2 S: 8 C: 181	FUSION SOLID		S97T000196S		
DI Blank		LIQUID		B16695-2		
DI Blank		LIQUID		B17005-2		
Method Blank		SOLID		B16899-2		
Method Blank		SOLID		B17066-2		
Method Blank		SOLID		B17067-2		
Method Blank		SOLID		B17072-2		
Lab Control Sample		LIQUID		S16695-1		
Lab Control Sample		LIQUID		S17005-1		
Lab Control Sample		SOLID		S16899-1		
Lab Control Sample		SOLID		S17066-1		
Lab Control Sample		SOLID		S17067-1		
Lab Control Sample		SOLID		S17072-1		

Final Report

SAMPLE SUMMARY

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SUMMARY DATA SECTION

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Lab id 222-s

Protocol SST

Version 1.0

Form DVD-CS

Version 3.08

Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

QC SUMMARY

SDG 9700083

Contact J. L. Nuzum

Client TWRS

Tank T-110

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS FROM/TO		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
							COLL RCVD	RCVD RPTD		
97000083-F		T110 C181S1 LH FUSION	FUSION	SOLID				44	S97T000148	
		T110 C181S2 LH FUSION	FUSION	SOLID				44	S97T000149	
		T110 C181S3 LH FUSION	FUSION	SOLID				44	S97T000150	
		T110 C181S4 LH FUSION	FUSION	SOLID				44	S97T000151	
		T110 C181S5 LH FUSION	FUSION	SOLID				41	S97T000169	
		T110 C181S6 LH FUSION	FUSION	SOLID				40	S97T000178	
		T110 C181S7 LH FUSION	FUSION	SOLID				43	S97T000162	
		T110 C181S8 LH FUSION	FUSION	SOLID				35	S97T000196	
		T110 C181S1 LH FUSION-DU	FUSION	SOLID				44	S97T000148D	
		T110 C181S1 LH FUSION-SP	FUSION	SOLID				44	S97T000148S	
		T110 C181S2 LH FUSION-DU	FUSION	SOLID				44	S97T000149D	
		T110 C181S3 LH FUSION-DU	FUSION	SOLID				44	S97T000150D	
		T110 C181S4 LH FUSION-DU	FUSION	SOLID				44	S97T000151D	
		T110 C181S5 LH FUSION-DU	FUSION	SOLID				41	S97T000169D	
		T110 C181S6 LH FUSION-DU	FUSION	SOLID				40	S97T000178D	
		T110 C181S7 LH FUSION-DU	FUSION	SOLID				43	S97T000162D	
		T110 C181S7 LH FUSION-SP	FUSION	SOLID				43	S97T000162S	
		T110 C181S8 LH FUSION-DU	FUSION	SOLID				35	S97T000196D	
		T110 C181S8 LH FUSION-SP	FUSION	SOLID				35	S97T000196S	
	97000083-L		T110 C181 FB DIR J11744		LIQUID				44	S97T000119
		T110 C181 FB2 DIR V#1241		LIQUID				14	S97T000381	
		T110 C181 FB DIR J11744-		LIQUID				44	S97T000119D	
		T110 C181 FB2 DIR V#1241		LIQUID				14	S97T000381D	
LIQUID		DI Blank		LIQUID					B16695-2	
		DI Blank		LIQUID					B17005-2	
		Lab Control Sample		LIQUID					S16695-1	
		Lab Control Sample		LIQUID					S17005-1	
SOLID		Method Blank		SOLID					B16899-2	
		Method Blank		SOLID					B17066-2	
		Method Blank		SOLID					B17067-2	
		Method Blank		SOLID					B17072-2	
		Lab Control Sample		SOLID					S16899-1	
		Lab Control Sample		SOLID					S17066-1	
		Lab Control Sample		SOLID					S17067-1	
		Lab Control Sample		SOLID					S17072-1	

Final Report

QC SUMMARY

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SUMMARY DATA SECTION

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Lab id 222-s	_____
Protocol SST	_____
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Form DVD-QS	_____
Version 3.08	_____
Report date 03/26/97	_____

222-S LABORATORY

TANK 241-T-110 CORE 181

SDG 97000083

Contact J. L. Nuzum

Client TWRS

Tank T-110

PREP BATCH SUMMARY

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS	
Alpha Spectroscopy									
PU	LIQUID	Plutonium-239	97000926	15.0	1		1	1	1/1
Gas Proportional Counting									
AT	LIQUID	Alpha Analysis	97000569	15.0	1		1	1	1/1
	SOLID	Alpha Analysis	97000818	15.0	2		1	1	2/2
			97000989	15.0	3		1	1	3/3 1/1
			97000990	15.0	2		1	1	2/2 1/1
			97000995	15.0	1		1	1	1/1 1/1

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Final Report

PREP BATCH SUMMARY

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Lab id	222-S
Protocol	SST
Version	1.0
Form	DVD-PBS
Version	3.08
Report date	03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

WORK SUMMARY

SDG 97000083
Contact J. L. NuzumClient THRS
Tank T-110

CLIENT SAMPLE ID LOCATION CUSTODY	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
T110 C181 FB DIR J11744 R: 2 S: Field Blank C: 1 LIQUID			S97T000119 02/10/97	16695-4	AT		03/05/97		SLF	Alpha Analysis
T110 C181 FB DIR J11744- R: 2 S: Field Blank C: 1 LIQUID			S97T000119D 02/10/97	16695-5	AT		03/05/97		SLF	Alpha Analysis
T110 C181 FB2 DIR V#1241 R: 2 S: Field Blank C: 1 LIQUID			S97T000381 03/12/97	17005-3	PU		03/15/97		JFR	Plutonium-239
T110 C181 FB2 DIR V#1241 R: 2 S: Field Blank C: 1 LIQUID			S97T000381D 03/12/97	17005-4	PU		03/15/97		JFR	Plutonium-239
T110 C181S1 LH FUSION R: 2 S: 1 C: 181		FUSION SOLID	S97T000148 02/10/97	17067-4	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S1 LH FUSION-DU R: 2 S: 1 C: 181		FUSION SOLID	S97T000148D 02/10/97	17067-5	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S1 LH FUSION-SP R: 2 S: 1 C: 181		FUSION SOLID	S97T000148S 02/10/97	17067-6	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S2 LH FUSION R: 2 S: 2 C: 181		FUSION SOLID	S97T000149 02/10/97	17067-7	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S2 LH FUSION-DU R: 2 S: 2 C: 181		FUSION SOLID	S97T000149D 02/10/97	17067-8	AT	02	03/18/97		SLF	Alpha Analysis
T110 C181S3 LH FUSION R: 2 S: 3 C: 181		FUSION SOLID	S97T000150 02/10/97	16899-4	AT		03/08/97		SLF	Alpha Analysis

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WORK SUMMARY

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SUMMARY DATA SECTION

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 Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-CWS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

SDG 97000083

Contact J. L. Nuzum

Client TURSTank T-110

WORK SUMMARY, cont.

CLIENT SAMPLE ID LOCATION CUSTODY	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
T110 C181S3 LH FUSION-DU R: 2 S: 3 C: 181		FUSION SOLID	S97T000150D 02/10/97	16899-5	AT		03/08/97		SLF	Alpha Analysis
T110 C181S4 LH FUSION R: 2 S: 4 C: 181		FUSION SOLID	S97T000151 02/10/97	16899-6	AT		03/08/97		SLF	Alpha Analysis
T110 C181S4 LH FUSION-DU R: 2 S: 4 C: 181		FUSION SOLID	S97T000151D 02/10/97	16899-7	AT		03/08/97		SLF	Alpha Analysis
T110 C181S5 LH Fusion R: 2 S: 5 C: 181		FUSION SOLID	S97T000169 02/13/97	17066-7	AT	01	03/18/97		SLF	Alpha Analysis
T110 C181S5 LH Fusion-DU R: 2 S: 5 C: 181		FUSION SOLID	S97T000169D 02/13/97	17066-8	AT	01	03/18/97		SLF	Alpha Analysis
T110 C181S6 LH FUSION R: 2 S: 6 C: 181		FUSION SOLID	S97T000178 02/14/97	17066-9	AT	01	03/18/97		SLF	Alpha Analysis
T110 C181S6 LH FUSION-DU R: 2 S: 6 C: 181		FUSION SOLID	S97T000178D 02/14/97	17066-10	AT	01	03/18/97		SLF	Alpha Analysis
T110 C181S7 LH FUSION R: 2 S: 7 C: 181		FUSION SOLID	S97T000162 02/11/97	17066-4	AT	01	03/18/97		SLF	Alpha Analysis
T110 C181S7 LH FUSION-DU R: 2 S: 7 C: 181		FUSION SOLID	S97T000162D 02/11/97	17066-5	AT	01	03/18/97		SLF	Alpha Analysis
T110 C181S7 LH FUSION-SP R: 2 S: 7 C: 181		FUSION SOLID	S97T000162S 02/11/97	17066-6	AT	01	03/18/97		SLF	Alpha Analysis

Final Report

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id 222-S
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 Version 1.0
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222-S LABORATORY

TANK 241-T-110 CORE 181

WORK SUMMARY, cont.

SDG 97000083

Contact J. L. Nuzum

Client THRS

Tank T-110

CLIENT SAMPLE ID LOCATION CUSTODY	PRIORITY	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
T110 C181S8 LH FUSION R: 2 S: 8 C: 181		FUSION SOLID	S97T000196 02/19/97	17072-4	AT	02	03/20/97		SLF	Alpha Analysis
T110 C181S8 LH FUSION-DU R: 2 S: 8 C: 181		FUSION SOLID	S97T000196D 02/19/97	17072-5	AT	02	03/20/97		SLF	Alpha Analysis
T110 C181S8 LH FUSION-SP R: 2 S: 8 C: 181		FUSION SOLID	S97T000196S 02/19/97	17072-6	AT	02	03/20/97		SLF	Alpha Analysis
DI Blank		LIQUID	B16695-2 16695-2	16695-2	AT		03/05/97		SLF	Alpha Analysis
Method Blank		SOLID	B16899-2 16899-2	16899-2	AT		03/08/97		SLF	Alpha Analysis
DI Blank		LIQUID	B17005-2 17005-2	17005-2	PU		03/15/97		JFR	Plutonium-239
Method Blank		SOLID	B17066-2 17066-2	17066-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	B17067-2 17067-2	17067-2	AT		03/18/97		SLF	Alpha Analysis
Method Blank		SOLID	B17072-2 17072-2	17072-2	AT		03/20/97		SLF	Alpha Analysis
Lab Control Sample		LIQUID	S16695-1 16695-1	16695-1	AT		03/05/97		SLF	Alpha Analysis
Lab Control Sample		SOLID	S16899-1 16899-1	16899-1	AT		03/08/97		SLF	Alpha Analysis
Lab Control Sample		LIQUID	S17005-1 17005-1	17005-1	PU		03/15/97		JFR	Plutonium-239

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TANK 241-T-110 CORE 181

WORK SUMMARY, cont.

SDG 97000083
 Contact J. L. Nuzum

Client TWRS
 Tank T-110

CLIENT SAMPLE ID	LAB SAMPLE ID	MATRIX	COLLECTED	SUF-	TEST	ANALYZED	REVIEWED	BY	METHOD
LOCATION	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	Priority								
Lab Control Sample	S17066-1	17066-1	AT		03/18/97		SLF	Alpha Analysis	
	SOLID								
Lab Control Sample	S17067-1	17067-1	AT		03/18/97		SLF	Alpha Analysis	
	SOLID								
Lab Control Sample	S17072-1	17072-1	AT		03/20/97		SLF	Alpha Analysis	
	SOLID								

COUNTS OF TESTS BY SAMPLE TYPE

TEST	Priority	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
AT		Alpha Analysis	222-S Lab Analytical Procedure	8			4	4	8	3	27
AT		Alpha Analysis	222-S Lab Analytical Procedure	1			1	1	1		4
PU		Plutonium-239	222-S Lab Analytical Procedure	1			1	1	1		4
TOTALS				10			6	6	10	3	35

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TANK 241-T-110 CORE 181

SDG 97000083
Contact J. L. Nuzum

BLANKS

Client TWRS
Tank T-110

Lab sample id <u>B16695-2</u>		Client sample id <u>DI Blank</u>						
Dept sample id _____		Material/Matrix _____ LIQUID						
ANALYTE	CAS NO	RESULT uCi/ml	2 σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST PREP BATCH	
Total Alpha	12587-46-1	4.0E-07		4.0E-07		U AT	97000569	

Lab sample id <u>B16899-2</u>		Client sample id <u>Method Blank</u>						
Dept sample id _____		Material/Matrix _____ SOLID						
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST PREP BATCH	
Total Alpha	12587-46-1	4.0E-04		4.0E-04		U AT	97000818	

Lab sample id <u>B17005-2</u>		Client sample id <u>DI Blank</u>						
Dept sample id _____		Material/Matrix _____ LIQUID						
ANALYTE	CAS NO	RESULT uCi/ml	2 σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST PREP BATCH	
Plutonium 239/240		3.4E-06		3.4E-06		U PU	97000926	

Lab sample id <u>B17066-2</u>		Client sample id <u>Method Blank</u>						
Dept sample id _____		Material/Matrix _____ SOLID						
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST PREP BATCH	
Total Alpha	12587-46-1	2.0E-03		2.0E-03		U AT	97000989	

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TANK 241-T-110 CORE 181

SDG 97000083

Contact J. L. Nuzum

BLANKS

Client TWRS

Tank T-110

Lab sample id <u>B17067-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix _____ SOLID					
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	2.9E-03		2.9E-03		U	AT 97000990

Lab sample id <u>B17072-2</u>		Client sample id <u>Method Blank</u>					
Dept sample id _____		Material/Matrix _____ SOLID					
ANALYTE	CAS NO	RESULT uCi/g	2 σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST PREP BATCH
Total Alpha	12587-46-1	3.0E-03		3.0E-03		U	AT 97000995

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TANK 241-T-110 CORE 181

LAB CONTROL SAMPLES

SDG 97000083
Contact J. L. Nuzum

Client TWRS
Tank T-110

Lab sample id <u>S16695-1</u>		Client sample id <u>Lab Control Sample</u>										
Dept sample id _____		Material/Matrix _____ LIQUID										
ANALYTE	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST	ADDED uCi/ml	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	1.85E-04	15	4.0E-07			AT	2.00E-4	5.0	92	77-123	70-130	97000569

Lab sample id <u>S16899-1</u>		Client sample id <u>Lab Control Sample</u>										
Dept sample id _____		Material/Matrix _____ SOLID										
ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	7.02E-02	16	2.0E-04			AT	1.01E-1	5.0	70	82-118	70-130	97000818

Lab sample id <u>S17005-1</u>		Client sample id <u>Lab Control Sample</u>										
Dept sample id _____		Material/Matrix _____ LIQUID										
ANALYTE	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST	ADDED uCi/ml	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Plutonium 239/240	1.01E-04	15	3.7E-06			PU	1.09E-4	5.0	93	78-122		97000926

Lab sample id <u>S17066-1</u>		Client sample id <u>Lab Control Sample</u>										
Dept sample id _____		Material/Matrix _____ SOLID										
ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	8.18E-02	16	2.0E-04			AT	9.68E-2	5.0	84	79-121	70-130	97000989

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TANK 241-T-110 CORE 181

LAB CONTROL SAMPLES

SDG 97000083
 Contact J. L. Nuzum

Client TWRS
 Tank I-110

Lab sample id <u>S17067-1</u>		Client sample id <u>Lab Control Sample</u>										
Dept sample id _____		Material/Matrix _____ <u>SOLID</u>										
ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	<u>9.24E-02</u>	15	<u>2.9E-04</u>			AT	<u>1.03E-1</u>	5.0	<u>90</u>	78-122	<u>70-130</u>	97000990

Lab sample id <u>S17072-1</u>		Client sample id <u>Lab Control Sample</u>										
Dept sample id _____		Material/Matrix _____ <u>SOLID</u>										
ANALYTE	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ADDED uCi/g	2σ ERR %	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS	PREP BATCH
Total Alpha	<u>8.34E-02</u>	16	<u>3.0E-04</u>			AT	<u>9.76E-2</u>	5.0	<u>85</u>	79-121	<u>70-130</u>	97000995

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TANK 241-T-110 CORE 181

DUPLICATE

S97T0001190

T110 C181 FB DIR J11744

SDG <u>97000083</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T0001190</u>	Lab sample id <u>S97T000119</u>
Dept sample id _____	Dept sample id _____
Received <u>02/10/97</u>	Client sample id <u>T110 C181 FB DIR J11744</u>
	Location/Matrix <u>R: 2 S: Field Blank C: 1 LIQUID</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST	ORIGINAL uCi/ml	2σ TPU %	MDA uCi/ml	QUALI- FIERS	RPD %	3σ TOT LIMIT	PROT
Total Alpha	5.65E-07	69	4.0E-07			AT	5.37E-07	120	4.0E-07		5	200	145

Loc: Riser: 2 Seg: Field Blank Core: 181

Loc: Riser: 2 Seg: Field Blank Core: 181

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TANK 241-T-110 CORE 181

DUPLICATE

S97T000148D

T110 C181S1 LH FUSION

SDG <u>97000083</u>	Client <u>TWRS</u>		
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>		
DUPLICATE	ORIGINAL		
Lab sample id <u>S97T000148D</u>	Lab sample id <u>S97T000148</u>	Client sample id <u>T110 C181S1 LH FUSION</u>	<u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix <u>R: 2 S: 1 C: 181</u>	<u>SOLID</u>
	Received <u>02/10/97</u>	Collected _____	
		Chain of custody id _____	

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	6.68E-02	21	2.9E-03			AT	7.50E-02	20	2.9E-03		42	20	

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TANK 241-T-110 CORE 181

DUPLICATE

S97T000149D

T110 C181S2 LH FUSION

SDG <u>97000083</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T000149D</u>	Lab sample id <u>S97T000149</u>
Dept sample id _____	Client sample id <u>T110 C181S2 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 2 S: 2 C: 181</u> <u>SOLID</u>
	Received <u>02/10/97</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	5.12E-02	21	2.6E-03			AT	4.66E-02	21	2.7E-03		9	44	20

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TANK 241-T-110 CORE 181

DUPLICATE

S97T0001500

T110 C181S3 LH FUSION

SDG <u>97000083</u>	Client <u>THRS</u>		
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>		
DUPLICATE	ORIGINAL		
Lab sample id <u>S97T0001500</u>	Lab sample id <u>S97T000150</u>	Client sample id <u>T110 C181S3 LH FUSION</u>	<u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix R: <u>2 S: 3 C: 181</u>	<u>SOLID</u>
	Received <u>02/10/97</u>	Collected _____	
		Chain of custody id _____	

ANALYTE	DUPLICATE	2σ TPU	MDA	RDL	QUALI-	ORIGINAL	2σ TPU	MDA	QUALI-	RPD	3σ	PROT	
	uCi/g	%	uCi/g	uCi/g	FIERS		TEST	uCi/g	%	uCi/g	FIERS	%	TOT LIMIT
Total Alpha	3.02E-02	17	4.0E-04			AT	3.42E-02	17	4.0E-04	L	12	37	20

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TANK 241-T-110 CORE 181

S97T000151D

T110-C181S4 LH FUSION

DUPLICATE

SDG <u>97000083</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T000151D</u>	Lab sample id <u>S97T000151</u>
Dept sample id _____	Client sample id <u>T110 C181S4 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 2 S: 4 C: 181</u> <u>SOLID</u>
	Received <u>02/10/97</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	3.98E-02	17	2E-04		L	AT	3.91E-02	17	4.4E-04	L	2	36 20

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TANK 241-T-110 CORE 181

S97T000162D

T110 C181S7 LH FUSION

DUPLICATE

SDG <u>97000083</u>	Client <u>THRS</u>		
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>		
DUPLICATE	ORIGINAL		
Lab sample id <u>S97T000162D</u>	Lab sample id <u>S97T000162</u>	Client sample id <u>T110 C181S7 LH FUSION</u>	<u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix <u>R: 2 S: 7 C: 181</u>	<u>SOLID</u>
	Received <u>02/11/97</u>	Collected _____	
		Chain of custody id _____	

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Total Alpha	6.51E+02	20	2.0E+03			AT	6.05E+02	21	2.0E+03		7	43 20

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TANK 241-T-110 CORE 181

DUPLICATE

S97T000169D

T110 C181S5 LH Fusion

SDG <u>97000083</u>	Client <u>TWRS</u>	
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>S97T000169D</u>	Lab sample id <u>S97T000169</u>	Client sample id <u>T110 C181S5 LH Fusion</u> <u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix <u>R: 2 S: 5 C: 181</u> <u>SOLID</u>
	Received <u>02/13/97</u>	Collected _____
		Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	5.32E-02	21	2.1E-03			AT	4.29E-02	22	2.1E-03		21	46	20

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TANK 241-T-110 CORE 181

DUPLICATE

S97T0001780

T110: C181S6 LH FUSION

SDG <u>97000083</u>	Client <u>TWRS</u>	
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>S97T0001780</u>	Lab sample id <u>S97T000178</u>	Client sample id <u>T110 C181S6 LH FUSION</u> FUSION
Dept sample id _____	Dept sample id _____	Location/Matrix <u>R: 2 S: 6 C: 181</u> SOLID
	Received <u>02/14/97</u>	Collected _____
		Chain of custody id _____

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- RPD FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	5.04E-02	22	2.1E-03			AT	5.52E-02	22	2.2E-03	9	45	20	

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222-S LABORATORY

TANK 241-T-110 CORE 181

DUPLICATE

S97T0001960

T110: C181S8: LH: FUSION

SDG <u>97000083</u>	Client <u>TWRS</u>		
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>		
DUPLICATE	ORIGINAL		
Lab sample id <u>S97T0001960</u>	Lab sample id <u>S97T000196</u>	Client sample id <u>T110 C181S8 LH FUSION</u>	<u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix <u>R: 2 S: 8 C: 181</u>	<u>SOLID</u>
	Received <u>02/19/97</u>	Collected _____	
		Chain of custody id _____	

ANALYTE	DUPLICATE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST	ORIGINAL uCi/g	2σ TPU %	MDA uCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Total Alpha	6.14E-02	20	2.9E-03			AT	5.88E-02	22	3.0E-03		4	45	20

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TANK 241-T-110 CORE 181

DUPLICATE

S97T000381D

T110 C181 FB2 DIR V#1241

SDG <u>97000083</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
DUPLICATE	ORIGINAL
Lab sample id <u>S97T000381D</u>	Lab sample id <u>S97T000381</u>
Dept sample id _____	Dept sample id _____
Received <u>03/12/97</u>	Client sample id <u>T110 C181 FB2 DIR V#1241</u>
	Location/Matrix <u>R: 2 S: Field Blank C: 1 LIQUID</u>
	Collected _____
	Chain of custody id _____

ANALYTE	DUPLICATE uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST	ORIGINAL uCi/ml	2σ TPU %	MDA uCi/ml	QUALI- RPD FIERS %	3σ PROT TOT LIMIT
Plutonium 239/240	<3.5E-06		3.5E-06		U	PU	3.4E-06		3.4E-06	U	

Loc: Riser: 2 Seg: Field Blank Core: 181

Samp: T110 C181 FB2 DIR V#1241
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Lab id <u>222-s</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY

TANK 241-T-110 CORE 181

MATRIX SPIKE

S97T000148S

T110 C181S1 LH FUSION

SDG <u>97000083</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
MATRIX SPIKE	ORIGINAL
Lab sample id <u>S97T000148S</u>	Lab sample id <u>S97T000148</u>
Dept sample id _____	Client sample id <u>T110 C181S1 LH FUSION</u> <u>FUSION</u>
	Location/Matrix <u>R: 2 S: 1 C: 181</u> <u>SOLID</u>
	Collected _____
	Chain of custody id _____
	Received <u>02/10/97</u>

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC 3σ % (TOTAL)	LMTS LIMITS	PROTOCOL
Total Alpha	1.44E-01				AT	1.85E01	5.0	7.50E-02	20	77	81-119	75-125

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MATRIX SPIKES
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Lab id <u>222-s</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-HS</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY

TANK 241-T-110 CORE 181

MATRIX SPIKE

S97T000162S

T110 C181S7 LH FUSION

SDG <u>97000083</u>	Client <u>TWRS</u>		
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>		
MATRIX SPIKE	ORIGINAL		
Lab sample id <u>S97T000162S</u>	Lab sample id <u>S97T000162</u>	Client sample id <u>T110 C181S7 LH FUSION</u>	<u>FUSION</u>
Dept sample id _____	Dept sample id _____	Location/Matrix R: <u>2 S: 7 C: 181</u>	<u>SOLID</u>
	Received <u>02/11/97</u>	Collected _____	
		Chain of custody id _____	

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC 3σ LNTS % (TOTAL)	PROTOCOL LIMITS
Total Alpha	1.19E-01				AT	1.73E01	5.0	6.05E-02	21	68	83-117 75-125

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MATRIX SPIKES

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SUMMARY DATA SECTION

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Lab id <u>222-S</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-MS</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY

TANK 241-T-110 CORE 181

MATRIX SPIKE

S97T000196S

T110 C181S8 LH FUSION

SDG <u>97000083</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
MATRIX SPIKE	ORIGINAL
Lab sample id <u>S97T000196S</u>	Lab sample id <u>S97T000196</u>
Dept sample id _____	Dept sample id _____
Received <u>02/19/97</u>	Client sample id <u>T110 C181S8 LH FUSION</u> FUSION
	Location/Matrix R: <u>2 S: 8 C: 181</u> SOLID
	Collected _____
	Chain of custody id _____

ANALYTE	SPIKE uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS TEST	ADDED uCi/g	2σ ERR %	ORIGINAL uCi/g	2σ TPU %	REC 3σ LMTS % (TOTAL)	PROTOCOL LIMITS
Total Alpha	9.33E-00				AT	1.75E01	5.0	5.88E-02	22	53	86-114 75-125

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MATRIX SPIKES

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SUMMARY DATA SECTION

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Lab id <u>222-S</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-MS</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000119

DATA SHEET

T110 C181 FB DIR J11744

SDG 9700083
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000119
Dept sample id _____
Received 02/10/97Client sample id T110 C181 FB DIR J11744
Location/Matrix R: 2 S: Field Blank C: 1 LIQUID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST
Total Alpha	12587-46-1	5.37E-07	120	4.0E-07			AT

Loc: Riser: 2 Seg: Field Blank Core: 181

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DATA SHEETS
Page 1SUMMARY DATA SECTION
Page 25Lab id 222-S
Protocol SST
Version 1.0
Form DVD-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000381

T110 C181 FB2 DIR V#1241

DATA SHEET

SDG 97000083Client TWRSContact J. L. NuzumTank T-110Lab sample id S97T000381Client sample id T110 C181 FB2 DIR V#1241

Dept sample id _____

Location/Matrix R: 2 S: Field Blank C: 1 LIQUIDReceived 03/12/97

Collected _____

Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/ml	2σ TPU %	MDA uCi/ml	RDL uCi/ml	QUALI- FIERS	TEST
Plutonium 239/240		<3.4E-06		3.4E-06		U	PU

Samp: T110 C181 FB2 DIR V#12415Loc: Riser: 2 Seg: Field Blank Core: 181

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222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000148

T110 C181S1 LH FUSION

DATA SHEET

SDG 97000083
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000148
Dept sample id _____
Received 02/10/97Client sample id T110 C181S1 LH FUSION FUSION
Location/Matrix R: 2 S: 1 C: 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	7.50E-02	20	2.9E-03			AT

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Protocol SST
Version 1.0
Form DVD-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000149

T110 C181S2 LH FUSION

DATA SHEET

SDG 97000083 Client TWRS
 Contact J. L. Nuzum Tank T-110
 Lab sample id S97T000149 Client sample id T110 C181S2 LH FUSION FUSION
 Dept sample id _____ Location/Matrix R: 2 S: 2 C: 181 SOLID
 Received 02/10/97 Collected _____
 Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.66E-02	21	2.7E-03			AT

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Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-DS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000150

T110 C181S3 LH FUSION

DATA SHEET

SDG 97000083
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000150
Dept sample id _____
Received 02/10/97Client sample id T110 C181S3 LH FUSION FUSION
Location/Matrix R: 2 S: 3 C: 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	3.42E-02	17	4.0E-04		L	AT

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Page 5SUMMARY DATA SECTION
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Protocol SST
Version 1.0
Form DVD-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000151

T110 C181S4 LH FUSION

DATA SHEET

SDG 97000083
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000151
Dept sample id _____
Received 02/10/97Client sample id T110 C181S4 LH FUSION FUSION
Location/Matrix R: 2 S: 4 C: 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	3.91E-02	17	4.4E-04		L	AT

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DATA SHEETS

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Lab id	<u>222-S</u>
Protocol	<u>SST</u>
Version	<u>1.0</u>
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Version	<u>3.08</u>
Report date	<u>03/26/97</u>

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000169

T110 C181S5 LH Fusion

DATA SHEET

SDG 97000083
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000169
Dept sample id _____
Received 02/13/97Client sample id T110 C181S5 LH Fusion FUSION
Location/Matrix R: 2 S: 5 C: 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	4.29E-02	22	2.1E-03			AT

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DATA SHEETS

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-DS
Version 3.08
Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000178

T110 C181S6 LH FUSION

DATA SHEET

SDG 97000083
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000178Client sample id T110 C181S6 LH FUSION FUSION

Dept sample id _____

Location/Matrix R: 2 S: 6 C: 181 SOLIDReceived 02/14/97

Collected _____

Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	5.52E-02	22	2.2E-03			AT

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DATA SHEETS

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SUMMARY DATA SECTION

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Lab id 222-S
 Protocol SST
 Version 1.0
 Form DVD-DS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY
TANK 241-T-110 CORE 181

S97T000162

T110 C181S7 LH FUSION

DATA SHEET

SDG 97000083
Contact J. L. NuzumClient TWRS
Tank T-110Lab sample id S97T000162
Dept sample id _____
Received 02/11/97Client sample id T110 C181S7 LH FUSION FUSION
Location/Matrix R: 2 S: 7 C: 181 SOLID
Collected _____
Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	6.05E-02	21	2.0E-03			AT

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DATA SHEETS

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Lab id	<u>222-S</u>
Protocol	<u>SST</u>
Version	<u>1.0</u>
Form	<u>DVD-DS</u>
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Report date	<u>03/26/97</u>

222 - S LABORATORY
TANK 241-T-110 CORE 181

S97T000196

T110 C181S8 LH FUSION

DATA SHEET

SDG <u>97000083</u>	Client <u>TWRS</u>
Contact <u>J. L. Nuzum</u>	Tank <u>T-110</u>
Lab sample id <u>S97T000196</u>	Client sample id <u>T110 C181S8 LH FUSION</u> <u>FUSION</u>
Dept sample id _____	Location/Matrix <u>R: 2 S: 8 C: 181</u> <u>SOLID</u>
Received <u>02/19/97</u>	Collected _____
	Chain of custody id _____

ANALYTE	CAS NO	RESULT uCi/g	2σ TPU %	MDA uCi/g	RDL uCi/g	QUALI- FIERS	TEST
Total Alpha	12587-46-1	5.88E-02	22	3.0E-03			AT

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SUMMARY DATA SECTION

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Lab id <u>222-S</u>
Protocol <u>SST</u>
Version <u>1.0</u>
Form <u>DVD-DS</u>
Version <u>3.08</u>
Report date <u>03/26/97</u>

222-S LABORATORY

TANK 241-T-110 CORE 181

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Test AT Matrix LIQUID
SDG 97000083
Contact J. L. NUZUM

Client THRS
Tank T-110

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	1: Total		2: Sum, Alpha		RESULT RATIO (%)	
					Alpha	Emitters	2-1	2σ		

Preparation batch 97000569

DI Blank	B16695-2			16695-2	U					
T110 C181 FB DIR J11744	S97T000119			16695-4	5.37E-07					
T110 C181 FB DIR J11744-	S97T000119D			16695-5	ok					
Lab Control Sample	S16695-1			16695-1	ok					

Nominal values and limits from method RDLs (uCi/ml) 80
Average

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA uCi/ml	ALIQ ml	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL-	
														PREPARED	YZED

Preparation batch 97000569 2σ prep error 15.0 % Reference

DI Blank	B16695-2			4.0E-07	1.00		1.00			27	30				03/05/97	WB27806
T110 C181 FB DIR J11744	S97T000119			4.0E-07	1.00	1.00	1.00			27	30				03/05/97	WB27806
T110 C181 FB DIR J11744-	S97T000119D			4.0E-07	1.00	1.00	1.00			27	30				03/05/97	WB27806
Lab Control Sample	S16695-1			4.0E-07	1.00	1.00	1.00			27	30				03/05/97	WB27806

Nominal values and limits from method 0.100 30
20-55

PROCEDURES REFERENCE 222-S Lab Analytical Procedure
LO-160-103 Core Segment Extrusion Process and Sample Preparation, rev 17
LA-508-101A Alpha in liquid samples, rev 42
LA-508-11NA Operation of the [Tennelec LB-5500 (n=0, A-5), LB-1000 (n=1, A-3), Gamma Products (n=4, A-2)] Alpha/Beta Counting Systems

AVERAGES ± 2 SD MDA 4.0E-07 ± 0.0E 00
FOR 4 SAMPLES EFFICIENCY 27 ± 0

Final Report

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-CMS
Version 3.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

METHOD SUMMARY

PLUTONIUM-239

ALPHA SPECTROSCOPY

Test PU Matrix LIQUID

SDG 9700083

Contact J. L. Nuzum

Client THRS

Tank T-110

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 239/240	Plutonium 238
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Preparation batch 97000926

DI Blank	B17005-2	17005-2			U	
T110 C181 F82 DIR V#1241	S97T000381	17005-3			U	
T110 C181 F82 DIR V#1241	S97T000381D	17005-4			U	
Lab Control Sample	S17005-1	17005-1			ok	

Nominal values and limits from method RDLs (uCi/ml)

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA uCi/ml	ALIQ ml	PREP FAC	DILU TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
------------------	---------------	----------	---------	----------------	---------	----------	-----------	---------	-------	-----------	----------	-----------	-----------	----------------	------	----------

Preparation batch 97000926

2σ prep error 15.0 % Reference

DI Blank	B17005-2	3.4E-06	1.00				1.00	99	37	30				03/15/97	WC1610521	
T110 C181 F82 DIR V#1241	S97T000381	3.4E-06	1.00	1.00	1.00	1.00	1.00	103	37	30				03/15/97	WC1610521	
T110 C181 F82 DIR V#1241	S97T000381D	3.5E-06	1.00	1.00	1.00	1.00	1.00	97	37	30				03/15/97	WC1610521	
Lab Control Sample	S17005-1	6.7E-06	1.00	1.00	1.00	1.00	1.00	99	37	30				03/15/97	WC1610521	

Nominal values and limits from method 0.100 30-105 30 20-55

PROCEDURES	REFERENCE	222-S Lab Analytical Procedure
LO-160-103	Core Segment Extrusion Process and Sample Preparation, rev 17	
LA-943-128	Determination of Pu by Extraction with TRU-Spec Resin, rev B-0	
LA-508-104	Total Alpha Counting by Alpha Proportional Counting, rev 14	
LA-508-161	Alpha Energy Analysis Using the Genie System, rev 11	

AVERAGES ± 2 SD	MDA 4.2E-06 ± 3.3E-06
FOR 4 SAMPLES	YIELD 98 ± 7
	EFFICIENCY 37 ± 0

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METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id 222-s	_____
Protocol SST	_____
Version 1.0	_____
Form DVD-CMS	_____
Version 3.08	_____
Report date 03/26/97	_____

222-S LABORATORY

TANK 241-T-110 CORE 181

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Test AT Matrix SOLID
SDG 97000083
Contact J. L. Nuzum

Client THRS
Tank T-110

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Total	2: Americium	3: Sum, Alpha	RESULT RATIOS (%)		
					Alpha	241 (GEA)	Emitters	2÷1	2σ	3÷1
Preparation batch 97000818										
T110 C181S3 LH FUSION FU	S97T000150			16899-4	3.42E-02					
T110 C181S3 LH FUSION-DU	S97T000150D			16899-5	ok					
T110 C181S4 LH FUSION FU	S97T000151			16899-6	3.91E-02					
T110 C181S4 LH FUSION-DU	S97T000151D			16899-7	ok					
Method Blank	B16899-2			16899-2	U					
Lab Control Sample	S16899-1			16899-1	LOW					
Preparation batch 97000989										
T110 C181S5 LH Fusion FU	S97T000169	01		17066-7	4.29E-02					
T110 C181S5 LH Fusion-DU	S97T000169D	01		17066-8	OUT					
T110 C181S6 LH FUSION FU	S97T000178	01		17066-9	5.52E-02					
T110 C181S6 LH FUSION-DU	S97T000178D	01		17066-10	ok					
T110 C181S7 LH FUSION FU	S97T000162	01		17066-4	6.05E-02					
T110 C181S7 LH FUSION-DU	S97T000162D	01		17066-5	ok					
T110 C181S7 LH FUSION-SP	S97T000162S	01		17066-6	LOW					
Method Blank	B17066-2			17066-2	U					
Lab Control Sample	S17066-1			17066-1	ok					
Preparation batch 97000990										
T110 C181S1 LH FUSION FU	S97T000148	02		17067-4	7.50E-02					
T110 C181S1 LH FUSION-DU	S97T000148D	02		17067-5	ok					
T110 C181S1 LH FUSION-SP	S97T000148S	02		17067-6	LOW					
T110 C181S2 LH FUSION FU	S97T000149	02		17067-7	4.66E-02					
T110 C181S2 LH FUSION-DU	S97T000149D	02		17067-8	ok					
Method Blank	B17067-2			17067-2	U					
Lab Control Sample	S17067-1			17067-1	ok					
Preparation batch 97000995										
T110 C181S8 LH FUSION FU	S97T000196	02		17072-4	5.88E-02					
T110 C181S8 LH FUSION-DU	S97T000196D	02		17072-5	ok					
T110 C181S8 LH FUSION-SP	S97T000196S	02		17072-6	LOW					
Method Blank	B17072-2			17072-2	U					
Lab Control Sample	S17072-1			17072-1	ok					

Nominal values and limits from method RDLs (uCi/g) 100 80
Averages

Final Report

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id 222-S
Protocol SST
Version 1.0
Form DVD-CMS
Version 3.08
Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

Test AT Matrix SOLID

SDG 97000083

Contact J. L. NUZUM

Client THRS

Tank T-110

METHOD SUMMARY

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF-TEST FIX	MDA uc/g	ALIQ ml	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 97000818 2σ prep error 15.0 % Reference															
T110 C181S3 LH FUSION FU	S97T000150		4.0E-04	0.500	505	1.00		27	30				03/05/97	03/08	WB27806
T110 C181S3 LH FUSION-DU	S97T000150D		4.0E-04	0.500	496	1.00		27	30				03/05/97	03/08	WB27806
T110 C181S4 LH FUSION FU	S97T000151		4.4E-04	0.500	543	1.00		27	30				03/05/97	03/08	WB27806
T110 C181S4 LH FUSION-DU	S97T000151D		4.2E-04	0.500	522	1.00		27	30				03/05/97	03/08	WB27806
Method Blank	B16899-2		4.0E-04	0.500	505	1.00		27	30				03/08/97		WB27806
Lab Control Sample	S16899-1		2.0E-04	1.00	505	1.00		27	30				03/08/97		WB27806
Preparation batch 97000989 2σ prep error 15.0 % Reference															
T110 C181S5 LH Fusion FU	S97T000169	01	2.1E-03	0.100	519	1.00		26	30				03/11/97	03/18	WB27809
T110 C181S5 LH Fusion-DU	S97T000169D	01	2.1E-03	0.100	509	1.00		26	30				03/11/97	03/18	WB27809
T110 C181S6 LH FUSION FU	S97T000178	01	2.2E-03	0.100	546	1.00		26	30				03/11/97	03/18	WB27809
T110 C181S6 LH FUSION-DU	S97T000178D	01	2.1E-03	0.100	513	1.00		26	30				03/11/97	03/18	WB27809
T110 C181S7 LH FUSION FU	S97T000162	01	2.0E-03	0.100	484	1.00		26	30				03/11/97	03/18	WB27809
T110 C181S7 LH FUSION-DU	S97T000162D	01	2.0E-03	0.100	483	1.00		26	30				03/11/97	03/18	WB27809
T110 C181S7 LH FUSION-SP	S97T000162S	01		0.100	484	1.00		26	30				03/11/97	03/18	WB27809
Method Blank	B17066-2		2.0E-03	0.100	484	1.00		26	30				03/18/97		WB27809
Lab Control Sample	S17066-1		2.0E-04	1.00	484	1.00		26	30				03/18/97		WB27809
Preparation batch 97000990 2σ prep error 15.0 % Reference															
T110 C181S1 LH FUSION FU	S97T000148	02	2.9E-03	0.100	516	1.00		29	30				03/05/97	03/18	WB27810
T110 C181S1 LH FUSION-DU	S97T000148D	02	2.9E-03	0.100	514	1.00		29	30				03/05/97	03/18	WB27810
T110 C181S1 LH FUSION-SP	S97T000148S	02		0.100	516	1.00		29	30				03/05/97	03/18	WB27810
T110 C181S2 LH FUSION FU	S97T000149	02	2.7E-03	0.100	479	1.00		29	30				03/05/97	03/18	WB27810
T110 C181S2 LH FUSION-DU	S97T000149D	02	2.6E-03	0.100	460	1.00		29	30				03/05/97	03/18	WB27810
Method Blank	B17067-2		2.9E-03	0.100	516	1.00		29	30				03/18/97		WB27810
Lab Control Sample	S17067-1		2.9E-04	1.00	516	1.00		29	30				03/18/97		WB27810
Preparation batch 97000995 2σ prep error 15.0 % Reference															
T110 C181S8 LH FUSION FU	S97T000196	02	3.0E-03	0.100	488	1.00		27	30				03/06/97	03/20	WB27806
T110 C181S8 LH FUSION-DU	S97T000196D	02	2.9E-03	0.100	466	1.00		27	30				03/06/97	03/20	WB27806
T110 C181S8 LH FUSION-SP	S97T000196S	02		0.100	488	1.00		27	30				03/06/97	03/20	WB27806
Method Blank	B17072-2		3.0E-03	0.100	488	1.00		27	30				03/20/97		WB27806
Lab Control Sample	S17072-1		3.0E-04	1.00	488	1.00		27	30				03/20/97		WB27806

Nominal values and limits from method

0.100

30

20-55

Final Report

METHOD SUMMARIES

Page 4

SUMMARY DATA SECTION

Page 38

Lab id 222-s
 Protocol SST
 Version 1.0
 Form DVD-CMS
 Version 3.08
 Report date 03/26/97

222-S LABORATORY

TANK 241-T-110 CORE 181

Test AT Matrix _____

SDG 97000083Contact J. L. Nuzum

METHOD SUMMARY, cont.

ALPHA ANALYSIS

GAS PROPORTIONAL COUNTING

Client THRSTank T-110

PROCEDURES	REFERENCE	222-S Lab Analytical Procedure
	LO-160-103	Core Segment Extrusion Process and Sample Preparation, rev 17
	LA-549-141	Fusion with Alkali Metal Hydroxide, rev 40
	LA-508-101A	Alpha in liquid samples, rev 42
	LA-508-11NA	Operation of the [Tennelec LB-5500 (n=0, A-5), LB-1000 (n=1, A-3), Gamma Products (n=4, A-2)] Alpha/Beta Counting Systems

AVERAGES \pm 2 SD	MDA <u>1.7E-03</u> \pm <u>2.2E-03</u>
FOR 27 SAMPLES	EFFICIENCY <u>27</u> \pm <u>2.4</u>

Final Report

METHOD SUMMARIES

Page 5

SUMMARY DATA SECTION

Page 39

Lab id	<u>222-s</u>
Protocol	<u>SST</u>
Version	<u>1.0</u>
Form	<u>DVD-CMS</u>
Version	<u>3.08</u>
Report date	<u>03/26/97</u>

SAMPLE HANDLING

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LABCORE Data Entry Template for Worklist# 16499

Analyst: EC Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C181 FIELD BLANK RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500-10</u>	<u>N/A</u>	
97000083	T-110	3 SAMPLE	S97T000099	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>250</u>		mL
97000083	T-110	4 SAMPLE	S97T000099	0	DLIQWT01	SOLID	<u>N/A</u>	<u>253.5</u>		g
97000083	T-110	5 SAMPLE	S97T000099	0	EST.G/ML	SOLID	<u>N/A</u>	<u>1.01</u>		g/mL
97000083	T-110	6 SAMPLE	S97T000099	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	7 SAMPLE	S97T000099	0	LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	8 SAMPLE	S97T000099	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000083	T-110	9 SAMPLE	S97T000099	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		mL
97000083	T-110	10 SAMPLE	S97T000099	0	SLDWT-01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	11 SAMPLE	S97T000099	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	12 SAMPLE	S97T000099	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 16499

CSL 2-7-97
 Analyst Signature Date
Bertrand Giffin II
2-10-97

✓ CSL 2-7-97
 Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16500

Analyst: EL Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B50

Worklist Comment: T-110 C181 SEG # 1 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.10</u>	<u>N/A</u>	
97000083	T-110	3 SAMPLE	S97T000100	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
97000083	T-110	4 SAMPLE	S97T000100	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	5 SAMPLE	S97T000100	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
97000083	T-110	6 SAMPLE	S97T000100	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	7 SAMPLE	S97T000100	0	LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	8 SAMPLE	S97T000100	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N/A200</u>		
97000083	T-110	9 SAMPLE	S97T000100	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		mL
97000083	T-110	10 SAMPLE	S97T000100	0	SLDWT-01	SOLID	<u>N/A</u>	<u>319.9</u>		g
97000083	T-110	11 SAMPLE	S97T000100	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	12 SAMPLE	S97T000100	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 16500

EL 2-7-97
Analyst Signature Date

EL 2-7-97
Analyst Signature Date

*Validated
by RK7
2/7/97*

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16501

Analyst: EL Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C181 SEG # 2 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.13</u>	<u>N/A</u>	
97000083	T-110	3 SAMPLE	S97T000101	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
97000083	T-110	4 SAMPLE	S97T000101	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	5 SAMPLE	S97T000101	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
97000083	T-110	6 SAMPLE	S97T000101	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	7 SAMPLE	S97T000101	0	LLIQWT01	SOLID	<u>N/A</u>	<u>5</u>		g
97000083	T-110	8 SAMPLE	S97T000101	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000083	T-110	9 SAMPLE	S97T000101	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		mL
97000083	T-110	10 SAMPLE	S97T000101	0	SLDWT-01	SOLID	<u>N/A</u>	<u>321.2</u>		g
97000083	T-110	11 SAMPLE	S97T000101	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	12 SAMPLE	S97T000101	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 16501

EL 2-6-97
Analyst Signature Date

✓ EL 2-6-97
Analyst Signature Date

*Validated
2/7/97
RK Fuller*

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 16502

Analyst: CE Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C181 SEG # 3 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01		EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2	INSTCHK02		EXTRUD01	SOLID	<u>500</u>	<u>500.10</u>	<u>N/A</u>	
97000083	T-110	3	SAMPLE	S97T000102	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>	ml
97000083	T-110	4	SAMPLE	S97T000102	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>	g
97000083	T-110	5	SAMPLE	S97T000102	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>	g/ml
97000083	T-110	6	SAMPLE	S97T000102	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>	
97000083	T-110	7	SAMPLE	S97T000102	0	LLIQWT01	SOLID	<u>N/A</u>	<u>0</u>	g
97000083	T-110	8	SAMPLE	S97T000102	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>	
97000083	T-110	9	SAMPLE	S97T000102	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>	ml
97000083	T-110	10	SAMPLE	S97T000102	0	SLDWT-01	SOLID	<u>N/A</u>	<u>338.2</u>	g
97000083	T-110	11	SAMPLE	S97T000102	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>	
97000083	T-110	12	SAMPLE	S97T000102	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>	ml

Final page for worklist # 16502

CE 2-7-97
Analyst Signature Date

✓ CE 2-7-97
Analyst Signature Date

Validated
2/7/97
RK Fuller
Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16503

Analyst: _____ Instrument: BA000 _____ Book # _____

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C181 SEG # 4 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.13</u>	<u>N/A</u>	
97000083	T-110	3 SAMPLE	S97T000103	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
97000083	T-110	4 SAMPLE	S97T000103	0	DLIQNT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	5 SAMPLE	S97T000103	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
97000083	T-110	6 SAMPLE	S97T000103	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	7 SAMPLE	S97T000103	0	LLIQNT01	SOLID	<u>N/A</u>	<u><5</u>		g
97000083	T-110	8 SAMPLE	S97T000103	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000083	T-110	9 SAMPLE	S97T000103	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		mL
97000083	T-110	10 SAMPLE	S97T000103	0	SLDWT-01	SOLID	<u>N/A</u>	<u>290.0</u>		g
97000083	T-110	11 SAMPLE	S97T000103	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	12 SAMPLE	S97T000103	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 16503

[Signature] 2-6-97 /
Analyst Signature Date

[Signature] 2-6-97
Analyst Signature Date

*Validated
2-7-97
RK Fuller*

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16504

Analyst: JLF Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mod B-0

Worklist Comment: T-110 C181 SEG # 5 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20.00</u>	<u>19.99</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500.00</u>	<u>500.09</u>	<u>N/A</u>	
97000083	T-110	3 SAMPLE	S97T000104	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		ml
97000083	T-110	4 SAMPLE	S97T000104	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	5 SAMPLE	S97T000104	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/ml
97000083	T-110	6 SAMPLE	S97T000104	0	EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000083	T-110	7 SAMPLE	S97T000104	0	LLIQWT01	SOLID	<u>N/A</u>	<u>5</u>		g
97000083	T-110	8 SAMPLE	S97T000104	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000083	T-110	9 SAMPLE	S97T000104	0	SLDVOL01	SOLID	<u>N/A</u>	<u>N/A</u>		ml
97000083	T-110	10 SAMPLE	S97T000104	0	SLDWT-01	SOLID	<u>N/A</u>	<u>336.1</u>		g
97000083	T-110	11 SAMPLE	S97T000104	0	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000083	T-110	12 SAMPLE	S97T000104	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16504

Jessie J. Frish 2/14/97
Analyst Signature Date

Jessie J. Frish 2/14/97
Analyst Signature Date

Bertrand Buffon II
2-14-97



Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16513

Analyst: JLF Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mod B-0

Worklist Comment: T-110 C 181 SEG #6 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01		EXTRUD01	SOLID	<u>20.00</u>	<u>19.99</u>	<u>N/A</u>	
		2	INSTCHK02		EXTRUD01	SOLID	<u>500.00</u>	<u>500.09</u>	<u>N/A</u>	
97000083	T-110	3	SAMPLE	S97T000105	0	DLIQVOL1	<u>N/A</u>	<u>0</u>		ml
97000083	T-110	4	SAMPLE	S97T000105	0	DLIQWT01	<u>N/A</u>	<u>0</u>		g
97000083	T-110	5	SAMPLE	S97T000105	0	EST.G/ML	<u>N/A</u>	<u>0</u>		g/ml
97000083	T-110	6	SAMPLE	S97T000105	0	EXTRUD01	<u>N/A</u>	<u>Complete</u>		
97000083	T-110	7	SAMPLE	S97T000105	0	LLIQWT01	<u>N/A</u>	<u><5</u>		g
97000083	T-110	8	SAMPLE	S97T000105	0	NOTEBOOK	<u>N/A</u>	<u>N-1200</u>		
97000083	T-110	9	SAMPLE	S97T000105	0	SLDVOL01	<u>N/A</u>	<u>N/A</u>		ml
97000083	T-110	10	SAMPLE	S97T000105	0	SLDWT-01	<u>N/A</u>	<u>346.6</u>		g
97000083	T-110	11	SAMPLE	S97T000105	0	APPEAR01	<u>N/A</u>	<u>Complete</u>		
97000083	T-110	12	SAMPLE	S97T000105	0	ORGVOL01	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16513

Jessie G. Insey 2/14/97
Analyst Signature Date

✓
Jessie G. Insey 2/14/97
Analyst Signature Date

Bertrand Griffin II
2-14-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 16514

Analyst: jlf Instrument: BA000 Book# _____

Method: _____ Rev/Mod B-C

Worklist Comment: T-110 C 181 SEG #7 RISER 2 EXTRUSION

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	INSTCHK01	0	EXTRUD01	SOLID	20	20.00	100.000 % Recovery
2	INSTCHK02	0	EXTRUD01	SOLID	500	500.09	100.018 % Recovery
3	SAMPLE	S97T000106	0	DLIQVOL1	SOLID	N/A	0 mL
4	SAMPLE	S97T000106	0	DLIQWT01	SOLID	N/A	0 g
5	SAMPLE	S97T000106	0	EST:G/ML	SOLID	N/A	0 g/ML
6	SAMPLE	S97T000106	0	EXTRUD01	SOLID	N/A	complete
7	SAMPLE	S97T000106	0	LLIQWT01	SOLID	N/A	5 g
8	SAMPLE	S97T000106	0	NOTEBOOK	SOLID	N/A	n-1200
9	SAMPLE	S97T000106	0	SLDVOL01	SOLID	N/A	n/a 0.100 mL
10	SAMPLE	S97T000106	0	SLDWT-01	SOLID	N/A	351.3 1.00e-002 g
11	SAMPLE	S97T000106	0	APPEAR01	SOLID	N/A	complete
12	SAMPLE	S97T000106	0	ORVOL01	SOLID	N/A	0 mL

Comments Section:

Comments for sample# S97T000106 and test APPEAR01.
*Extruded 19 inches of solids which were dark yellow in color and the texture was a wet sludge (D3). Subsampled in half segments.

Final page for worklist# 16514

B. J. Frisby 5-7-97
Analyst Signature Date

Analyst Signature Date

Bernard Sullivan II 5-7-97
Reviewer Signature Date

LABCORE Data Entry Template for Worklist# 16515

Analyst: ce Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod B50

Worklist Comment: T-110 C 181 SEG #8 RISER 2 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.0/</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.11</u>	<u>N/A</u>	
97000083	T-110	3 SAMPLE	S97T000107	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		ml
97000083	T-110	4 SAMPLE	S97T000107	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000083	T-110	5 SAMPLE	S97T000107	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/ml
97000083	T-110	6 SAMPLE	S97T000107	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	7 SAMPLE	S97T000107	0	LLIQWT01	SOLID	<u>N/A</u>	<u>LS</u>		g
97000083	T-110	8 SAMPLE	S97T000107	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000083	T-110	9 SAMPLE	S97T000107	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		ml
97000083	T-110	10 SAMPLE	S97T000107	0	SLDWT-01	SOLID	<u>N/A</u>	<u>369.1</u>		g
97000083	T-110	11 SAMPLE	S97T000107	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000083	T-110	12 SAMPLE	S97T000107	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16515

ce 2-18-97
Analyst Signature Date
Bertrand Griffin II
2-27-97

ce 2-18-97
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16643

Analyst: CC Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod DO

Worklist Comment: T-110 C180 SEG#1 R6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	INSTCHK01		EXTRUD01	SOLID	<u>20</u>	<u>20.01</u>	<u>N/A</u>	
		2	INSTCHK02		EXTRUD01	SOLID	<u>500</u>	<u>500.11</u>	<u>N/A</u>	
97000111	T-110	3	SAMPLE	S97T000153	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>	ml
97000111	T-110	4	SAMPLE	S97T000153	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>	g
97000111	T-110	5	SAMPLE	S97T000153	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>	g/ml
97000111	T-110	6	SAMPLE	S97T000153	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>	
97000111	T-110	7	SAMPLE	S97T000153	0	LLIQWT01	SOLID	<u>N/A</u>	<u>CS</u>	g
97000111	T-110	8	SAMPLE	S97T000153	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>	
97000111	T-110	9	SAMPLE	S97T000153	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>	ml
97000111	T-110	10	SAMPLE	S97T000153	0	SLDWT-01	SOLID	<u>N/A</u>	<u>339.9</u>	g
97000111	T-110	11	SAMPLE	S97T000153	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>	
97000111	T-110	12	SAMPLE	S97T000153	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>	ml

Final page for worklist # 16643

CC 2-18-96
 Analyst Signature Date
Erhard Duffin II
2-27-97

CC 2-18-96
 Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16644

Analyst: DKJ **Instrument:** BA000 **Book #** N/A

Method: LO-160-103 Rev/Mod B-0

Worklist Comment: T-110 C180 SEG#2 R6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20.00</u>	<u>19.93</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500.00</u>	<u>500.05</u>	<u>N/A</u>	
97000111	T-110	3 SAMPLE	S97T000154	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		ml
97000111	T-110	4 SAMPLE	S97T000154	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000111	T-110	5 SAMPLE	S97T000154	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/ml
97000111	T-110	6 SAMPLE	S97T000154	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	7 SAMPLE	S97T000154	0	LLIQWT01	SOLID	<u>N/A</u>	<u><5</u>		g
97000111	T-110	8 SAMPLE	S97T000154	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000111	T-110	9 SAMPLE	S97T000154	0	SLDVOL01	SOLID	<u>N/A</u>	<u>N/A</u>		ml
97000111	T-110	10 SAMPLE	S97T000154	0	SLDWT-01	SOLID	<u>N/A</u>	<u>322.4</u>		g
97000111	T-110	11 SAMPLE	S97T000154	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	12 SAMPLE	S97T000154	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		ml

Final page for worklist # 16644

D. K. J. 2-28-97
Analyst Signature Date

D. K. J. 2-28-97
Analyst Signature Date

N. Lapins 3-13-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16646

Analyst: JLF Instrument: BA000 Book # KA

Method: LO-160-103 Rev/Mod B-O

Worklist Comment: T-110 C180 SEG#3 R6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>22.01</u>	<u>N/A</u>		
		2 INSTCHK02			EXTRUD01	SOLID	<u>20.11</u>	<u>N/A</u>		
97000111	T-110	3 SAMPLE	S97T000155	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>Q</u>		mL
97000111	T-110	4 SAMPLE	S97T000155	0	DLIQWT01	SOLID	<u>N/A</u>	<u>Q</u>		g
97000111	T-110	5 SAMPLE	S97T000155	0	EST.G/ML	SOLID	<u>N/A</u>	<u>Q</u>		g/mL
97000111	T-110	6 SAMPLE	S97T000155	0	EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000111	T-110	7 SAMPLE	S97T000155	0	LLIQWT01	SOLID	<u>N/A</u>	<u><5</u>		g
97000111	T-110	8 SAMPLE	S97T000155	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-200</u>		
97000111	T-110	9 SAMPLE	S97T000155	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		mL
97000111	T-110	10 SAMPLE	S97T000155	0	SLDWT-01	SOLID	<u>N/A</u>	<u>331.9</u>		g
97000111	T-110	11 SAMPLE	S97T000155	0	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000111	T-110	12 SAMPLE	S97T000155	0	ORGVOL01	SOLID	<u>N/A</u>	<u>Q</u>		mL

Final page for worklist # 16646

Jessie S. Frisby 2/19/97
Analyst Signature Date

Jessie S. Frisby 2/19/97
Analyst Signature Date

Bertrand Buffin II
2-27-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16725

Analyst: JLF Instrument: BA000 Book # N/15

Method: LO-160-103 Rev/Mod B-D

Worklist Comment: T-110 C180 SEG # 4 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID		<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID		<u>500.11</u>	<u>N/A</u>	
97000111	T-110	3 SAMPLE	S97T000187	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>Q</u>		ml
97000111	T-110	4 SAMPLE	S97T000187	0	DLIQWT01	SOLID	<u>N/A</u>	<u>Q</u>		g
97000111	T-110	5 SAMPLE	S97T000187	0	EST.G/ML	SOLID	<u>N/A</u>	<u>Q</u>		g/ml
97000111	T-110	6 SAMPLE	S97T000187	0	EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000111	T-110	7 SAMPLE	S97T000187	0	LLIQWT01	SOLID	<u>N/A</u>	<u><5</u>		g
97000111	T-110	8 SAMPLE	S97T000187	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000111	T-110	9 SAMPLE	S97T000187	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		ml
97000111	T-110	10 SAMPLE	S97T000187	0	SLDWT-01	SOLID	<u>N/A</u>	<u>349.4</u>		g
97000111	T-110	11 SAMPLE	S97T000187	0	APPEAR01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000111	T-110	12 SAMPLE	S97T000187	0	ORGVOL01	SOLID	<u>N/A</u>	<u>Q</u>		ml

Final page for worklist # 16725

Jessie S. G. II 2/17/97
Analyst Signature Date
Bernard Griff II
2-26-97

Jessie S. G. II 2/17/97
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16726

Analyst: JSF Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mod B0

Worklist Comment: T-110 C180 SEG # 5 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID		<u>20.01</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID		<u>200.11</u>	<u>N/A</u>	
97000111	T-110	3 SAMPLE	S97T000188	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>Q</u>		ml
97000111	T-110	4 SAMPLE	S97T000188	0	DLIQWT01	SOLID	<u>N/A</u>	<u>Q</u>		g
97000111	T-110	5 SAMPLE	S97T000188	0	EST.G/ML	SOLID	<u>N/A</u>	<u>Q</u>		g/ml
97000111	T-110	6 SAMPLE	S97T000188	0	EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000111	T-110	7 SAMPLE	S97T000188	0	LLIQWT01	SOLID	<u>N/A</u>	<u>Q</u>		g
97000111	T-110	8 SAMPLE	S97T000188	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-200</u>		
97000111	T-110	9 SAMPLE	S97T000188	0	SLDVOL01	SOLID	<u>N/A</u>	<u>Q</u>		ml
97000111	T-110	10 SAMPLE	S97T000188	0	SLDWT-01	SOLID	<u>N/A</u>	<u>Q</u>		g
97000111	T-110	11 SAMPLE	S97T000188	0	APPEAR01	SOLID	<u>N/A</u>	<u>Complex</u>		
97000111	T-110	12 SAMPLE	S97T000188	0	ORGVOL01	SOLID	<u>N/A</u>	<u>Q</u>		ml

Final page for worklist # 16726

Justin J. Jinks 2/19/97
Analyst Signature Date

Justin J. Jinks 2/19/97
Analyst Signature Date

Bertrand Buffin II
2-27-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16727

Analyst: JLF Instrument: BA000 Book # N/A

Method: LO-160-103 Rev/Mo B-O

Worklist Comment: T-110 C180 SEG # 6 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20.01</u>	<u>N/A</u>		
		2 INSTCHK02			EXTRUD01	SOLID	<u>50.11</u>	<u>N/A</u>		
97000111	T-110	3 SAMPLE	S97T000189	0	DLIQV01	SOLID	<u>N/A</u>	<u>Q</u>		ml
97000111	T-110	4 SAMPLE	S97T000189	0	DLIQWT01	SOLID	<u>N/A</u>	<u>Q</u>		g
97000111	T-110	5 SAMPLE	S97T000189	0	EST.G/ML	SOLID	<u>N/A</u>	<u>Q</u>		g/ml
97000111	T-110	6 SAMPLE	S97T000189	0	EXTRUD01	SOLID	<u>N/A</u>	<u>Complete</u>		
97000111	T-110	7 SAMPLE	S97T000189	0	LLIQWT01	SOLID	<u>N/A</u>	<u>LS</u>		g
97000111	T-110	8 SAMPLE	S97T000189	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-120</u>		
97000111	T-110	9 SAMPLE	S97T000189	0	SLDVOL01	SOLID	<u>N/A</u>	<u>QA</u>		ml
97000111	T-110	10 SAMPLE	S97T000189	0	SLDWT-01	SOLID	<u>N/A</u>	<u>366.3</u>		g
97000111	T-110	11 SAMPLE	S97T000189	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	12 SAMPLE	S97T000189	0	ORGVOL01	SOLID	<u>N/A</u>	<u>Q</u>		ml

Final page for worklist # 16727

Jessie J Insby 2/19/97
Analyst Signature Date
Boyd Griffin II
2-27-97

Jessie J Insby 2/19/97
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16728

Analyst: RJD Instrument: BA000 _____ Book # N/A

Method: LO-160-103 Rev/Mod B-0

Worklist Comment: T-110 C180 SEG # 7 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20.00</u>	<u>19.93</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500.00</u>	<u>500.05</u>	<u>N/A</u>	
97000111	T-110	3 SAMPLE	S97T000183	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
97000111	T-110	4 SAMPLE	S97T000183	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000111	T-110	5 SAMPLE	S97T000183	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
97000111	T-110	6 SAMPLE	S97T000183	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	7 SAMPLE	S97T000183	0	LLIQWT01	SOLID	<u>N/A</u>	<u>25</u>		g
97000111	T-110	8 SAMPLE	S97T000183	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000111	T-110	9 SAMPLE	S97T000183	0	SLDVOL01	SOLID	<u>N/A</u>	<u>N/A</u>		mL
97000111	T-110	10 SAMPLE	S97T000183	0	SLDWT-01	SOLID	<u>N/A</u>	<u>327.8</u>		g
97000111	T-110	11 SAMPLE	S97T000183	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	12 SAMPLE	S97T000183	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 16728

D. R. Indaco 2-28-97
Analyst Signature Date

D. R. Indaco 2-28-97
Analyst Signature Date

N. Lapins 3-13-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16889

Analyst: EC Instrument: BA000 Book # NA

Method: LO-160-103 Rev/Mod 00

Worklist Comment: T-110 C180 SEG # 8 RISER 6 EXTRUSION

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 INSTCHK01			EXTRUD01	SOLID	<u>20</u>	<u>20.00</u>	<u>N/A</u>	
		2 INSTCHK02			EXTRUD01	SOLID	<u>500</u>	<u>500.13</u>	<u>N/A</u>	
97000111	T-110	3 SAMPLE	S97T000182	0	DLIQVOL1	SOLID	<u>N/A</u>	<u>0</u>		mL
97000111	T-110	4 SAMPLE	S97T000182	0	DLIQWT01	SOLID	<u>N/A</u>	<u>0</u>		g
97000111	T-110	5 SAMPLE	S97T000182	0	EST.G/ML	SOLID	<u>N/A</u>	<u>0</u>		g/mL
97000111	T-110	6 SAMPLE	S97T000182	0	EXTRUD01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	7 SAMPLE	S97T000182	0	LLIQWT01	SOLID	<u>N/A</u>	<u>LS</u>		g
97000111	T-110	8 SAMPLE	S97T000182	0	NOTEBOOK	SOLID	<u>N/A</u>	<u>N-1200</u>		
97000111	T-110	9 SAMPLE	S97T000182	0	SLDVOL01	SOLID	<u>N/A</u>	<u>NA</u>		mL
97000111	T-110	10 SAMPLE	S97T000182	0	SLDWT-01	SOLID	<u>N/A</u>	<u>362.8</u>		g
97000111	T-110	11 SAMPLE	S97T000182	0	APPEAR01	SOLID	<u>N/A</u>	<u>complete</u>		
97000111	T-110	12 SAMPLE	S97T000182	0	ORGVOL01	SOLID	<u>N/A</u>	<u>0</u>		mL

Final page for worklist # 16889

EC 3/5/97
Analyst Signature Date

Alan Campbell 3/5/97
Analyst Signature Date

Bertie Hoff
3-11-97

Data Entry Comments:

HNF-SD-WM-DP-238, REV. 0

SAMPLE PREPARATIONS

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LABCORE Data Entry Template for Worklist# 16689

Analyst: KNT Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR T-110,CORE 181 SEG 1LH,2LH, LMH

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	1	.250	N/A	g/L
97000083	T-110	2 SAMPLE	S97T000148	0 F	FUSION01	SOLID	N/A	1.9388		g/L
			4847 → 250L							
97000083	T-110	3 SAMPLE	S97T000148	0 F	DOSE-02	SOLID	N/A	20.5		mrad/hour
97000083	T-110	4 DUP	S97T000148	0 F	FUSION01	SOLID	1.9388	1.9468	N/A	g/L
			4867 → 250L							
97000083	T-110	5 DUP	S97T000148	0 F	DOSE-02	SOLID	20.5	20.5	N/A	mrad/hour
97000083	T-110	6 SAMPLE	S97T000149	0 F	FUSION01	SOLID	N/A	2.0860		g/L
			5215 → 250L							
97000083	T-110	7 SAMPLE	S97T000149	0 F	DOSE-02	SOLID	N/A	20.5		mrad/hour
97000083	T-110	8 DUP	S97T000149	0 F	FUSION01	SOLID	2.0860	2.1744	N/A	g/L
			5436 → 250L							
97000083	T-110	9 DUP	S97T000149	0 F	DOSE-02	SOLID	20.5	20.5	N/A	mrad/hour

Final page for worklist # 16689

Kim Thomas 3-5-97
Analyst Signature Date

Ray Hammett 3-5-97
Analyst Signature Date

*Validated
3-5-97
RK Fuller*

Data Entry Comments: 40ml. Con Nitric
HPT was Scott Landenback

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16690

Analyst: KNT Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR(T-110,CORE 181,SEG 7LH,5LH,6LH,FOR JLN RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT	
		1 BLNK-PREP			FUSION01	SOLID	<u>1</u>	<u>0.250</u>	<u>N/A</u>	g/L	
97000083	T-110	2 SAMPLE	S97T000162	0	F	FUSION01	SOLID	<u>N/A</u>	<u>2.0668</u>	g/L	
			<u>0.5167</u>								
97000083	T-110	3 SAMPLE	S97T000162	0	F	DOSE-02	SOLID	<u>N/A</u>	<u>210</u>	mrad/hour	
97000083	T-110	4 DUP	S97T000162	0	F	FUSION01	SOLID	<u>2.0668</u>	<u>2.0716</u>	<u>N/A</u>	g/L
			<u>0.5179</u>								
97000083	T-110	5 DUP	S97T000162	0	F	DOSE-02	SOLID	<u>210</u>	<u>210</u>	<u>N/A</u>	mrad/hour
97000083	T-110	6 SAMPLE	S97T000169	0	F	FUSION01	SOLID	<u>N/A</u>	<u>1.9252</u>	g/L	
			<u>0.4813</u>								
97000083	T-110	7 SAMPLE	S97T000169	0	F	DOSE-02	SOLID	<u>N/A</u>	<u>210</u>	mrad/hour	
97000083	T-110	8 DUP	S97T000169	0	F	FUSION01	SOLID	<u>1.9252</u>	<u>1.9640</u>	<u>N/A</u>	g/L
			<u>0.4910</u>								
97000083	T-110	9 DUP	S97T000169	0	F	DOSE-02	SOLID	<u>210</u>	<u>210</u>	<u>N/A</u>	mrad/hour
97000083	T-110	10 SAMPLE	S97T000178	0	F	FUSION01	SOLID	<u>N/A</u>	<u>1.8320</u>	g/L	
			<u>0.4580</u>								
97000083	T-110	11 SAMPLE	S97T000178	0	F	DOSE-02	SOLID	<u>N/A</u>	<u>210</u>	mrad/hour	
97000083	T-110	12 DUP	S97T000178	0	F	FUSION01	SOLID	<u>1.8320</u>	<u>1.9488</u>	<u>N/A</u>	g/L
			<u>0.4872</u>								
97000083	T-110	13 DUP	S97T000178	0	F	DOSE-02	SOLID	<u>210</u>	<u>210</u>	<u>N/A</u>	mrad/hour

Final page for worklist # 16690

Nim Thomas 3-11-97
Analyst Signature Date

[Signature] 3-11-97
Analyst Signature Date

S97T000158 → 162
168 → 169
174 → 178

Data Entry Comments:

Weighed by KCH & KNT FAKED 3-11-97
1500

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16690

Analyst: KNT Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR(T-110,CORE 181,SEG 7LH,5LH,6LH,FOR JLN RT5

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	<u>1</u>	<u>.250</u>	N/A	g/L
97000083	T-110	2 SAMPLE	S97T000162	0 F	FUSION01	SOLID	N/A	<u>2.0668</u> <u>5167</u>	N/A	g/L
97000083	T-110	3 SAMPLE	S97T000162	0 F	DOSE-02	SOLID	N/A	<u><10</u>	N/A	mrad/hour
97000083	T-110	4 DUP	S97T000162	0 F	FUSION01	SOLID	<u>20668</u>	<u>2.0716</u> <u>5179</u>	N/A	g/L
97000083	T-110	5 DUP	S97T000162	0 F	DOSE-02	SOLID		<u><10</u>	N/A	mrad/hour
97000083	T-110	6 SAMPLE	S97T000169	0 F	FUSION01	SOLID	N/A	<u>.4813</u>	N/A	g/L
97000083	T-110	7 SAMPLE	S97T000169	0 F	DOSE-02	SOLID	N/A	<u><10</u>	N/A	mrad/hour
97000083	T-110	8 DUP	S97T000169	0 F	FUSION01	SOLID	<u>1.9252</u>	<u>1.9610</u> <u>4910</u>	N/A	g/L
97000083	T-110	9 DUP	S97T000169	0 F	DOSE-02	SOLID		<u><10</u>	N/A	mrad/hour
97000083	T-110	10 SAMPLE	S97T000178	0 F	FUSION01	SOLID	N/A	<u>1.8320</u> <u>4580</u>	N/A	g/L
57000083	T-110	11 SAMPLE	S97T000178	0 F	DOSE-02	SOLID	N/A	<u><10</u>	N/A	mrad/hour
97000083	T-110	12 DUP	S97T000178	0 F	FUSION01	SOLID	<u>1.8320</u>	<u>1.9188</u> <u>4872</u>	N/A	g/L
97000083	T-110	13 DUP	S97T000178	0 F	DOSE-02	SOLID		<u><10</u>	N/A	mrad/hour

Final page for worklist # 16690

Kim Thomas 3-11-97
Analyst Signature Date

Analyst Signature Date

S97T000158 → S97T000162
S97T000168 → S97T000169
S97T000174 → S97T000178

Data Entry Comments:

Weighed by KCH & KNT

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Completed Worklist Report for Worklist# 16818

Analyst: knt Instrument: FUS01 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: FUSION01 FOR T-110 CORE 180 & 181 SEG 8LH,1LH,3LH, RTS

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK-PREP	0	FUSION01	SOLID	1	1.250	0.250	g/L
2 SAMPLE	S97T000196 0 F	FUSION01	SOLID	N/A	2.0512	1.00e-005	g/L
3 SAMPLE	S97T000196 0 F	DOSE-02	SOLID	N/A	<	0.5	5.99e-002 mrad/hour
4 DUP	S97T000196 0 F	FUSION01	SOLID	2.0512	2.0556	0.214	RPD
5 DUP	S97T000196 0 F	DOSE-02	SOLID	<0.5	<0.5	<0.5	mrad/hr
6 SAMPLE	S97T000230 0 F	FUSION01	SOLID	N/A	1.9480	1.00e-005	g/L
7 SAMPLE	S97T000230 0 F	DOSE-02	SOLID	N/A	<	0.5	5.99e-002 mrad/hour
8 DUP	S97T000230 0 F	FUSION01	SOLID	1.9480	1.9508	0.144	RPD
9 DUP	S97T000230 0 F	DOSE-02	SOLID	<0.5	<0.5	<0.5	mrad/hr
10 SAMPLE	S97T000231 0 F	FUSION01	SOLID	N/A	2.0392	1.00e-005	g/L
11 SAMPLE	S97T000231 0 F	DOSE-02	SOLID	N/A	<	0.5	5.99e-002 mrad/hour
12 DUP	S97T000231 0 F	FUSION01	SOLID	2.0392	2.0240	0.748	RPD
13 DUP	S97T000231 0 F	DOSE-02	SOLID	<0.5	<0.5	<0.5	mrad/hr

Comments Section:

Comments for sample# S97T000196 and test FUSION01.
S97T000192 - > S97T000196 30ML HNO3

Comments for sample# S97T000230 and test FUSION01.
S97T000214 - > S97T000230 30ML HNO3

Comments for sample# S97T000231 and test FUSION01.
S97T000217 -> S97T000231 30ML HNO3

Final page for worklist# 16818

Analyst Signature _____ Date _____

 3-6-97
Analyst Signature _____ Date _____

 3-6-97
Reviewer Signature _____ Date _____

LABCORE Data Entry Template for Worklist# 16818

Analyst: KNT Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR T-110 CORE 180 & 181 SEG 8LH,1LH,3LH, RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP		FUSION01	SOLID	<u>1</u>	<u>.250</u>	<u>N/A</u>	<u>g/L</u>
97000083	T-110	2	SAMPLE S97T000196	0 F	FUSION01	SOLID	<u>N/A</u>	<u>2.0512</u>		<u>g/L</u>
			<u>0.5128g.</u>	<u>→</u>	<u>.250L</u>					
97000083	T-110	3	SAMPLE S97T000196	0 F	DOSE-02	SOLID	<u>N/A</u>	<u>2.05</u>		<u>mrad/hour</u>
97000083	T-110	4	DUP S97T000196	0 F	FUSION01	SOLID	<u>2.0512</u>	<u>2.0556</u>	<u>N/A</u>	<u>g/L</u>
			<u>0.5139g.</u>	<u>→</u>	<u>.250L</u>					
97000083	T-110	5	DUP S97T000196	0 F	DOSE-02	SOLID	<u>2.05</u>	<u>2.05</u>	<u>N/A</u>	<u>mrad/hour</u>
97000111	T-110	6	SAMPLE S97T000230	0 F	FUSION01	SOLID	<u>N/A</u>	<u>1.9480</u>		<u>g/L</u>
			<u>0.4870g.</u>	<u>→</u>	<u>.250L</u>					
97000111	T-110	7	SAMPLE S97T000230	0 F	DOSE-02	SOLID	<u>N/A</u>	<u>2.05</u>		<u>mrad/hour</u>
			<u>0.4800g</u>							
97000111	T-110	8	DUP S97T000230	0 F	FUSION01	SOLID	<u>1.9480</u>	<u>1.9508</u>	<u>N/A</u>	<u>g/L</u>
			<u>0.4877</u>	<u>→</u>	<u>.250L</u>					
97000111	T-110	9	DUP S97T000230	0 F	DOSE-02	SOLID	<u>2.05</u>	<u>2.05</u>	<u>N/A</u>	<u>mrad/hour</u>
97000111	T-110	10	SAMPLE S97T000231	0 F	FUSION01	SOLID	<u>N/A</u>	<u>2.0392</u>		<u>g/L</u>
			<u>0.5098g.</u>	<u>→</u>	<u>.250L</u>					
97000111	T-110	11	SAMPLE S97T000231	0 F	DOSE-02	SOLID	<u>N/A</u>	<u>2.05</u>		<u>mrad/hour</u>
97000111	T-110	12	DUP S97T000231	0 F	FUSION01	SOLID	<u>2.0392</u>	<u>2.0240</u>	<u>N/A</u>	<u>g/L</u>
			<u>0.5060</u>	<u>→</u>	<u>.250L</u>					
97000111	T-110	13	DUP S97T000231	0 F	DOSE-02	SOLID	<u>2.05</u>	<u>2.05</u>	<u>N/A</u>	<u>mrad/hour</u>

Final page for worklist # 16818

Kim Thomas 3-6-97
Analyst Signature Date

[Signature] 3-8-97
Analyst Signature Date

S97T000192 → S97T000196
S97T000214 → S97T000230
S97T000217 → S97T000231

Data Entry Comments: 30ml. HNO₃

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16820

Analyst: DPB Instrument: FUS01 _____ Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180 & 181 SEG 4LH,6LH,2LH RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT	
		1	BLNK-PREP		FUSION01	SOLID	<u>1</u>	<u>.250</u>	<u>N/A</u>	<u>g/L</u>	
97000111	T-110	2	SAMPLE S97T000232 <u>.4999 → .250L</u>	0	F	FUSION01	SOLID	<u>N/A</u>	<u>1.9996</u>	<u>g/L</u>	
97000111	T-110	3	SAMPLE S97T000232	0	F	DOSE-02	SOLID	<u>N/A</u>	<u>4.5</u>	<u>mrad/hour</u>	
97000111	T-110	4	DUP S97T000232 <u>.4576 → .250L</u>	0	F	FUSION01	SOLID	<u>1.9996</u>	<u>1.8304</u>	<u>N/A</u>	<u>g/L</u>
97000111	T-110	5	DUP S97T000232	0	F	DOSE-02	SOLID	<u>4.5</u>	<u>4.5</u>	<u>N/A</u>	<u>mrad/hour</u>
97000111	T-110	6	SAMPLE S97T000233 <u>.4620 → .250L</u>	0	F	FUSION01	SOLID	<u>N/A</u>	<u>1.8480</u>	<u>g/L</u>	
97000111	T-110	7	SAMPLE S97T000233	0	F	DOSE-02	SOLID	<u>N/A</u>	<u>4.5</u>	<u>mrad/hour</u>	
97000111	T-110	8	DUP S97T000233 <u>.4918 → .250L</u>	0	F	FUSION01	SOLID	<u>1.8480</u>	<u>1.9672</u>	<u>N/A</u>	<u>g/L</u>
97000111	T-110	9	DUP S97T000233	0	F	DOSE-02	SOLID	<u>4.5</u>	<u>4.5</u>	<u>N/A</u>	<u>mrad/hour</u>
97000111	T-110	10	SAMPLE S97T000268 <u>.5407 → .250L</u>	0	F	FUSION01	SOLID	<u>N/A</u>	<u>2.1628</u>	<u>g/L</u>	
97000111	T-110	11	SAMPLE S97T000268	0	F	DOSE-02	SOLID	<u>N/A</u>	<u>4.5</u>	<u>mrad/hour</u>	
97000111	T-110	12	DUP S97T000268 <u>.5238 → .250L</u>	0	F	FUSION01	SOLID	<u>2.1628</u>	<u>2.0452</u>	<u>N/A</u>	<u>g/L</u>
97000111	T-110	13	DUP S97T000268	0	F	DOSE-02	SOLID	<u>4.5</u>	<u>4.5</u>	<u>N/A</u>	<u>mrad/hour</u>

Final page for worklist # 16820

James P. Bronley 3/12/97
Analyst Signature Date

Jerry Gununski 3/12/97
Analyst Signature Date

232/RK S97T000 219 → S97T000 232
233 2/15/97 S97T000 221 → S97T000 233
268 S97T000 261 → S97T000 268

Data Entry Comments: 40 mL con HNO₃ added

Validated
3/12/97

Weighed by KGV & KUT
HPT was Jerry Gununski

OK Follow

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LBCORE Completed Worklist Report for Worklist# 16821

Analyst: kgh Instrument: FUS01 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180&181 SEG, 7LH,8LH, RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	BLNK-PREP	0	FUSION01	SOLID		250	0.250	g/L
2	SAMPLE	S97T000269 0 F	FUSION01	SOLID	N/A	2.1076	1.00e-005	g/L
3	SAMPLE	S97T000269 0 F	DOSE-02	SOLID	N/A	10	9.99e-002	mrad/hour
4	DUP	S97T000269 0 F	FUSION01	SOLID	2.1076	2.0152	4.482	RPD
5	DUP	S97T000269 0 F	DOSE-02	SOLID	<10	<10		mrad/hr
6	SAMPLE	S97T000270 0 F	FUSION01	SOLID	N/A	2.0408	1.00e-005	g/L
7	SAMPLE	S97T000270 0 F	DOSE-02	SOLID	N/A	10	9.99e-002	mrad/hour
8	DUP	S97T000270 0 F	FUSION01	SOLID	2.0408	2.1060	3.145	RPD
9	DUP	S97T000270 0 F	DOSE-02	SOLID	<10	<10		mrad/hr

Final page for worklist# 16821

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Keith Fuller 3/11/97
Reviewer Signature _____ Date _____

Units shown for QC (BLK/BKG) may not reflect the actual units.

worklistrpt Version 2.1 05/15/95
02/28/97 13:54

LABCORE Data Entry Template for Worklist# 16821

Analyst: KGH Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180&181 SEG, 7LH,8LH, RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	<u>1</u>	<u>.250</u>	N/A	g/L
97000111	T-110	2 SAMPLE	S97T000269	0 F	FUSION01	SOLID	N/A	<u>2.1076</u>		g/L
			<u>.5269</u> → <u>.250L</u>							
97000111	T-110	3 SAMPLE	S97T000269	0 F	DOSE-02	SOLID	N/A	<u><10</u>		mrad/hour
97000111	T-110	4 DUP	S97T000269	0 F	FUSION01	SOLID	<u>2.1076</u>	<u>2.0152</u>	N/A	g/L
			<u>.5038</u> → <u>.250L</u>							
97000111	T-110	5 DUP	S97T000269	0 F	DOSE-02	SOLID	<u><10</u>	<u><10</u>	N/A	mrad/hour
97000111	T-110	6 SAMPLE	S97T000270	0 F	FUSION01	SOLID	N/A	<u>2.0408</u>		g/L
			<u>.5102</u> → <u>.250L</u>							
97000111	T-110	7 SAMPLE	S97T000270	0 F	DOSE-02	SOLID	N/A	<u><10</u>		mrad/hour
97000111	T-110	8 DUP	S97T000270	0 F	FUSION01	SOLID	<u>2.0408</u>	<u>2.1060</u>	N/A	g/L
			<u>.5265</u> → <u>.250L</u>							
97000111	T-110	9 DUP	S97T000270	0 F	DOSE-02	SOLID	<u><10</u>	<u><10</u>	N/A	mrad/hour

Final page for worklist # 16821

[Signature]
Analyst Signature Date 3-11-97

[Signature]
Analyst Signature Date 3-11-97

^{to be} 3-5-97
S977000192
S977000263 → S977000269
265 → S977000270

Data Entry Comments:

Weighed by KGH + KWT FAXED 3-11-97
1500

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrpt Version 2.1 05/15/95
02/28/97 13:54

HNF-SD-WM-DP-238, REV. 0

Page:

LABCORE Data Entry Template for Worklist# 16821

Analyst: KGH Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION01 FOR TANK T-110 CORE 180&181 SEG, 7LH,8LH, RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	BLNK-PREP		FUSION01	SOLID	<u>1</u>	<u>.250</u>	N/A	g/L
97000111	T-110	2	SAMPLE S97T000269	0 F	FUSION01	SOLID	N/A	<u>2.1076</u>		g/L
			<u>.5269</u> → <u>.250L</u>							
97000111	T-110	3	SAMPLE S97T000269	0 F	DOSE-02	SOLID	N/A	<u><10</u>		mrad/hour
97000111	T-110	4	DUP S97T000269	0 F	FUSION01	SOLID	<u>2.1076</u>	<u>2.0152</u>	N/A	g/L
			<u>.5038</u> → <u>.250L</u>							
97000111	T-110	5	DUP S97T000269	0 F	DOSE-02	SOLID		<u><10</u>	N/A	mrad/hour
97000111	T-110	6	SAMPLE S97T000270	0 F	FUSION01	SOLID	N/A	<u>2.0108</u>		g/L
			<u>.5102</u> → <u>.250L</u>							
97000111	T-110	7	SAMPLE S97T000270	0 F	DOSE-02	SOLID	N/A	<u><10</u>		mrad/hour
97000111	T-110	8	DUP S97T000270	0 F	FUSION01	SOLID	<u>2.0108</u>	<u>2.1060</u>	N/A	g/L
			<u>.5265</u> → <u>.250L</u>							
97000111	T-110	9	DUP S97T000270	0 F	DOSE-02	SOLID		<u><10</u>	N/A	mrad/hour

Final page for worklist # 16821

[Signature] 3-11-97
Analyst Signature Date

Analyst Signature Date

^{265 3-5-97}
~~S97T0002192~~
S97T000263 → S97T000269
265 → S97T000270

Data Entry Comments:

Weighed by KGH & KNT

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16885

Analyst: KNT Instrument: FUS01 Book # _____

Method: LA-549-141 Rev/Mod F-0

Worklist Comment: FUSION FOR T110 CORE 181 SEG 3LH, 4LH LMH

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 BLNK-PREP			FUSION01	SOLID	1	.250	N/A	g/L
97000083	T-110	2 SAMPLE	S97T000150	0 F	FUSION01	SOLID	N/A	1.9808		g/L
			.4952 → 250L							
97000083	T-110	3 SAMPLE	S97T000150	0 F	DOSE-02	SOLID	N/A	20.5		mrad/hour
97000083	T-110	4 DUP	S97T000150	0 F	FUSION01	SOLID	1.9808	2.0180	N/A	g/L
			.5045 → 250L							
97000083	T-110	5 DUP	S97T000150	0 F	DOSE-02	SOLID	20.5	20.5	N/A	mrad/hour
97000083	T-110	6 SAMPLE	S97T000151	0 F	FUSION01	SOLID	N/A	1.8400		g/L
			.4600 → 250L							
97000083	T-110	7 SAMPLE	S97T000151	0 F	DOSE-02	SOLID	N/A	20.5		mrad/hour
97000083	T-110	8 DUP	S97T000151	0 F	FUSION01	SOLID	1.8400	1.9168	N/A	g/L
			.4792 → 250L							
97000083	T-110	9 DUP	S97T000151	0 F	DOSE-02	SOLID	20.5	20.5	N/A	mrad/hour

Final page for worklist # 16885

Kim Thomas 3-5-97
Analyst Signature Date

Jay Hammond 3-5-97
Analyst Signature Date

*Validated
3-5-97
R.K. Fuller*

Data Entry Comments: 40ml. Con Metric
HPT was Scott Landerback

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

HNF-SD-WM-DP-238, REV. 0

INORGANIC ANALYSIS

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LABCORE Data Entry Template for Worklist# 16714

Analyst: SME Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: DSC-01 FOR T-110 GRAB & T-110 RUN UNDER NITROGEN) RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	LIQUID	<u>28.45</u>	<u>26.19</u>	<u>N/A</u>	Joules/g
96001704	T-110 GRAB	2 SAMPLE	S97T000008	0	DSC-03	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
96001704	T-110 GRAB	3 DUP	S97T000008	0	DSC-03	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000119	0	DSC-03	LIQUID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	5 DUP	S97T000119	0	DSC-03	LIQUID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16714

See attached for signatures
Analyst Signature _____ Date 2-20-97

Frank Martinez
Analyst Signature _____ Date _____

Verified/validated by
Blandina Valenzuela
Date 2-20-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16714

Analyst: SMF Instrument: DSC0 Book # 12214B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 GRAB & T-110)RUN UNDER NITROGEN) RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-01	LIQUID			N/A	Joules/g
96001704	T-110 GRAB	2 SAMPLE	S97T000008	0		DSC-01	LIQUID	N/A			Joules/g
96001704	T-110 GRAB	3 DUP	S97T000008	0		DSC-01	LIQUID			N/A	Joules/g
97000083	T-110	4 SAMPLE	S97T000119	0		DSC-01	LIQUID	N/A			Joules/g
97000083	T-110	5 DUP	S97T000119	0		DSC-01	LIQUID			N/A	Joules/g

Final page for worklist # 16714

Susie M. Dalton 2-18-97
Analyst Signature Date

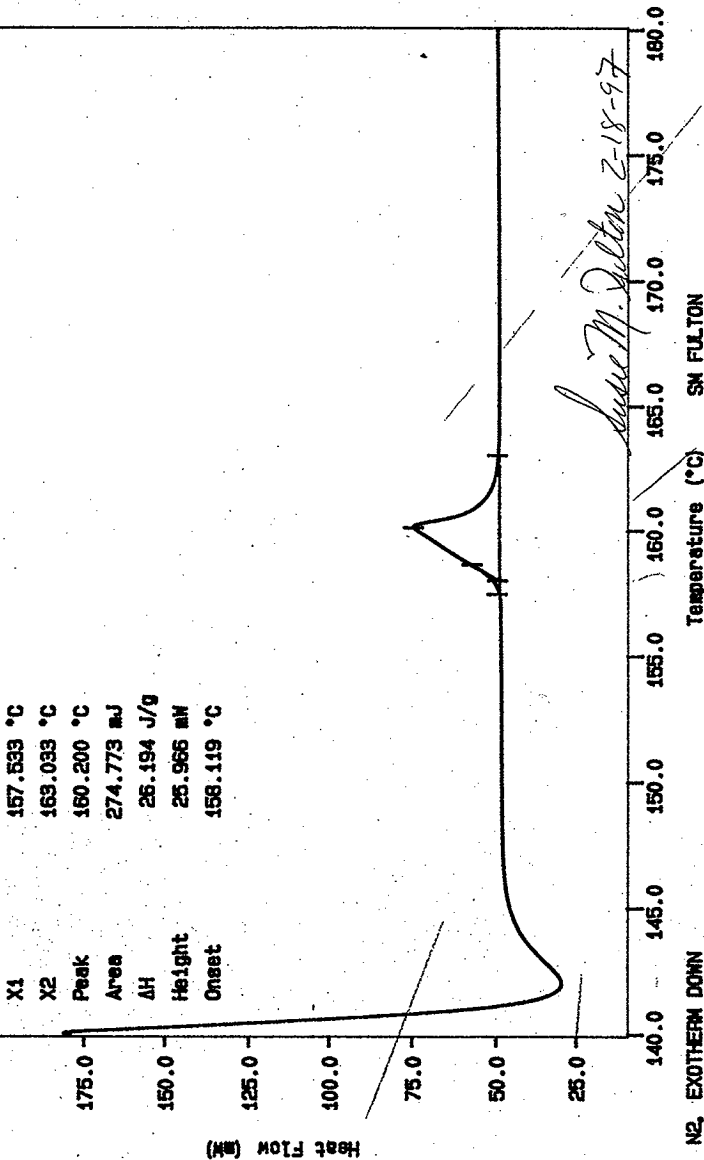
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File Info: IND0021801 Tue Feb 18 06:39:57 1997
Sample Weight: 10.490 mg
STD 12N14-B

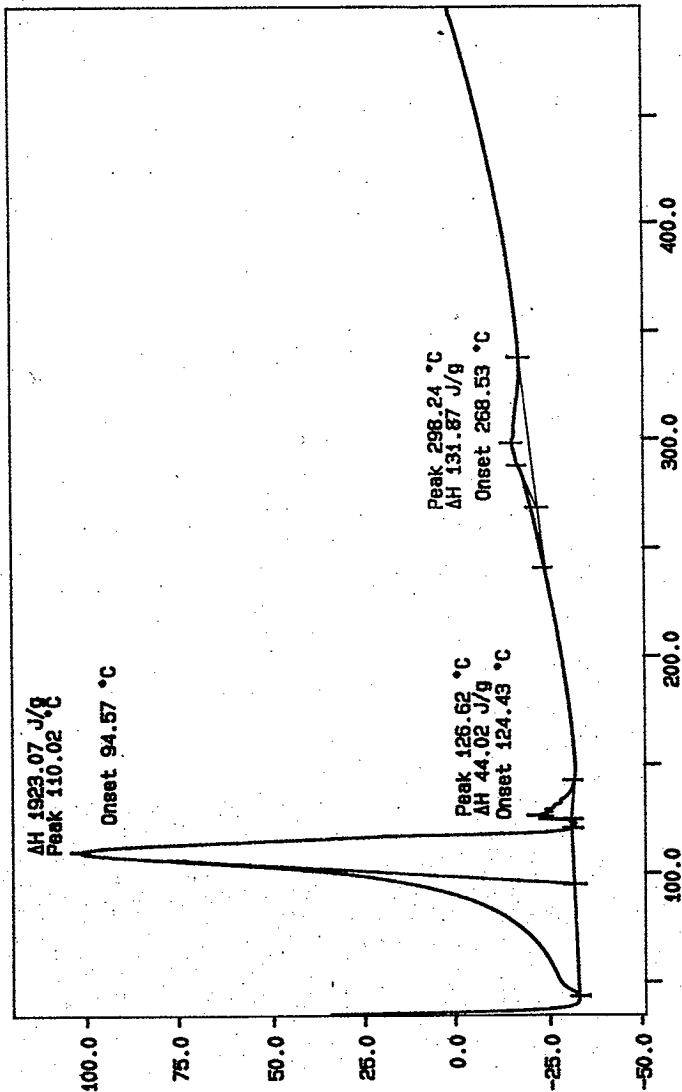
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 229 TO 233.



SM FULTON
PERKIN-ELMER
7 Ser.168 Thermal Analysis System
Tue Feb 18 06:41:13 1997

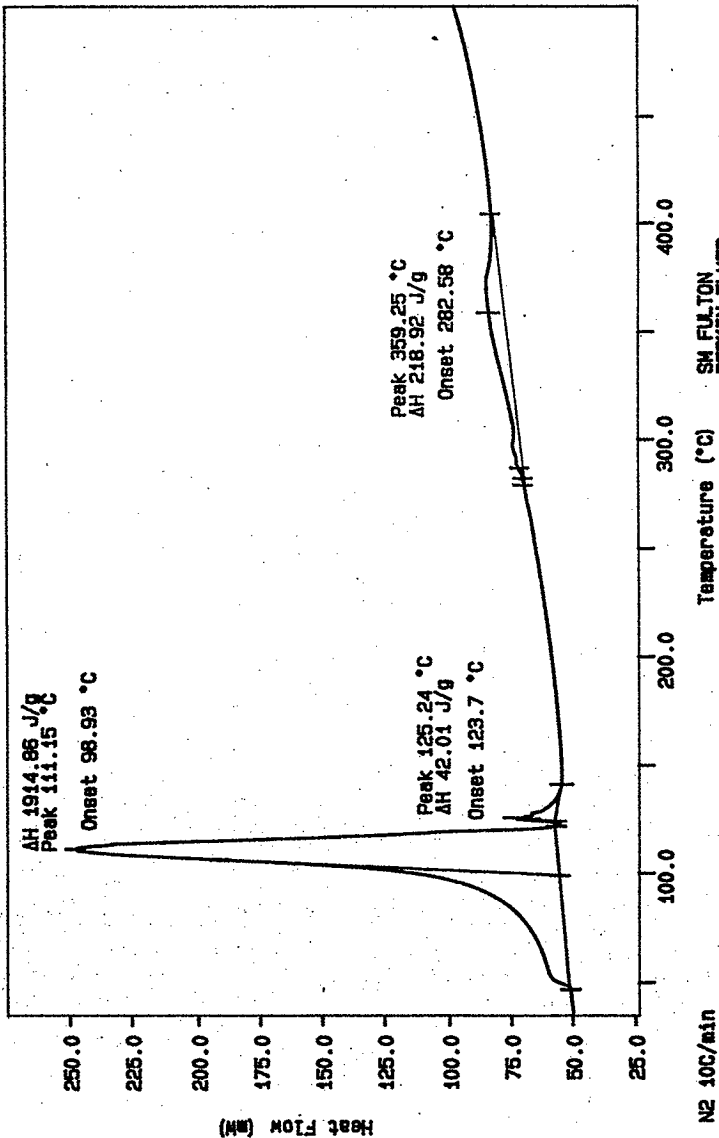
N2, EXOTHERM DOWN
TEMPERATURE 120.0 °C
HEAT FLOW 0.0 mW
SCAN RATE 10.0 °C/min

Curve 1: DSC
File Info: SAM021801 Tue Feb 18 09:11:40 1997
Sample Weight: 8.760 mg
S97T000008



N2 10C/min
TEMP 80.0 8
TIME 11 0.0 min RATE: 10.0 C/min
SM FILT ON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 09:51:54 1997

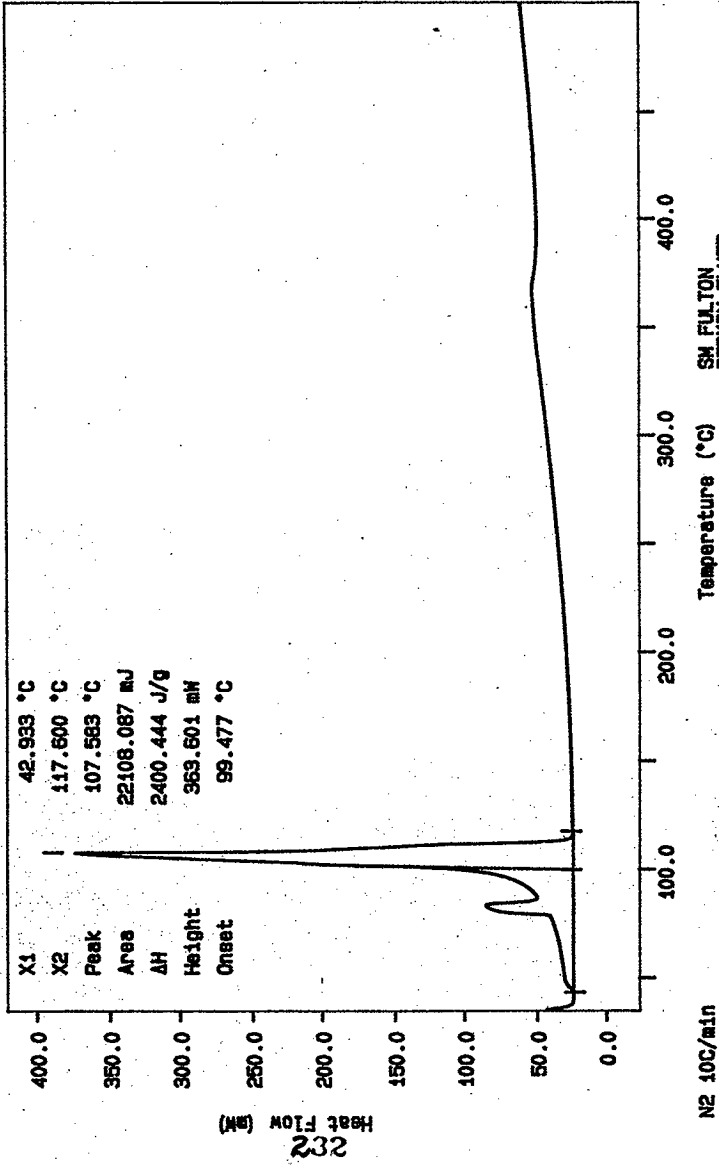
Curve 1: DSC
File Info: SAM021802 Tue Feb 18 10:58:05 1997
Sample Weight: 10.750 mg
S97T000008 DUP



SM FLUJON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 11:00:09 1997

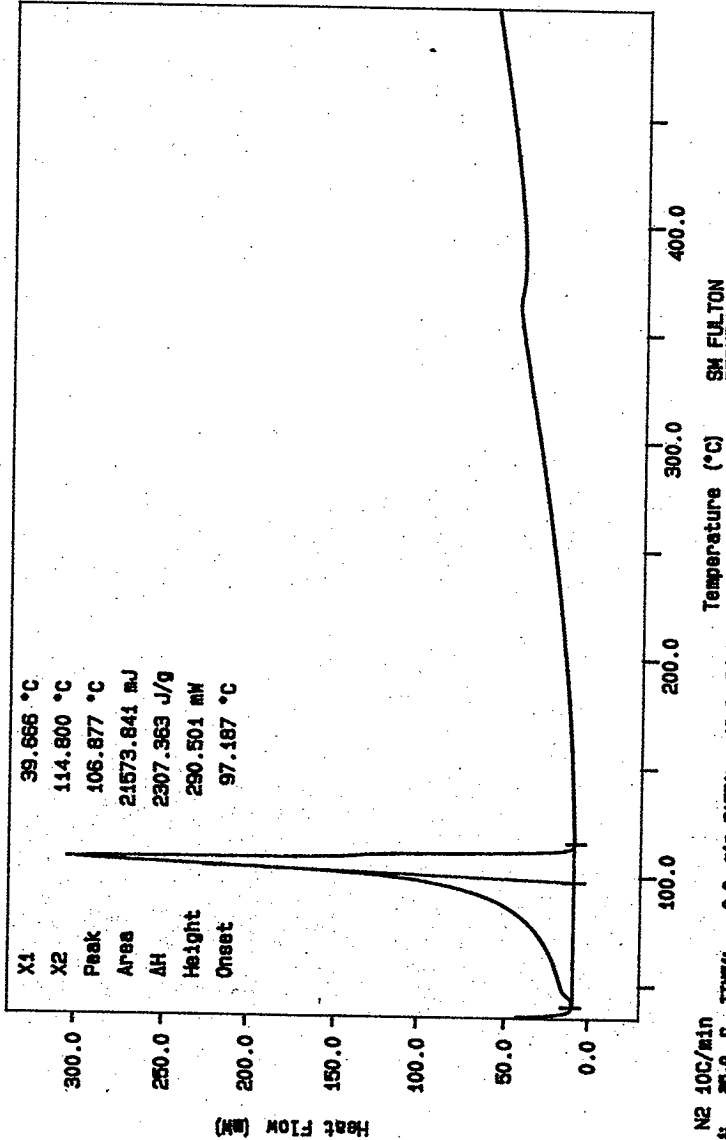
N2 100/min
TIME 008.8
RATES 0.0 min RATE: 10.0 °/min

Curve 1: DSC
File Info: SAHQ21603 Tue Feb 18 12:30:27 1997
Sample Weight: 9.210 mg
S97T000119



SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 14:23:56 1997

Curve 1: DSC
File info: SAK021804 Tue Feb 18 15:13:31 1997
Sample Weight: 9.350 mg
S97T000119 DUP



N2 10C/min
TEMP 200.0 g
TIME: 0.0 min RATE: 10.0 C/min
SM FULLTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 15:25:45 1997

LABCORE Data Entry Template for Worklist# 16716

Analyst: MM Instrument: DSC0 1 Book # 12N143

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>25.2*</u>	N/A	Joules/g
97000083	T-110	2 SAMPLE	S97T000125	0	DSC-01	SOLID	N/A	<u>0</u>		Joules/g
97000083	T-110	3 DUP	S97T000125	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	N/A	Joules/g
97000083	T-110	4 SAMPLE	S97T000141	0	DSC-01	SOLID	N/A	<u>0</u>		Joules/g
97000083	T-110	5 DUP	S97T000141	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	N/A	Joules/g

Final page for worklist # 16716

A Lambert 2-18-97
Analyst Signature Date

Frank Mark 2-20-97
Analyst Signature Date

Verified/Validated by
Blandina
Valenzuela 2-20-97

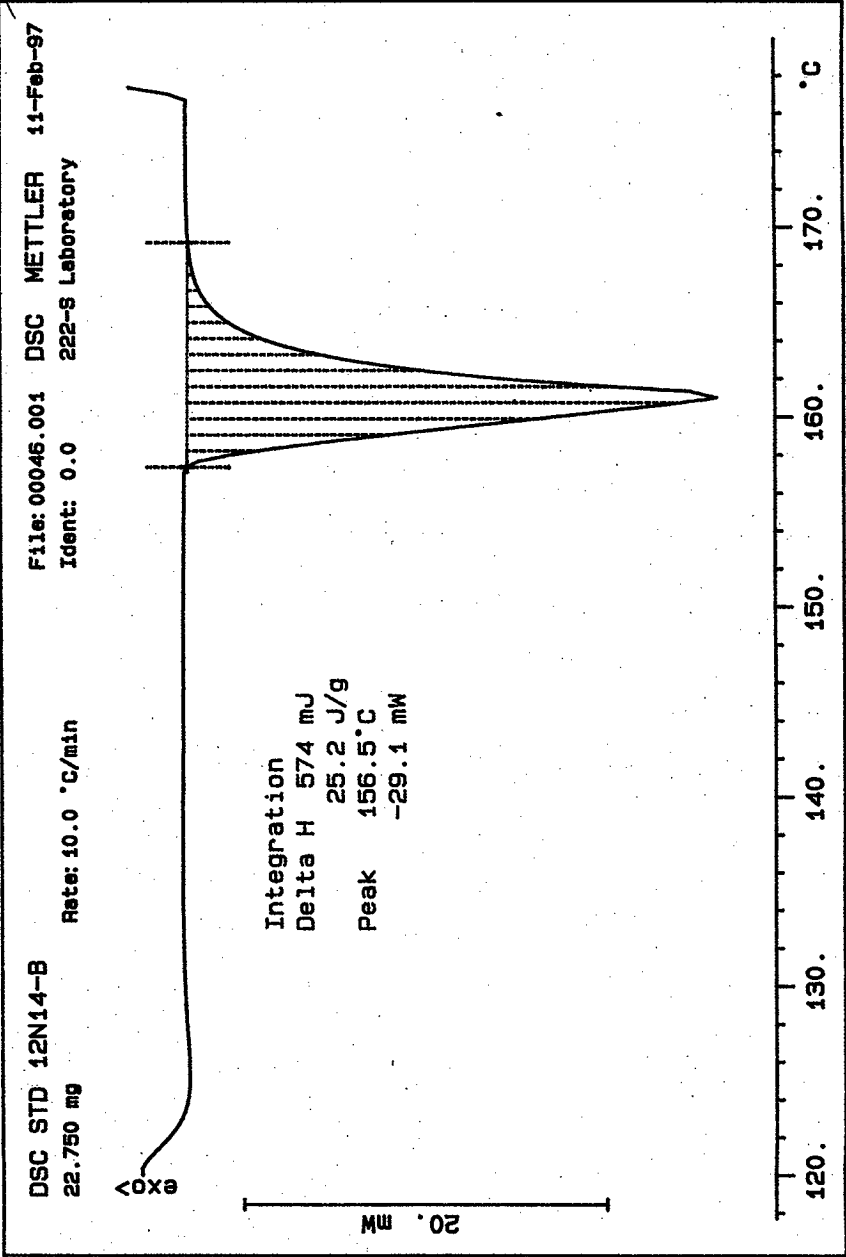
Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 233 TO 239

A. Sankel 2/18/97

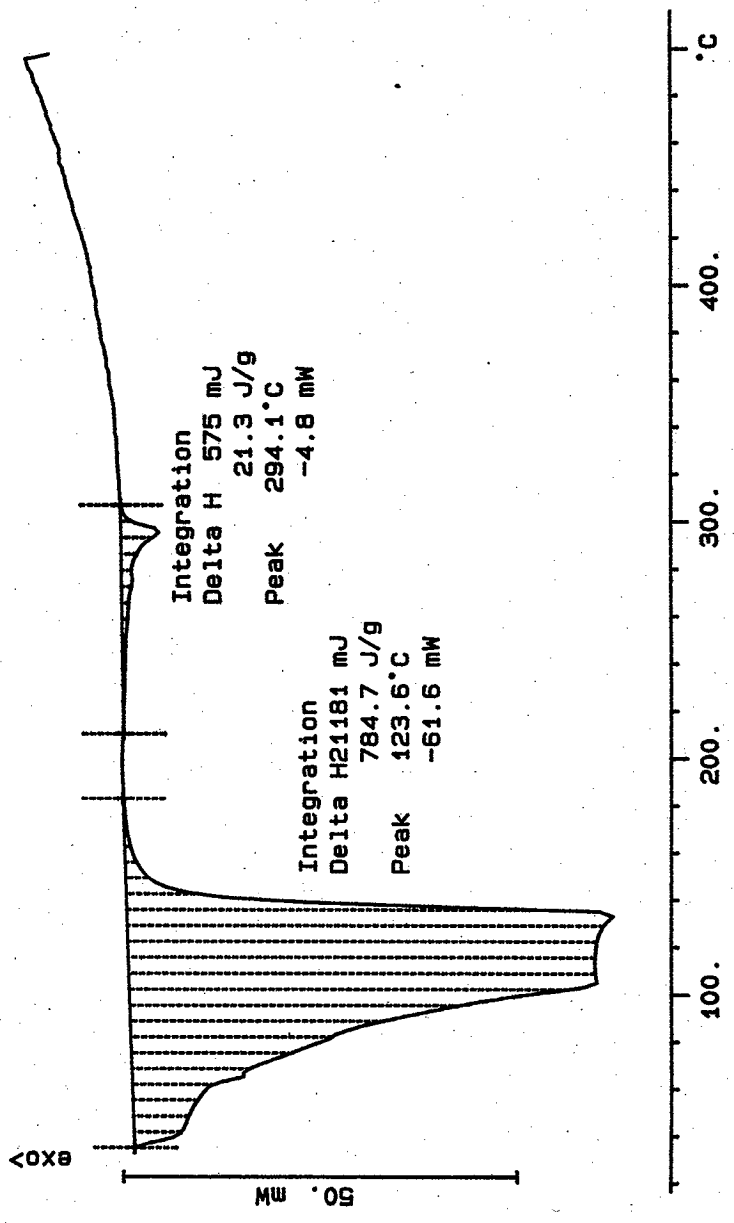
DATE
2/18/97



S97T000125 N2
26.993 mg

Rate: 10.0 °C/min

File: 00056.001 DSC METTLER 18-Feb-97
Ident: 0.0 222-S Laboratory



S97T000125 DUP N2

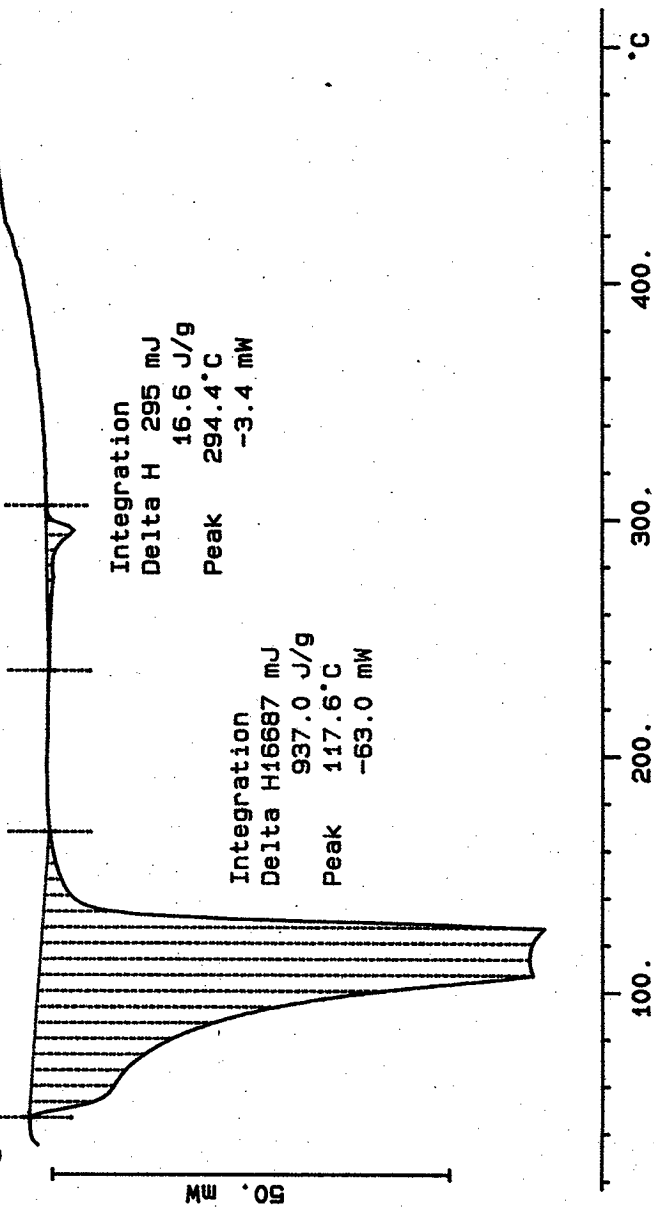
17.808 mg

Rate: 10.0 °C/min

File: 00058.001 DSC METTLER 18-Feb-97

Ident: 0.0 222-S Laboratory

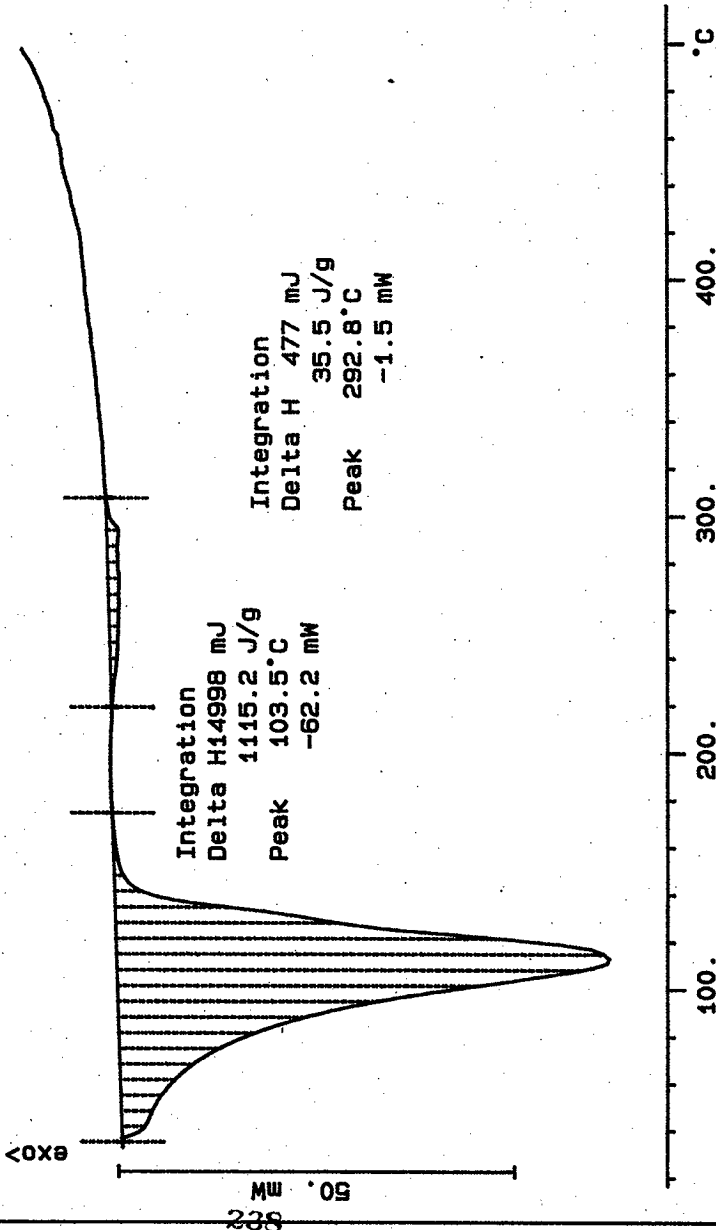
exOY



S97T000141 N2
13.449 mg

Rate: 10.0 °C/min

F11e: 00060.001 DSC METTLER 18-Feb-97
Ident: 0.0 222-S Laboratory



S97T000141 DUP N2

21.957 mg

Rate: 10.0 °C/min

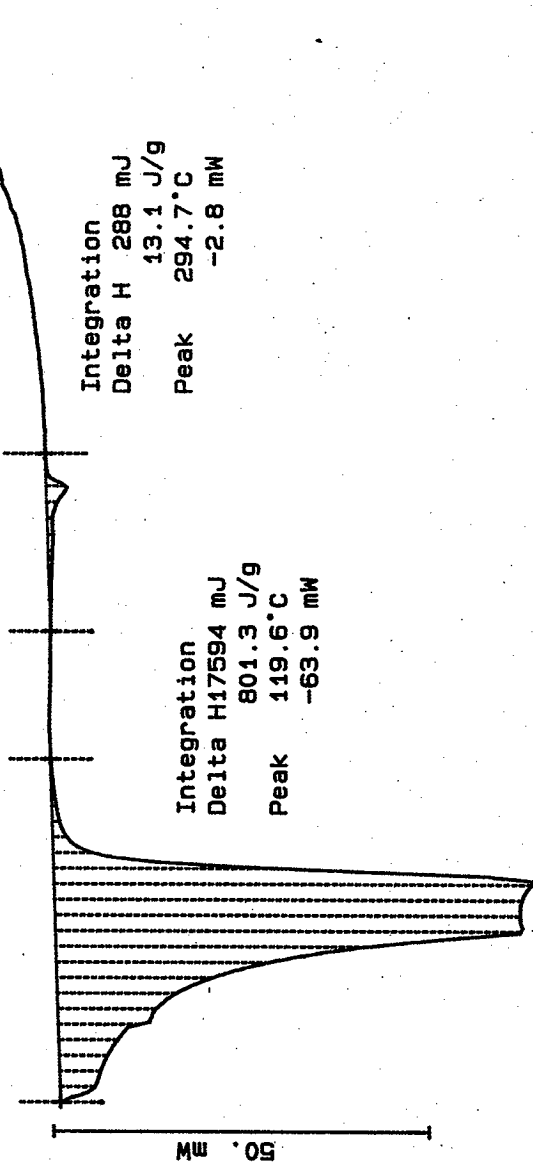
File: 00062.001

Ident: 0.0

DSC METTLER 18-Feb-97

222-S Laboratory

exo



Integration

Delta H 288 mJ

13.1 J/g

Peak 294.7°C

-2.8 mW

Integration

Delta H17594 mJ

801.3 J/g

Peak 119.6°C

-63.9 mW

50. mW

100.

200.

300.

400.

°C

LABCORE Data Entry Template for Worklist# 16717

Analyst: EAL Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.35*</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000142	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	3 DUP	S97T000142	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000143	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	5 DUP	S97T000143	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16717

See attached for signatures
Analyst Signature _____ Date 2-20-97

[Signature]
Analyst Signature _____ Date 2-20-97

Verified/Validated
by Blandina Valenzuela
3-5-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16717

Analyst: *kk* Instrument: DSC0 _____ Book # 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	_____	_____	N/A	Joules/g
97000083	T-110	2 SAMPLE	S97T000142	0	DSC-01	SOLID	N/A	_____	_____	Joules/g
97000083	T-110	3 DUP	S97T000142	0	DSC-01	SOLID	_____	_____	N/A	Joules/g
97000083	T-110	4 SAMPLE	S97T000143	0	DSC-01	SOLID	N/A	_____	_____	Joules/g
97000083	T-110	5 DUP	S97T000143	0	DSC-01	SOLID	_____	_____	N/A	Joules/g

Final page for worklist # 16717

 A. Lambert 2-18-97
Analyst Signature Date

Analyst Signature Date

DSC-01 instrument
was used.

2-20-97
Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC

File Info: IND021801 Tue Feb 18 06:39:57 1997

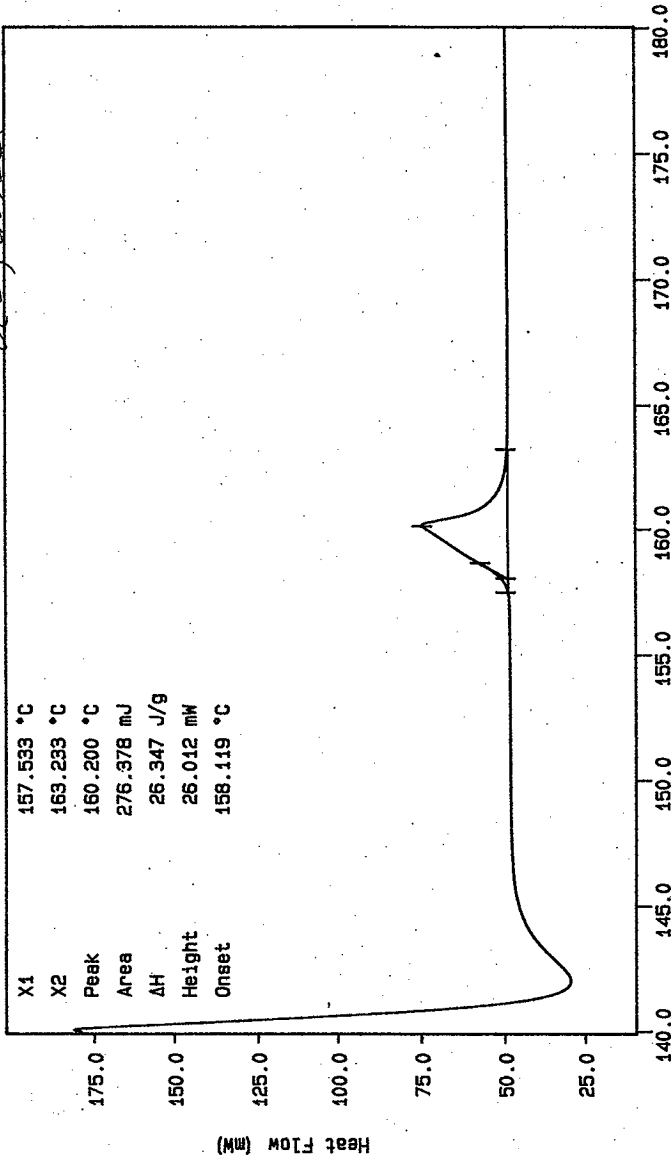
Sample Weight: 10.490 mg

STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 242 TO 244.

A. Lambert 2.18.97

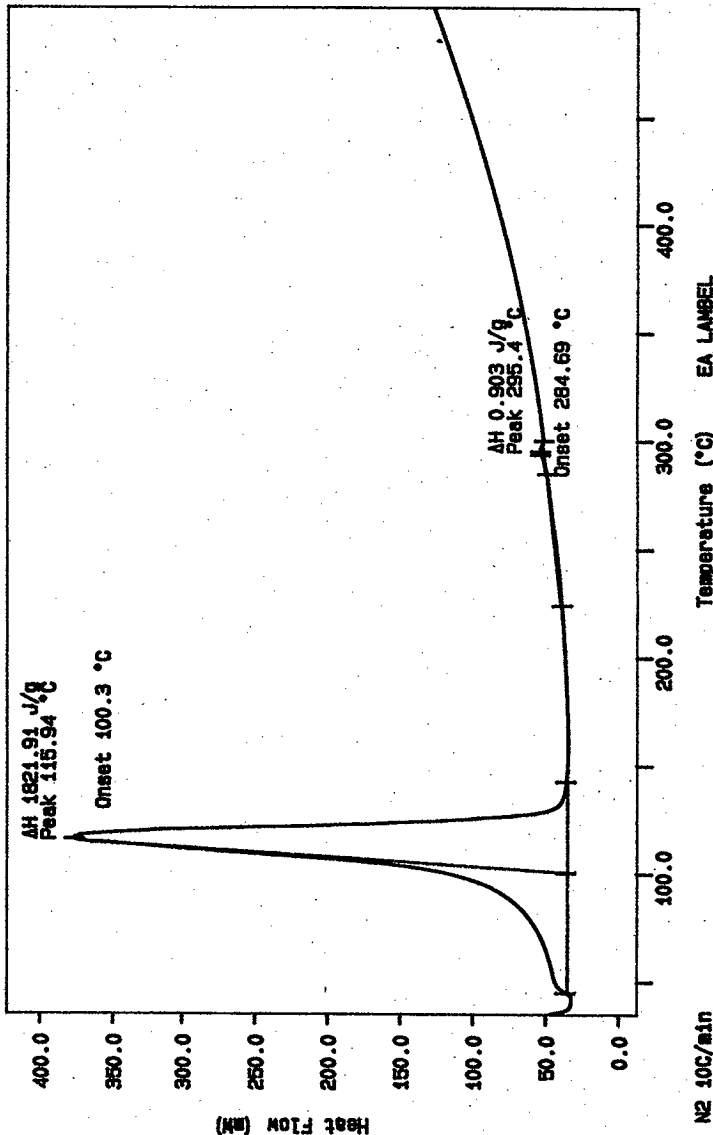
HNF-SD-WM-DP-238, REV. 0



SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 00:04:09 1997

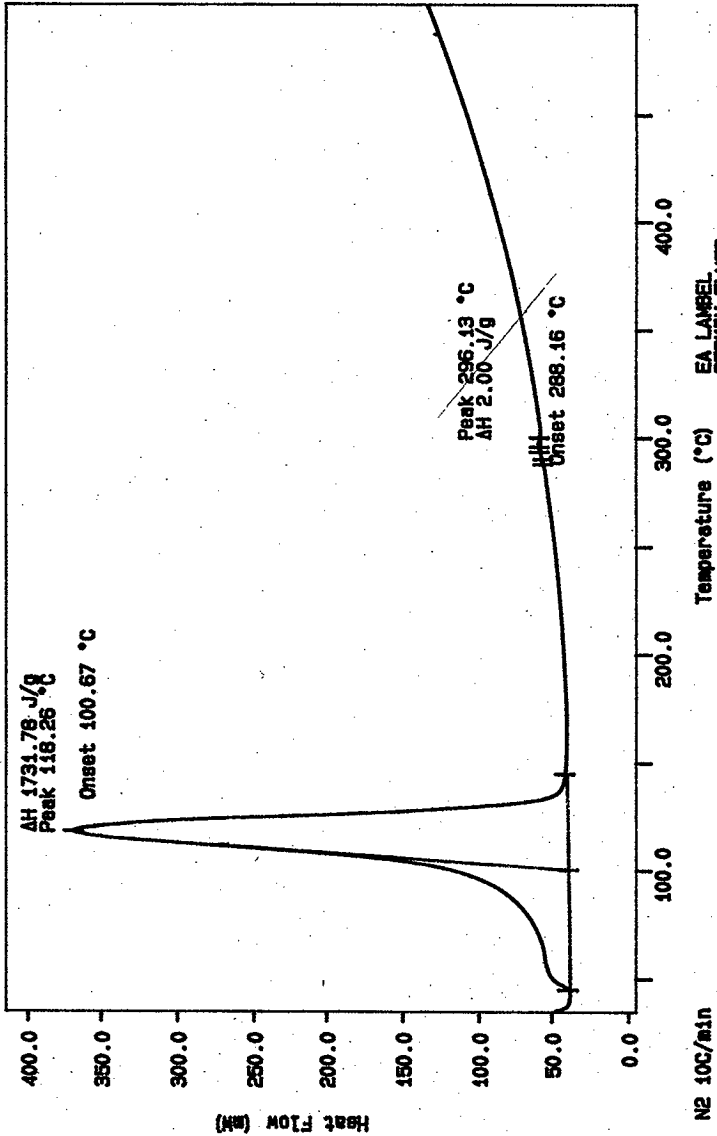
N2, EXOTHERM DOWN
TEMP: 160.0 °C
TIMES 0.0 min RATE: 10.0 °C/min

Curve 1: DSC
File Info: SAM024805 Tue Feb 18 17:38:21 1997
Sample Weight: 22.910 mg
597T000142



N2 10C/min
TEMP 55.8 °C
TIME 5:08
EA LANGE
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 17:47:49 1997

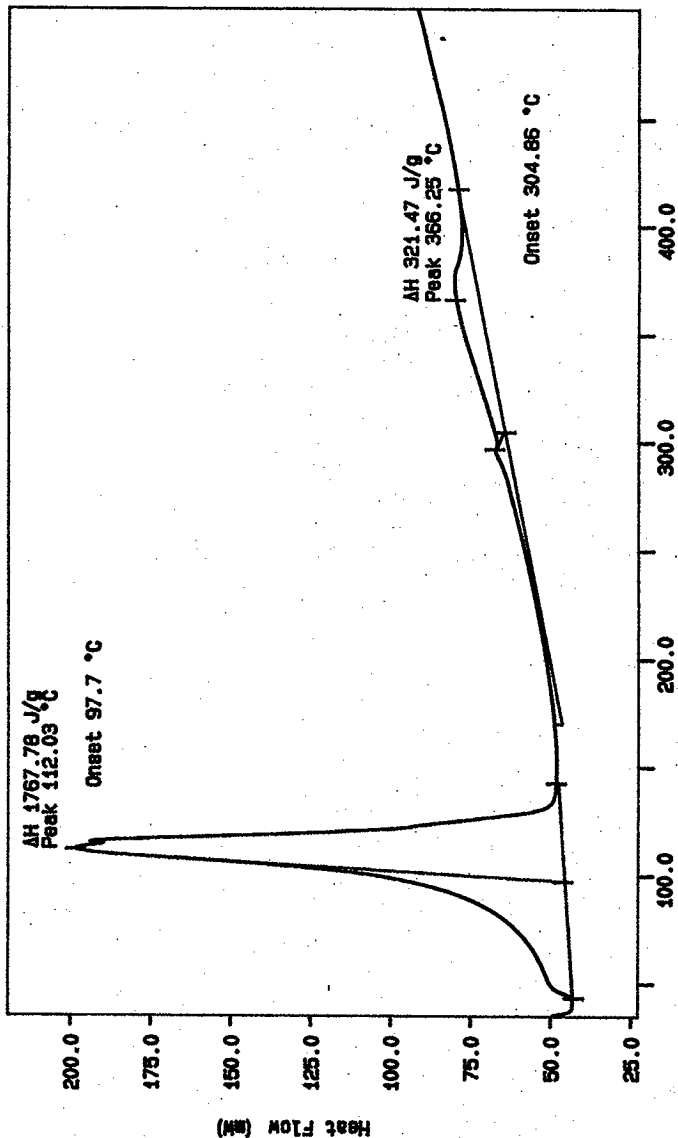
Curve 1: DSC
File Info: SAW021806 Tue Feb 18 18:38:14 1997
Sample Weight: 26.550 mg
S97T000142DUP



EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 19:38:46 1997

N2 10C/min
0.0 min RATE: 10.0 C/min
TMS: 0.0

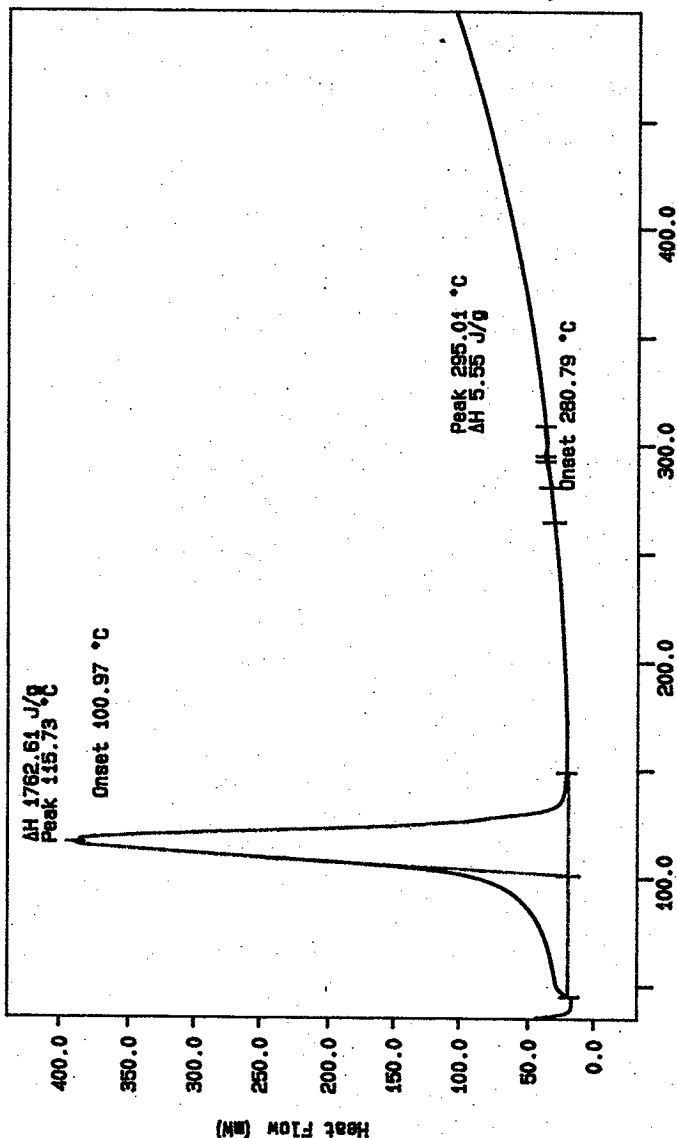
Curve 1: DSC
File Info: SAM021607 Tue Feb 18 20:28:39 1997
Sample Weight: 12.490 mg
S977000143



EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 20:39:17 1997

N2 100/min
TEMP 55.8 °C
TIME 0.0 min RATE: 10.0 °C/min

Curve 1: DSC
File Info: SAM021608 Tue Feb 18 21:28:00 1997
Sample Weight: 24.960 mg
S977000143DUP



N2 100./min
TEMP 25.8 °C
TIME 25.8 s
0.0 min RATE: 10.0 °/min
EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 23:33:15 1997

LABCORE Data Entry Template for Worklist# 16718

Analyst: KRM Instrument: DSC0 1 Book # 12N4B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>25.6</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000144	0	DSC-01	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	3 DUP	S97T000144	0	DSC-01	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000145	0	DSC-01	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	5 DUP	S97T000145	0	DSC-01	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
97000083	T-110	6 TRIPL	S97T000145	0	DSC-01	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16718

See attached for signatures
Analyst Signature [Signature] Date 2-25-97

[Signature] Date 2-26-97
Analyst Signature Date

Verified/Validated by
Blandina
Valezzuela 2-27-97

Data Entry Comments: S97T000145 was run in triplicate because the duplicate run indicated another substance present within the sample (possibly organic) with very little water. The triplicate run was similar to original analysis.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16718


Analyst: KRM Instrument: DSC0 _____ Book # 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
97000083	T-110	2 SAMPLE	S97T000144	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	3 DUP	S97T000144	0	DSC-01	SOLID			N/A	Joules/g
97000083	T-110	4 SAMPLE	S97T000145	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	5 DUP	S97T000145	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 16718

 2-19-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments: RAN TRIP ON 397T 145

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 248 TO 254

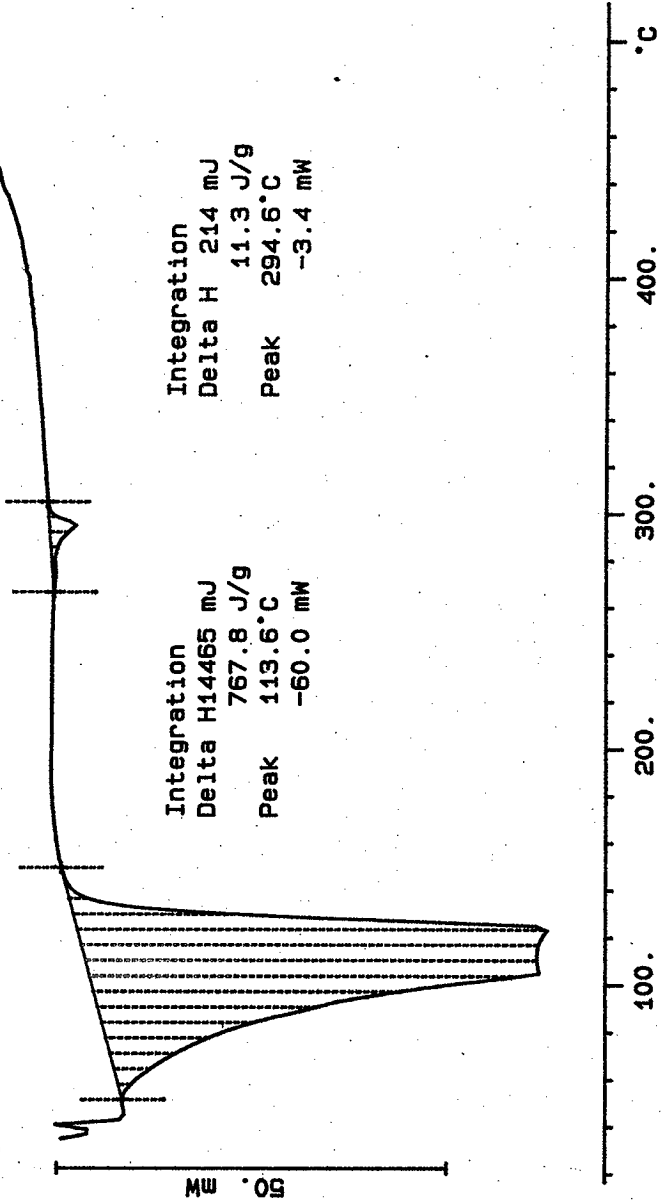
S97T000144 N2

18.840 mg

File: 00070.001 DSC METTLER 19-Feb-97

Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory

exo



Signature 2-18-97

DSC STD 12N14A

22.750 mg

Rate: 10.0 °C/min

File: 00068.001

DSC METTLER

19-Feb-97

Ident: 0.0

222-S Laboratory

ex01

Integration

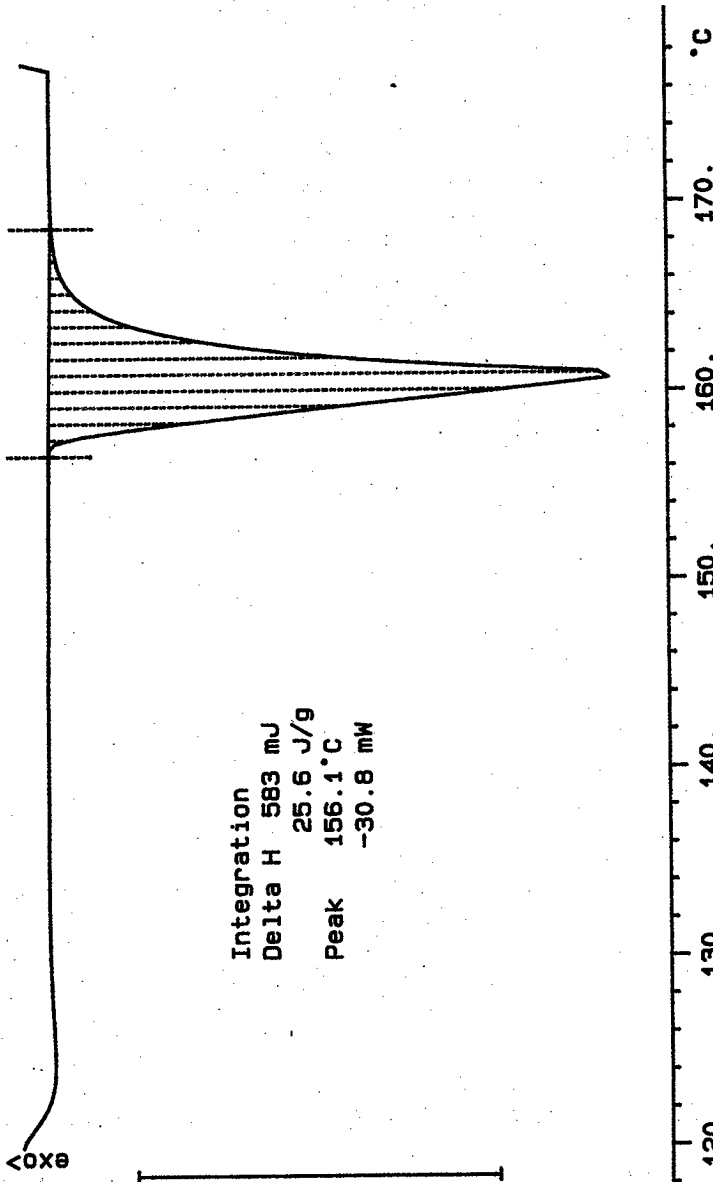
Delta H 583 mJ

25.6 J/g

Peak 156.1°C

-30.8 mW

20. mW



S97T000144 DJP N2

21.182 mg

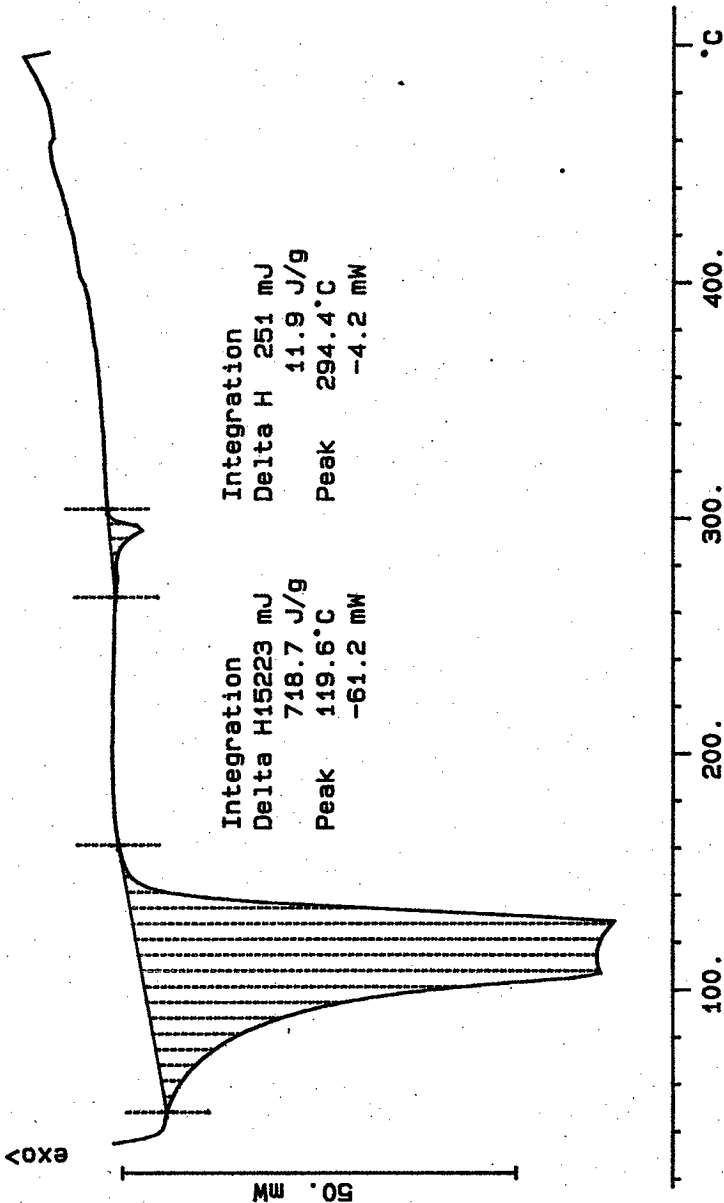
Rate: 10.0 °C/min

File: 00072.001

Ident: 0.0

DSC METTLER 19-Feb-97

222-S Laboratory



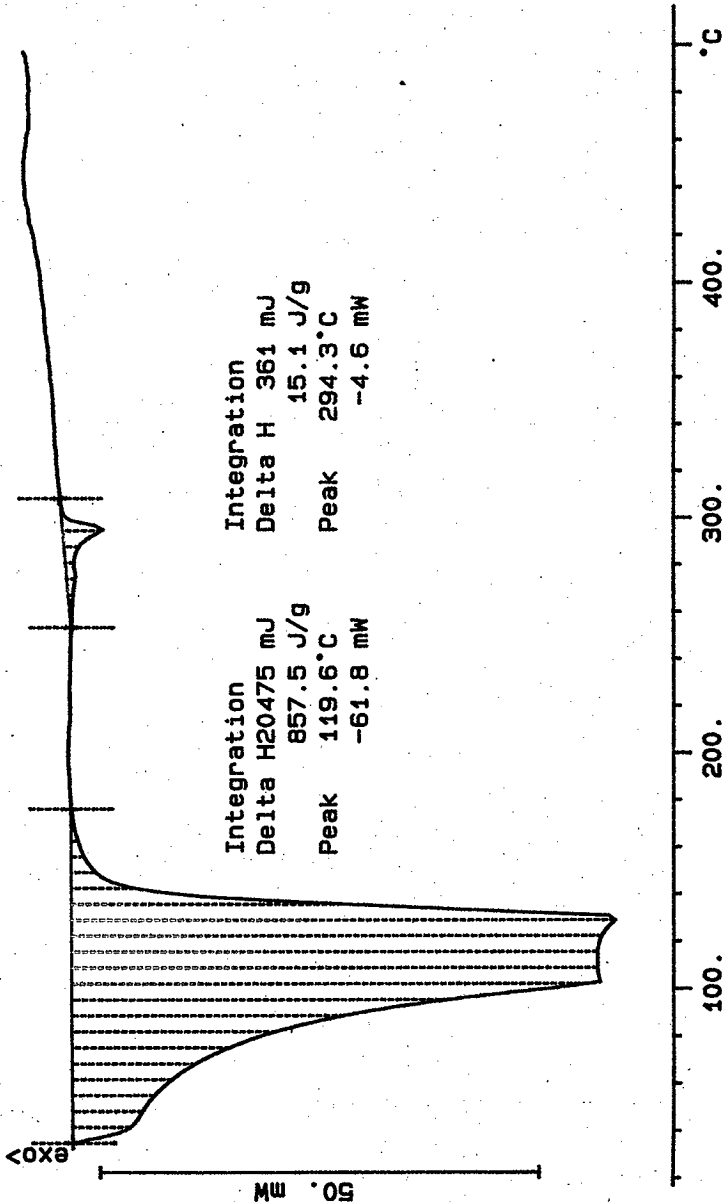
S97T000145 N2

23.878 mg

F11e:00074.001 DSC METTLER 19-Feb-97

Ident: 0.0 222-S Laboratory

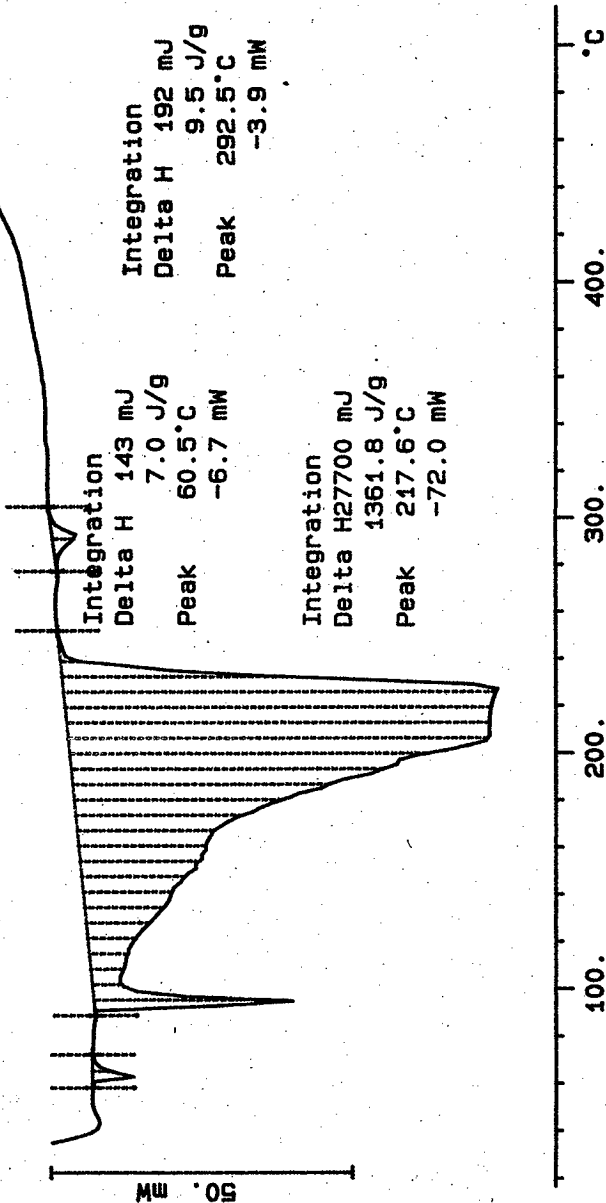
Rate: 10.0 °C/min



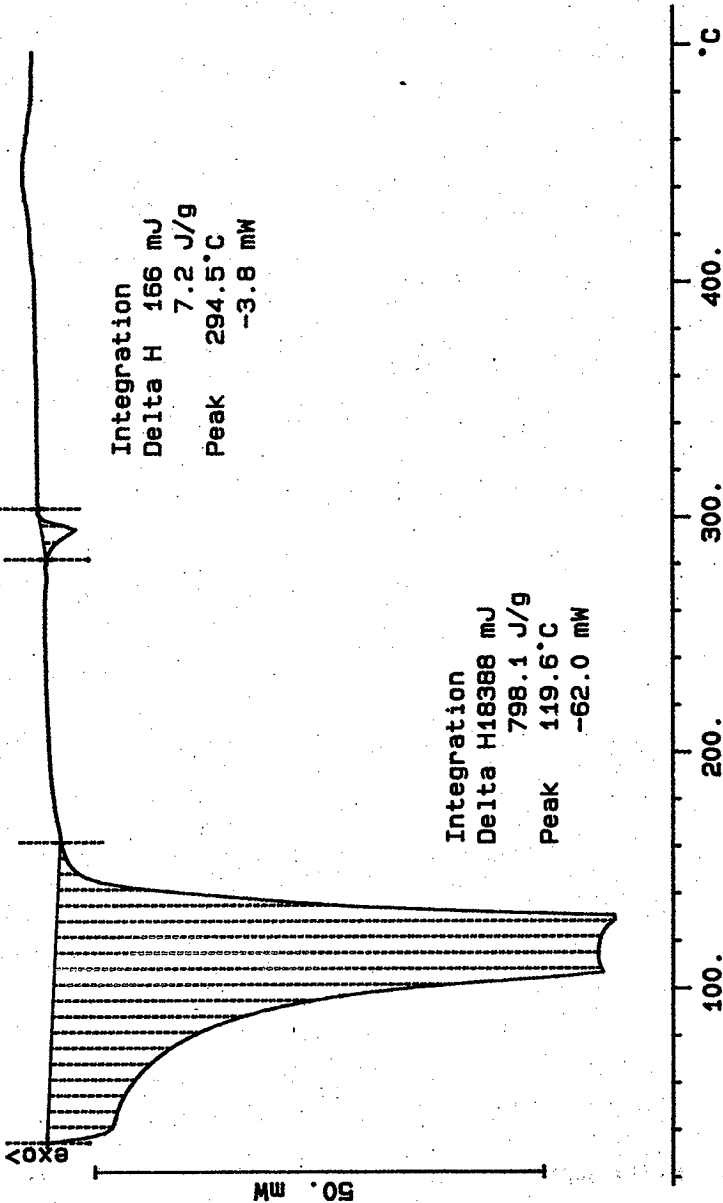
File: 00076.001 DSC METTLER 19-Feb-97
Ident: 0.0 222-S Laboratory

S97T000145 DUP N2
20.341 mg Rate: 10.0 °C/min

exo



S97T000145 TRIP N2
23.038 mg
Rate: 10.0 °C/min
File: 00078.001 DSC METTLER 19-Feb-97
Ident: 0.0 222-S Laboratory



LABCORE Data Entry Template for Worklist# 16719

Analyst: KRM **Instrument:** DSC0 3 **Book #** 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				DSC-03	SOLID	<u>28.45</u>	<u>26.48</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000146	0		DSC-03	SOLID	<u>N/A</u>	<u>∅</u>		Joules/g
97000083	T-110	3 DUP	S97T000146	0		DSC-03	SOLID	<u>∅</u>	<u>∅</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000147	0		DSC-03	SOLID	<u>N/A</u>	<u>∅</u>		Joules/g
97000083	T-110	5 DUP	S97T000147	0		DSC-03	SOLID	<u>∅</u>	<u>∅</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16719

See attached for signature
Analyst Signature Date 2-20-97
BOY

Jim M...
Analyst Signature Date 2-20-97

Verified/Validated by
Blandina Valenzuela
Date 2-20-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16719

Analyst: KRM Instrument: DSC0 _____ Book # 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
97000083	T-110	2 SAMPLE	S971000146	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	3 DUP	S971000146	0	DSC-01	SOLID			N/A	Joules/g
97000083	T-110	4 SAMPLE	S971000147	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	5 DUP	S971000147	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 16719


Analyst Signature

2-19-97
Date

Analyst Signature

Date

DSC-03 instrument
was used.

2-20-97

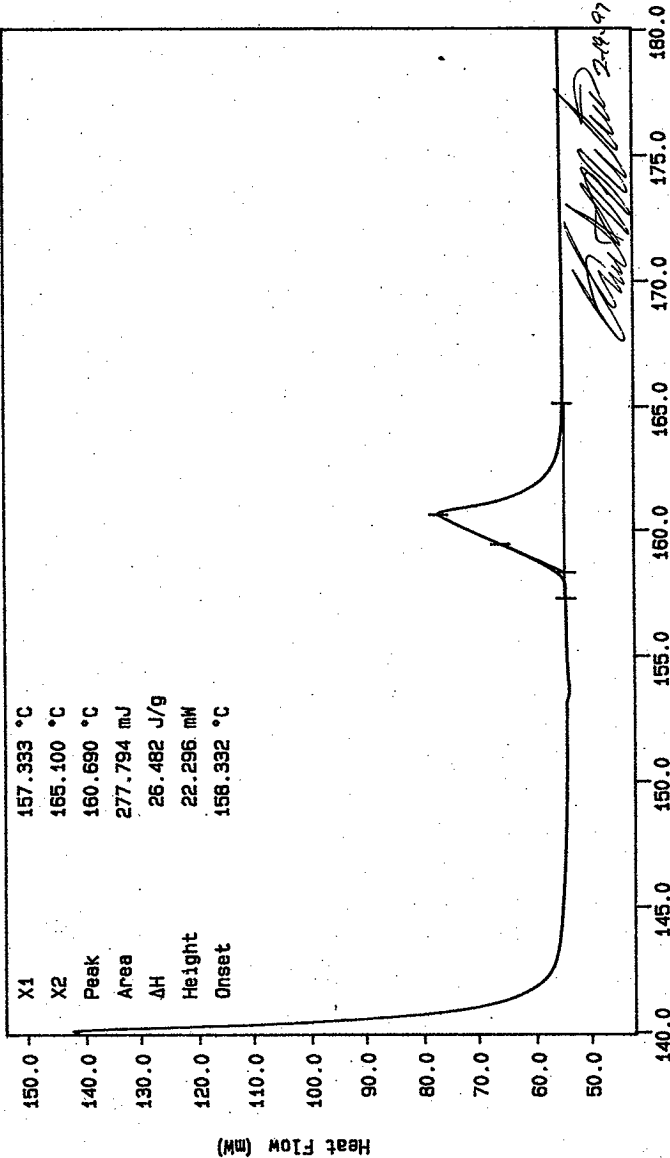
Blandina
Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File Info: IND021901 Wed Feb 19 03:31:57 1997
Sample Weight: 10.490 mg
STD 12N14-B

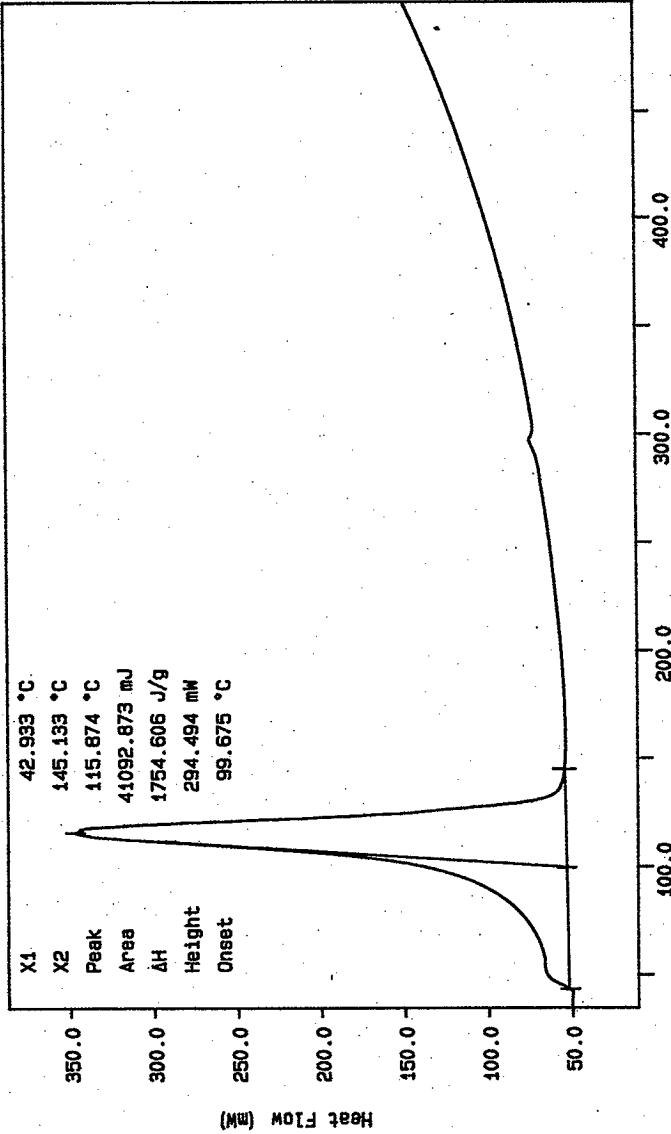
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 257 TO 261.



X1	157.333 °C
X2	165.100 °C
Peak	160.690 °C
Area	277.794 mJ
ΔH	26.482 J/g
Height	22.296 mW
Onset	158.332 °C

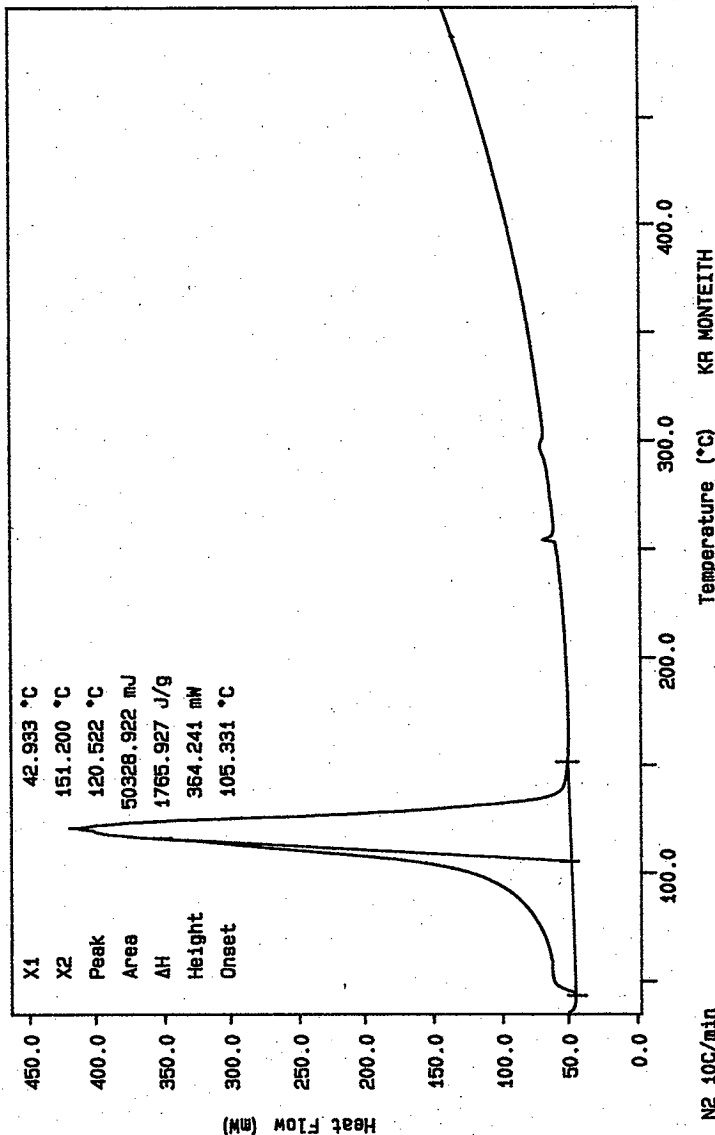
N2, EXOTHERM DOWN
 TEMP: 140.0 °C TIME: 0.0 min RATE: 10.0 °C/min
 TEMP: 160.0 °C
 KR MONTEITH
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Wed Feb 19 03:40:35 1997

Curve 1: DSC
File info: SAM021901 Wed Feb 19 05: 35: 37 1997
Sample Weight: 23.420 mg
S97T000146



N2 10C/min
TEMP: 50.0 C
TIME: 500.0 S
0.0 min RATE: 10.0 C/min
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 07: 09: 39 1997

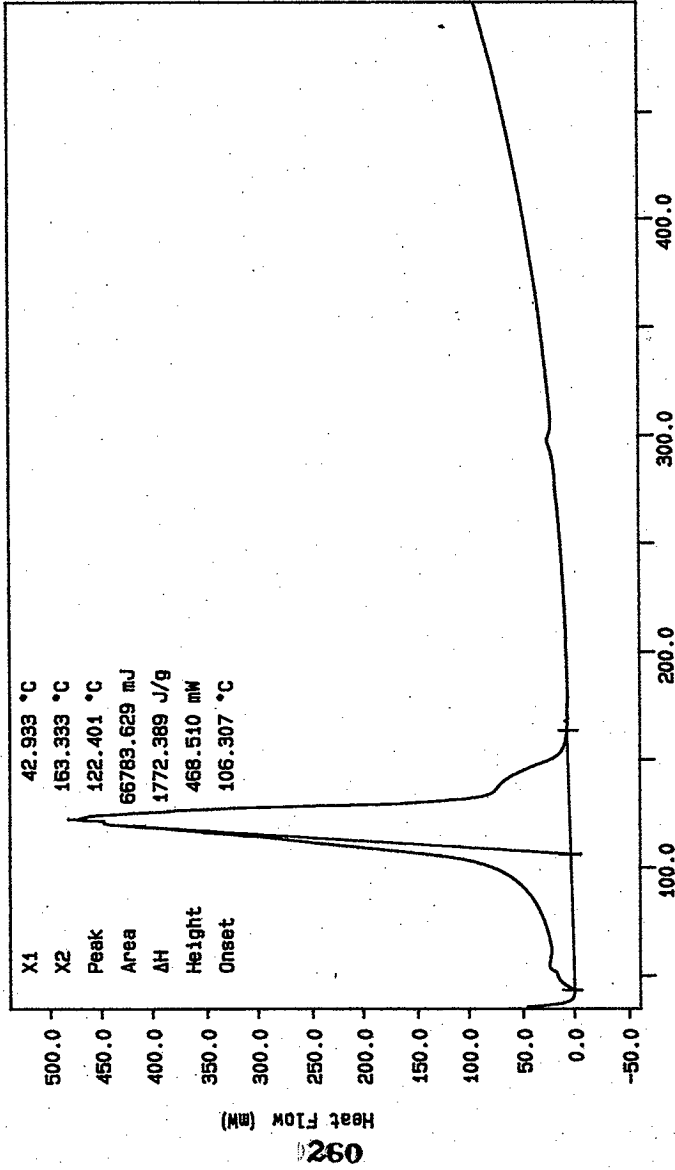
Curve 1: DSC
File info: SAN021902 Wed Feb 19 08:03:36 1997
Sample Weight: 28.500 mg
S97T000146 DUP



KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 09:06:55 1997

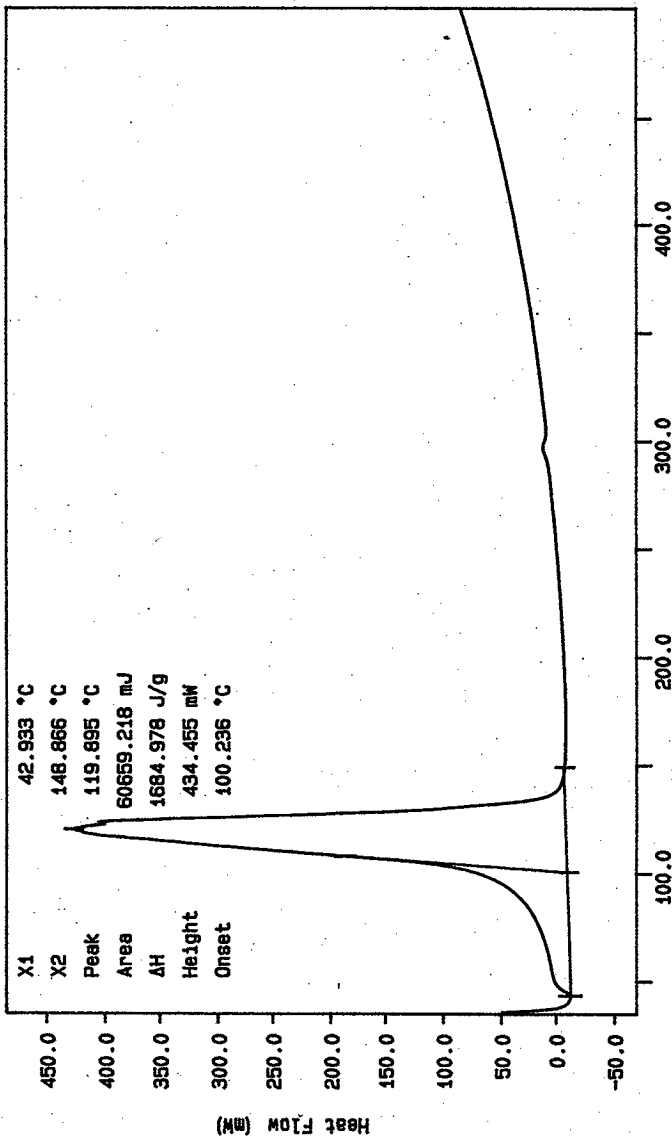
N2 10C/min
TEMP: 50.0 C
TEMP: 500.0 C
TIMES: 0.0 min RATE: 10.0 C/min

Curve 1: DSC
File info: SAM021903 Med Feb 19 10:00:21 1997
Sample Weight: 37.660 mg
S97T000147



N2 10C/min
TEMP: 600.0 C
TIME: 0.0
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Med Feb 19 11:38:17 1997

Curve 1: DSC
File Info: SAM021904 Wed Feb 19 12:29:10 1997
Sample Weight: 36.000 mg
S97T000147 DUP



N2 10C/min
TEMP: 25.0 C
TEMP: 255.0 C
TIME: 0.0 min RATE: 10.0 C/min

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 12:55:28 1997

worklistrpt Version 2.1 05/15/95
02/26/97 14:26

LABCORE Data Entry Template for Worklist# 16720

Analyst: RG Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.47</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000158	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	3 DUP	S97T000158	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000159	0	DSC-03	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
97000083	T-110	5 DUP	S97T000159	0	DSC-03	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16720

See attached for signatures
Analyst Signature _____ Date 2-25-97

[Signature]
Analyst Signature _____ Date 2-26-97

Verified/Validated by
Blandina
Valenzuela 2-27-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16720

Analyst: RGA Instrument: DSC0 _____ Book # 12N14B

Method: LA-514-113 Rev/Mod _____

Worklist Comment: DSC-01 FOR T-110 (RUN UNDER NITROGEN) INDIUM RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID			N/A	Joules/g
97000083	T-110	2 SAMPLE	S97T000158	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	3 DUP	S97T000158	0	DSC-01	SOLID			N/A	Joules/g
97000083	T-110	4 SAMPLE	S97T000159	0	DSC-01	SOLID	N/A			Joules/g
97000083	T-110	5 DUP	S97T000159	0	DSC-01	SOLID			N/A	Joules/g

Final page for worklist # 16720

Rodriguez 2-19-97
Analyst Signature Date

Analyst Signature Date

DSC-03 instrument
was used.

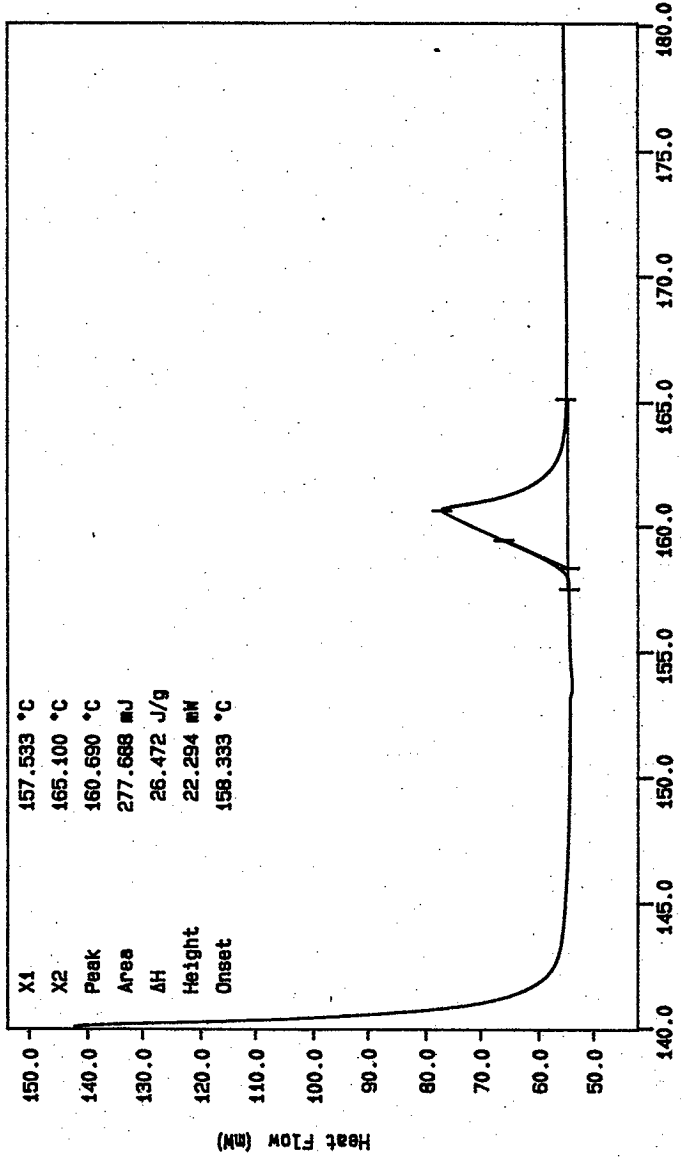
Blandina
Valenzuela
2-25-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES ~~12~~ TO ~~12~~.

Curve 1: DSC
File Info: IND021901 Wed Feb 19 03:34:57 1997
Sample Weight: 10.490 mg
STD 12N14-B

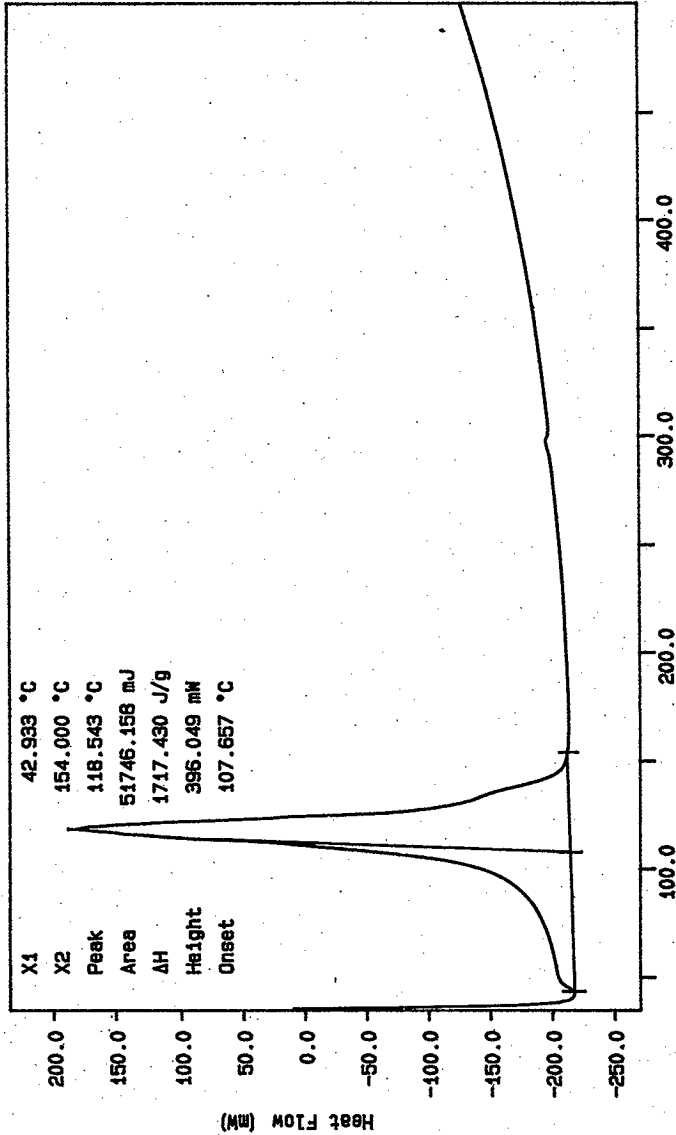


KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 23:41:39 1997

N2, EXOTHERM DOWN
TEMP: 160.0 °C THERM: 0.0 min RATE: 40.0 C/min

Handwritten signature
5/14/97

Curve 1: DSC
File info: SAM021906 Wed Feb 19 17: 15: 48 1997
Sample Weight: 30.130 mg
S97T000158 SAM

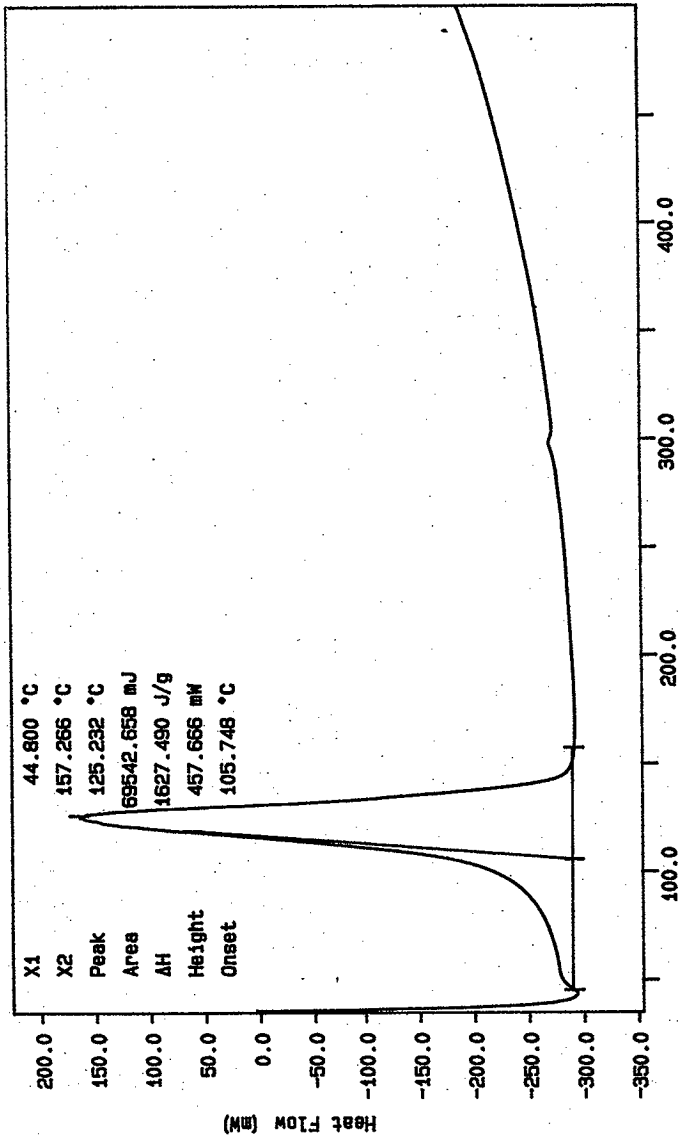


R6 ACHEN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 19: 20: 14 1997

Temperature (°C)

N2 10%/min
TEMPERATURE 655.8 °C
TIME: 0.0 min RATE: 10.0 °C/min

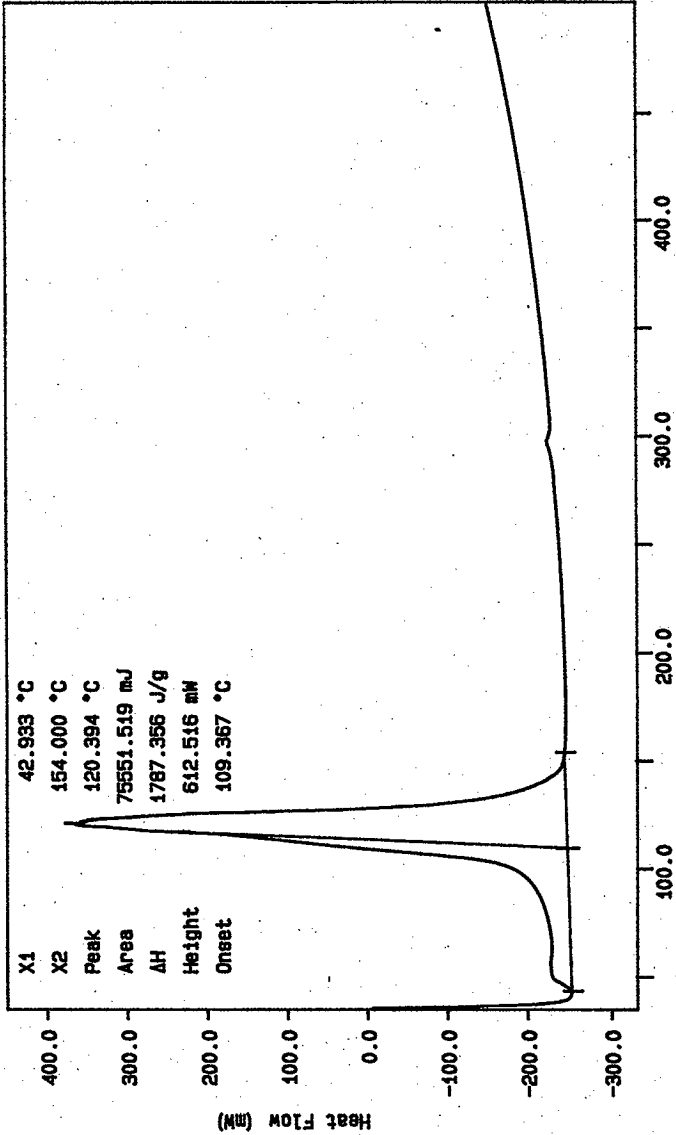
Curve 1: DSC
File info: SAM0210910 Wed Feb 19 21: 28: 18 1997
Sample Weight: 42.730 mg
SS7T000158 DUP



RG ACHEN
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 23: 02: 35 1997

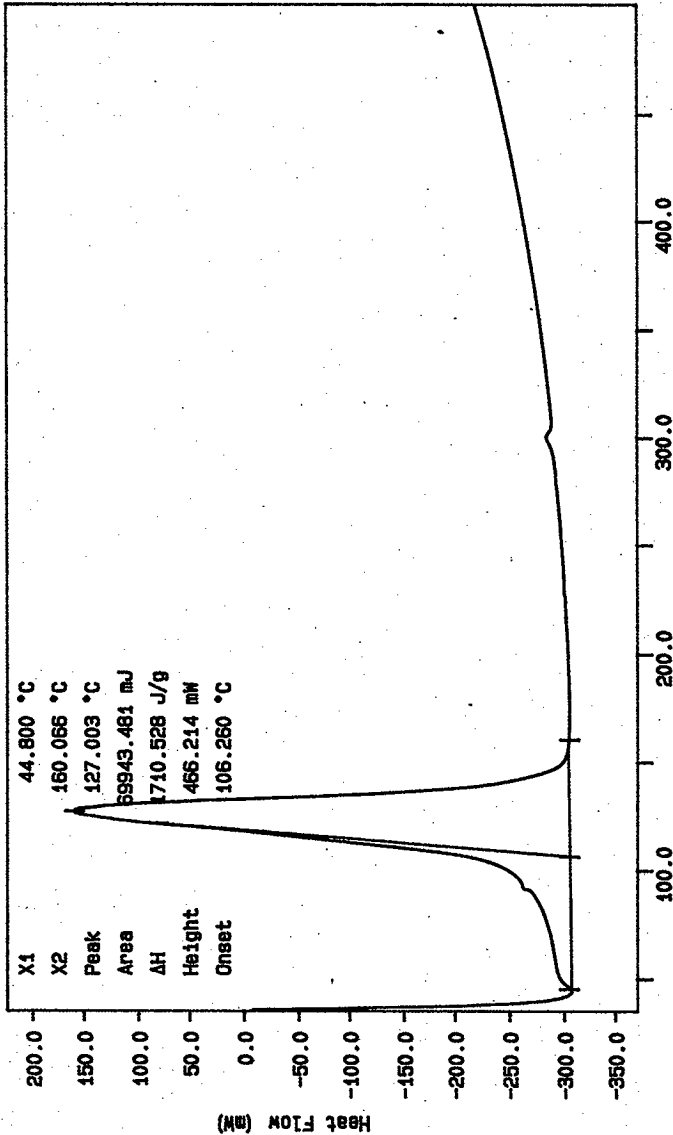
N2 10C/min
TEMPERATURE 0.0 °C
TIME 0.0 min RATE: 10.0 C/min

Curve 1: DSC
File info: SAM021912 Thu Feb 20 00:53:18 1997
Sample Weight: 42.270 mg
S977000159 SAM



N2 100/min
TEMP: 638.8 °C
TIME: 0.0 min RATE: 10.0 C/min
RG ACHEN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 20 01:01:12 1997

Curve 1: DSC
File Info: SAM021913 Thu Feb 20 01:54:21 1997
Sample Weight: 40.890 mg
S97T000159 DUP



X1 44.800 °C
X2 160.066 °C
Peak 127.003 °C
Area 59943.481 mJ
ΔH 1710.528 J/g
Height 466.214 mW
Onset 106.260 °C

892

N2 10C/min
TEMPERATURE 555.8 C
TIME 8
DSC RATE: 0.0 min RATE: 10.0 C/min
Temperature (°C)
BG ACHEN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Feb 20 02:17:04 1997

LABCORE Data Entry Template for Worklist# 16798

Analyst: BDV **Instrument:** DSC01 **Book #** _____

Method: LA-514-113 Rev/Mod _____

Worklist Comment: T-110 dry DSC. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	T-110	1 SAMPLE	S97T000125	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	2 DUP	S97T000125	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	3 SAMPLE	S97T000141	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	4 DUP	S97T000141	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	5 SAMPLE	S97T000142	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	6 DUP	S97T000142	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	7 SAMPLE	S97T000143	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	8 DUP	S97T000143	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	9 SAMPLE	S97T000144	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	10 DUP	S97T000144	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	11 SAMPLE	S97T000145	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	12 DUP	S97T000145	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	13 SAMPLE	S97T000146	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	14 DUP	S97T000146	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	15 SAMPLE	S97T000147	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	16 DUP	S97T000147	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry
97000083	T-110	17 SAMPLE	S97T000158	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	18 DUP	S97T000158	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklistrpt Version 2.1 05/15/95
02/27/97 14:44

LABCORE Data Entry Template for Worklist# 16798

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	T-110	19 SAMPLE	S97T000159	0	DSC-02	SOLID	N/A	Ø		Joules/g Dry
97000083	T-110	20 DUP	S97T000159	0	DSC-02	SOLID	Ø	Ø	N/A	Joules/g Dry

Final page for worklist # 16798

Blandina Valenzuela 2-27-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

T-110 dry DSC

CALCULATED DRY DSC			
SAMPLE NO.	DSC RESULT (J/g)	TGA RESULT (% water)	DRY DSC RESULT
S97T000125	∅		
125D	∅		
141	∅		
141D	∅		
142	∅		
142D	∅		
143	∅		
143D	∅		
144	∅		
144D	∅		
145	∅		
145D	∅		
146	∅		
146D	∅		
147	∅		
147D	∅		
158	∅		
158D	∅		

LABCORE Data Entry Template for Worklist# 16825

Analyst: SMF Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.89</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000192	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	3 DUP	S97T000192	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000193	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	5 DUP	S97T000193	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	6 SAMPLE	S97T000214	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	7 DUP	S97T000214	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16825

See Attached for Signature
Analyst Signature Date

Jay Hammett 3-4-97
Analyst Signature Date

Validated: Dr. Bachelor 3/5/97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16825

Analyst: SMF Instrument: DSC0 3 Book # 12N14-B
Method: LA ^{5/4-114 @ 3/6/97} ~~514-113~~ Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.09</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000192	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	3 DUP	S97T000192	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000193	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	5 DUP	S97T000193	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	6 SAMPLE	S97T000214	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	7 DUP	S97T000214	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16825

Audie M. Dalton 3-1-97
Analyst Signature Date

Analyst Signature Date

Faxed Both Dsc And TGA to 3B

16 pages total

@ 0640 3-2-97

JDS

Re-faxed on 3/1/97. ~~SMF~~

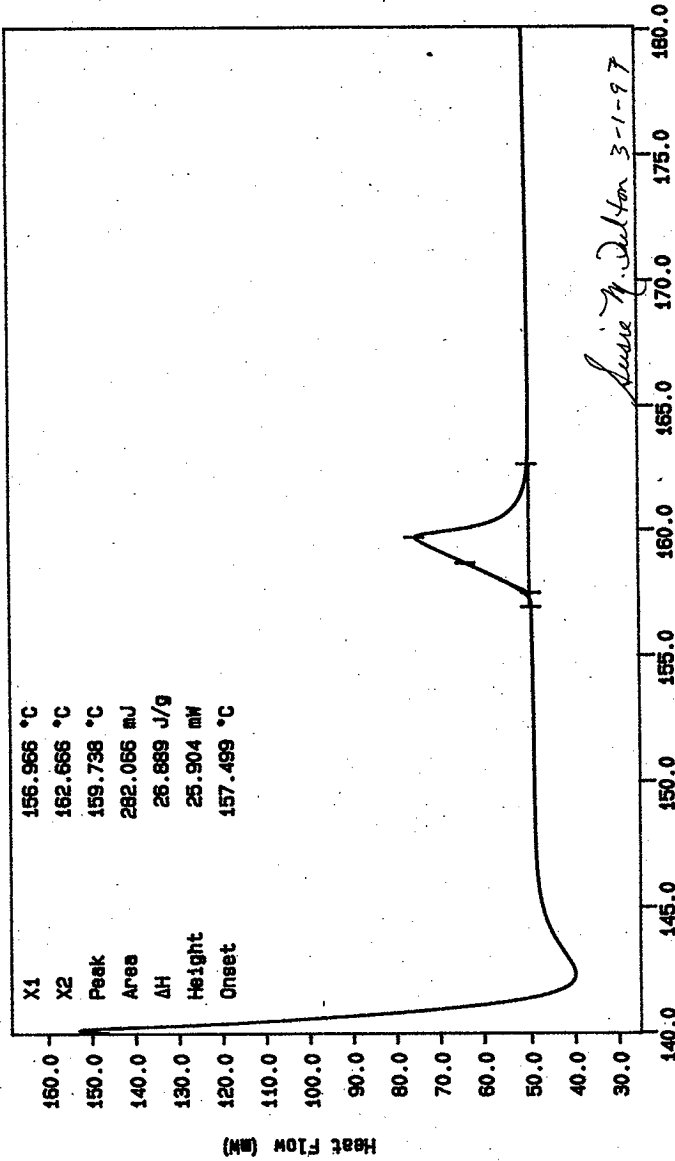
Data Entry Comments:

Ran samples using DSC-03. ~~SMF~~

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 14 TO 280.

Curve 1: DSC
File info: IND030101 Sat Mar 1 16: 28: 39 1997
Sample Weight: 10.490 mg
STD 12N14-B



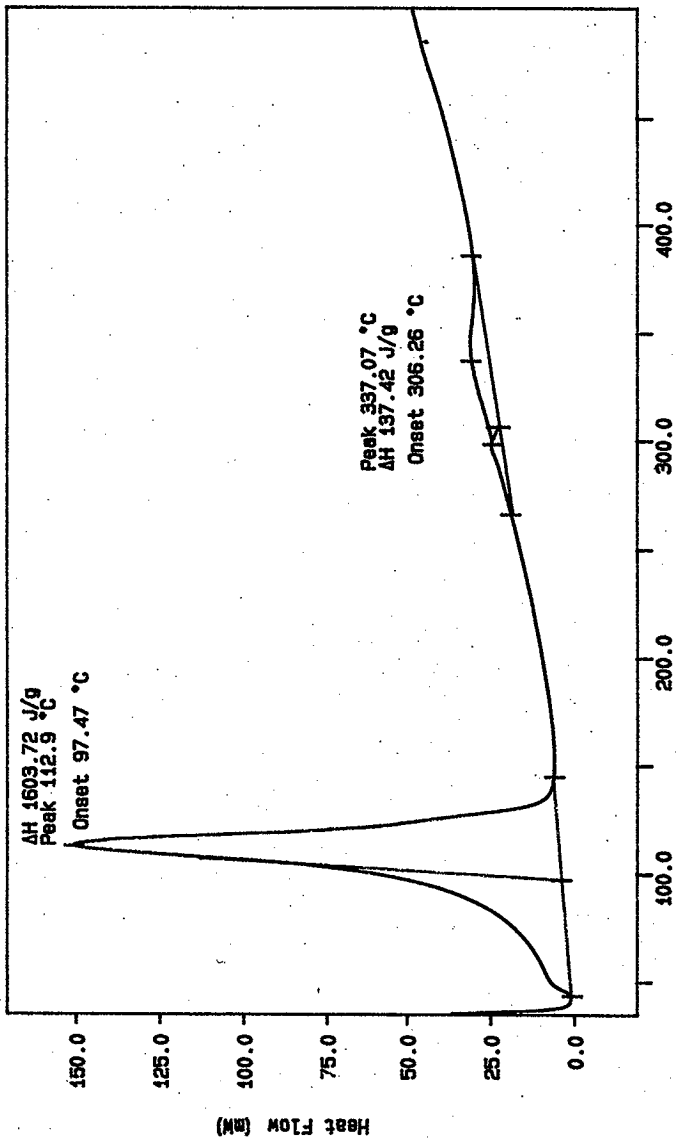
Leslie Y. Dalton 3-1-97

SH FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 1 16: 29: 31 1997

Temperature (°C)

N2, EXOTHERM DOWN
TEMPERATURE 148.8 & TUNING 0.0 min RATE: 10.0 °C/min

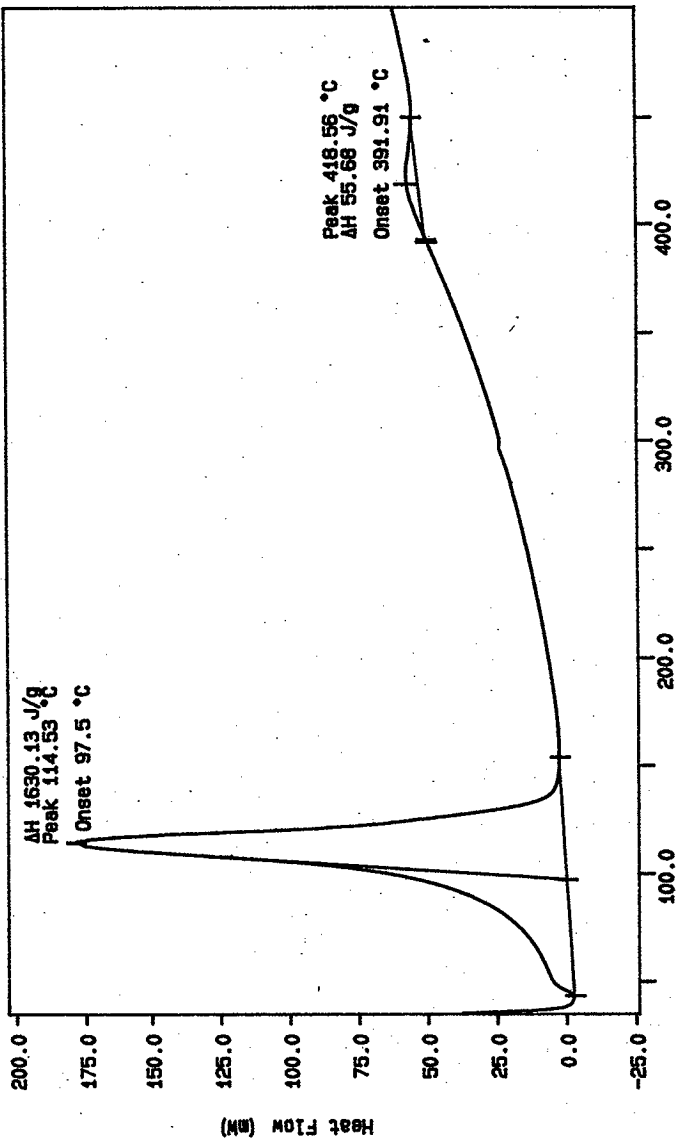
Curve 1: DSC
File Info: SAM030101 Set Mar 1 17:58:39 1997
Sample Weight: 13.340 mg
S97T000192



SM FULTON
PEKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 08:00:56 1997

N2 10C/min
TEMP: 35.8 °C
TIME: 00:08
0.0 min RATE: 10.0 C/min

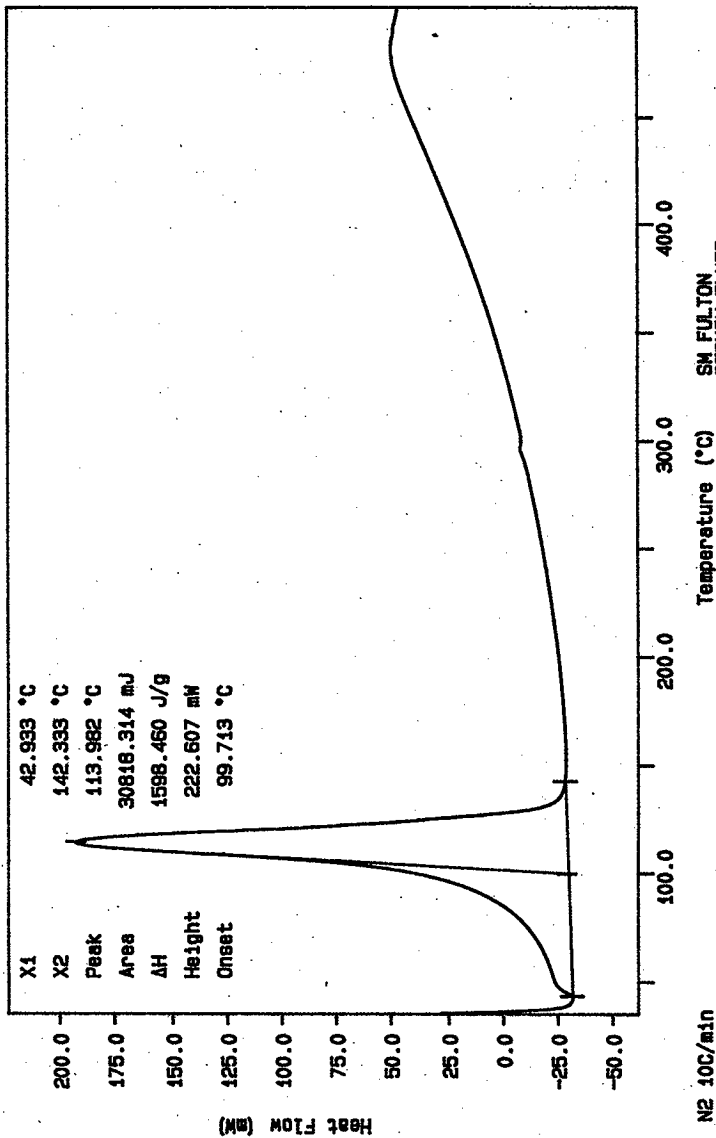
Curve 1: DSC
File Info: SAM030102 Sat Mar 1 19:26:15 1997
Sample Weight: 16.380 mg
S977000192 DUP



SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Mar 4 12:50:17 1997

N2 10C/min
TEMP# 555.8 8
TIME# 11
0.0 min RATE# 10.0 C/min

Curve 1: DSC
File Info: SAM030103 Sat Mar 1 22:32:09 1997
Sample Weight: 19.280 mg
S97T000193

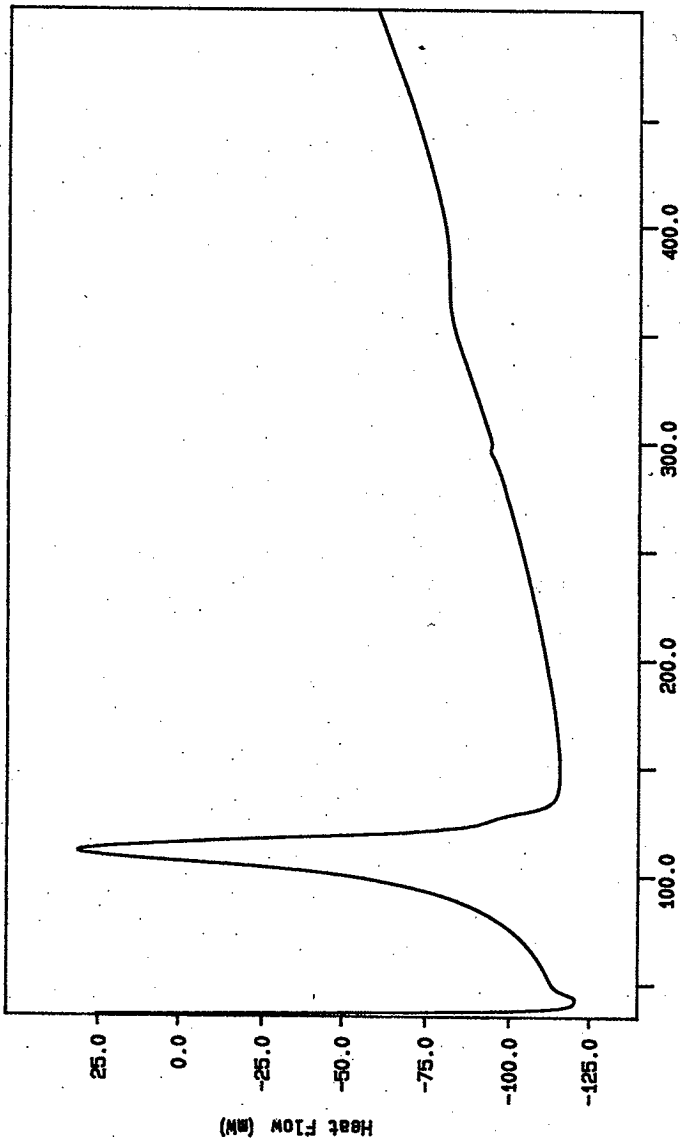


SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 00:01:35 1997

N2 10C/min
TIME 55.0 g
TIME 556.0 g
0.0 min RATE: 10.0 C/min

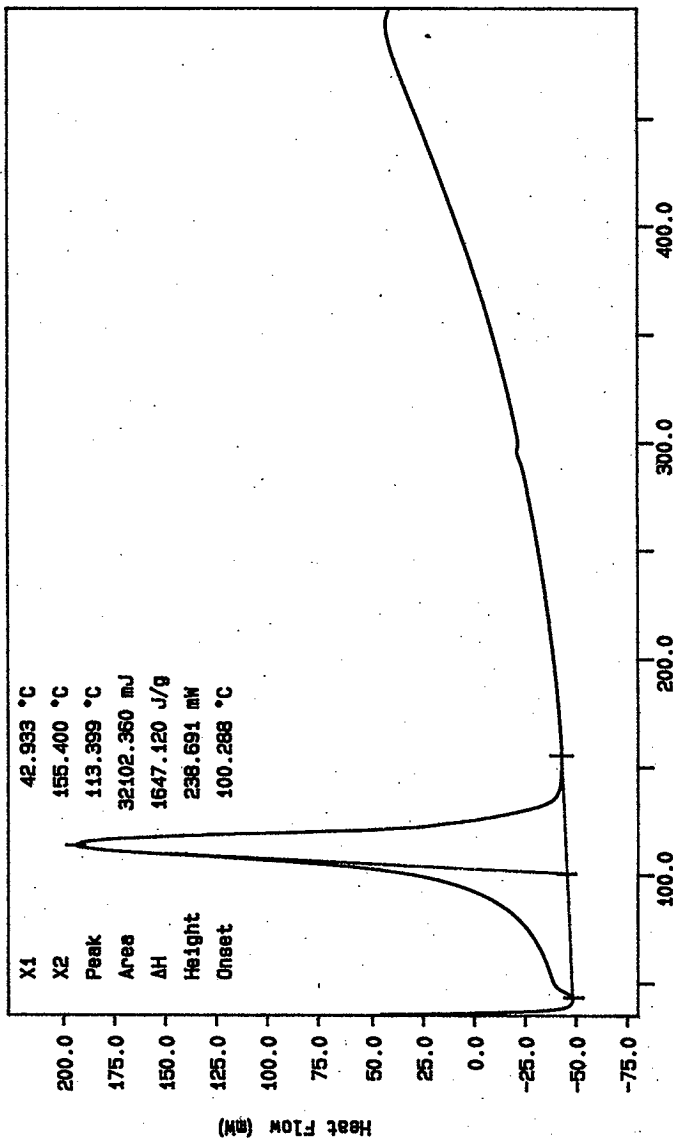
277
Heat Flow (mW)

Curve 1: DSC
File info: SA0030104 Sun Mar 2 00:45:19 1997
Sample Weight: 13.110 mg
S97T000193 DUP



N2 10C/min
TEMP: 25.0 C
TEMP: 500.0 C
TIMES: 0.0 min RATE: 10.0 C/min
SM FULTON
BERKIN-ELMER
7 Series Thermal Analysis System
Tue Mar 4 12:56:20 1997

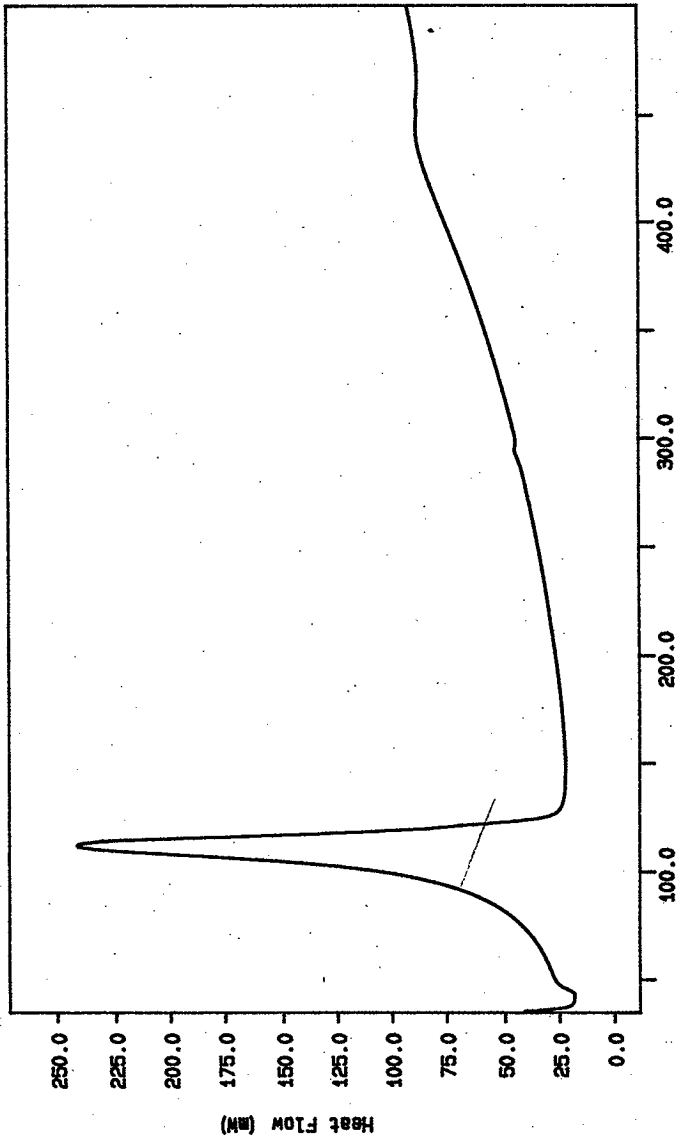
Curve 1: DSC
File Info: SAM030105 Sun Mar 2 04: 50: 47 1997
Sample Weight: 19.490 mg
S97T000214



SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 02: 59: 46 1997

N2 10C/min
TIME 55.8 S
RATE 0.0 min RATE: 10.0 C/min

Curve 1: DSC
File info: SAM030106 Sun Mar 2 03:43:40 1997
Sample Weight: 15.980 mg
S97T000214 DUP



N2 10C/min
TEMP: 55.8 & TIME: 558.8 &
SM FULTON PERKIN-ELMER
7 Series Thermal Analysis System
Tue Mar 4 13:00:56 1997

LABCORE Data Entry Template for Worklist# 16826

Analyst: HRM **Instrument:** DSC0 3 **Book #** 12N148
Method: LA-514-114 Rev/Mod D-0 **HNF-SD-WM-DP-238, REV. 0**
Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>2600*</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	S97T000216	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	S97T000216	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	S97T000217	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	S97T000217	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	6 SAMPLE	S97T000218	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	7 DUP	S97T000218	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16826

See Attached for Signature
Analyst Signature **Date**

RF Dtal 3/4/97
Analyst Signature **Date**

Validated: B. Bachelor 3/5/97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16826

Analyst: KRM Instrument: DSCO 3 Book # 12N14B
114 @ 3/3/97 9716826 3/4/97
Method: LA-514-113 Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.00</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	S97T000216	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	S97T000216	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	S97T000217	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	S97T000217	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	6 SAMPLE	S97T000218	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	7 DUP	S97T000218	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16826

 3-2-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Run using DSC-03 @ 3/4/97

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample#	Assc	Sample ID
Group#		Customer
Worklist# 16826		WL Comment T-110 DSC, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.0	91.3884	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts

Save(F12) End(F3)

WHC QCHISTORY TABLE EDIT SCREEN

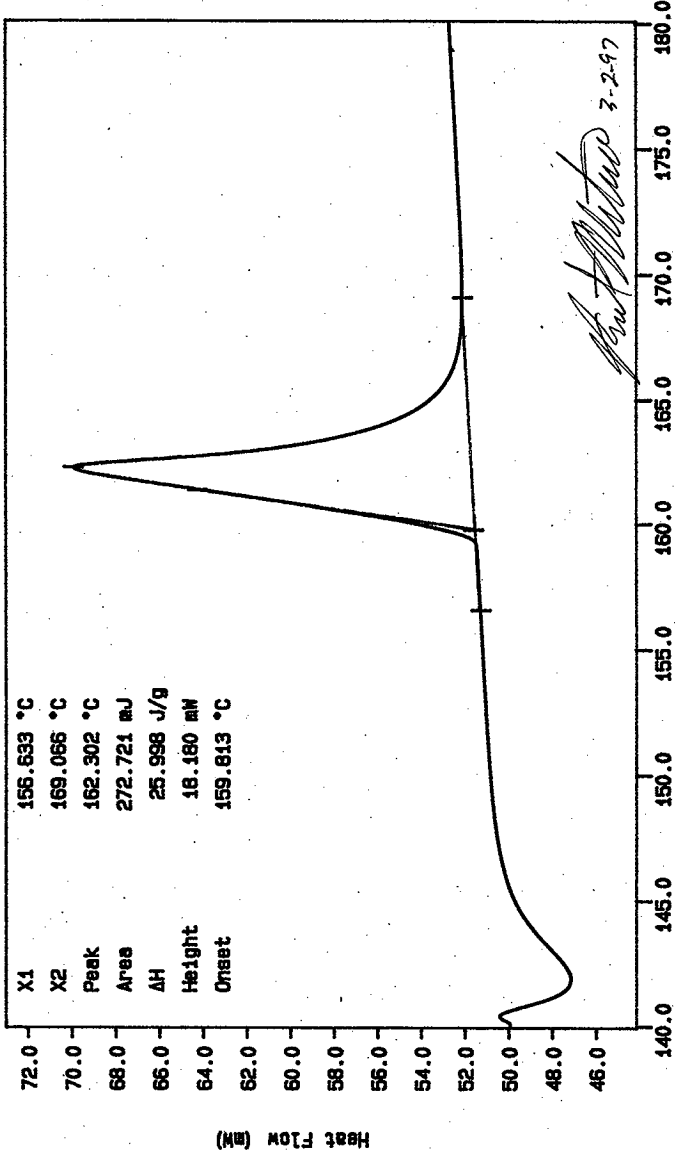
Sample# Assc Sample ID
 Group# Customer
 Worklist# 16826 WL Comment T-110 DSC, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.0*	91.3884	TEXT	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/04/97 1512	rts

Save(F12) End(F3)

Curve 1: DSC
File Info: IND030201 Sun Mar 2 04:39:54 1997
Sample Weight: 10.490 mg
STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 285 TO 291.

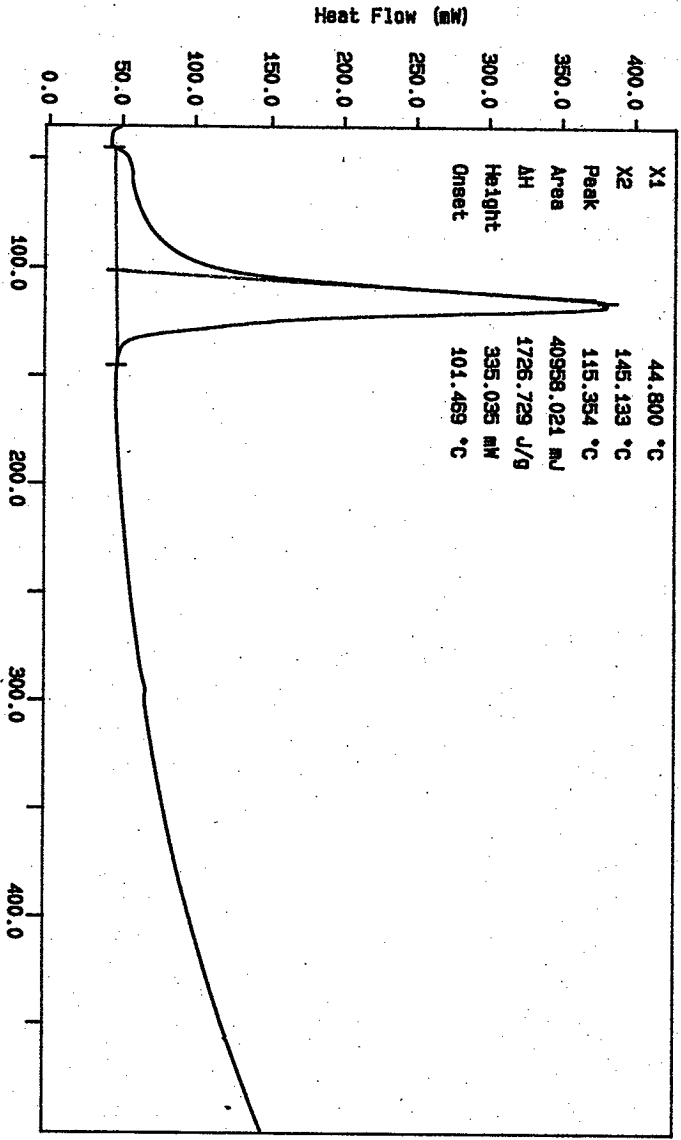


JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 17:39:44 1997

N2, EXOTHERM DOWN
TEMP: 140.8 °C
160.8 °C
0.0 min RATE: 10.0 °C/min

Curve 1: DSC
 File Infc: SAM030205 Sun Mar 2 17: 41: 25 1997
 Sample Weight: 29.720 mg
 S97T000216

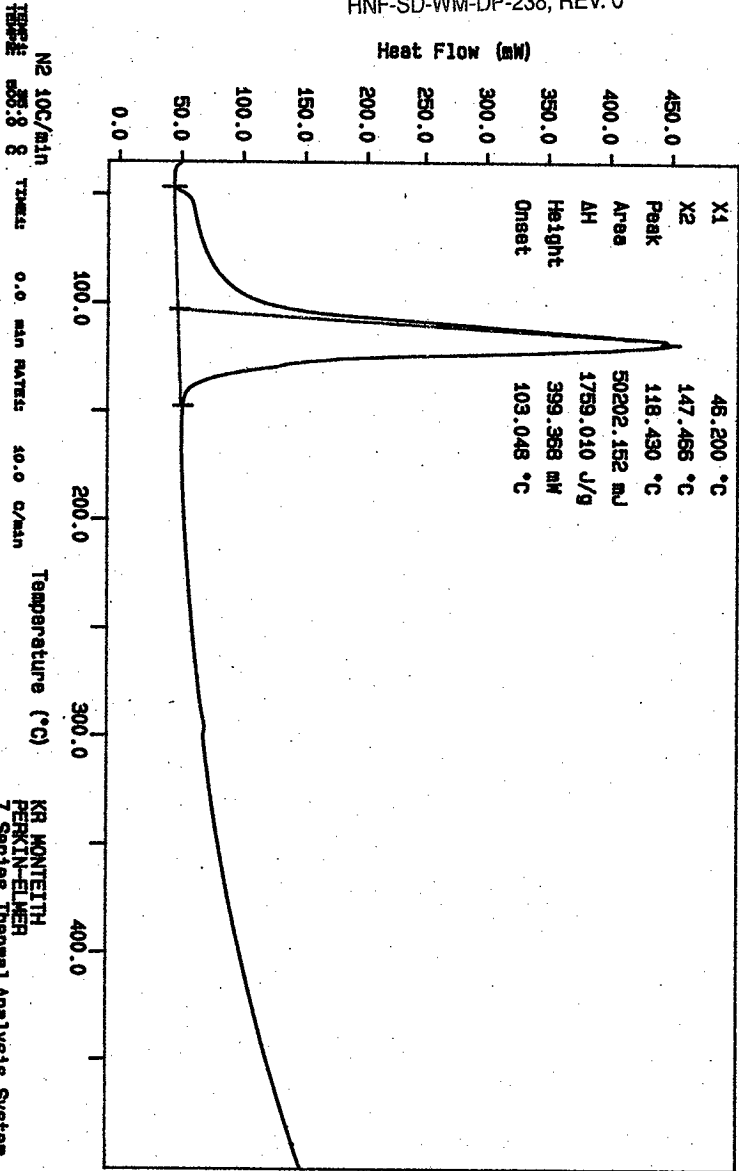
HNF-SD-WM-DP-238, REV. 0



N2 100C/min
 Temperature: 500.0 g
 Time: 0.0 min
 Rate: 10.0 C/min

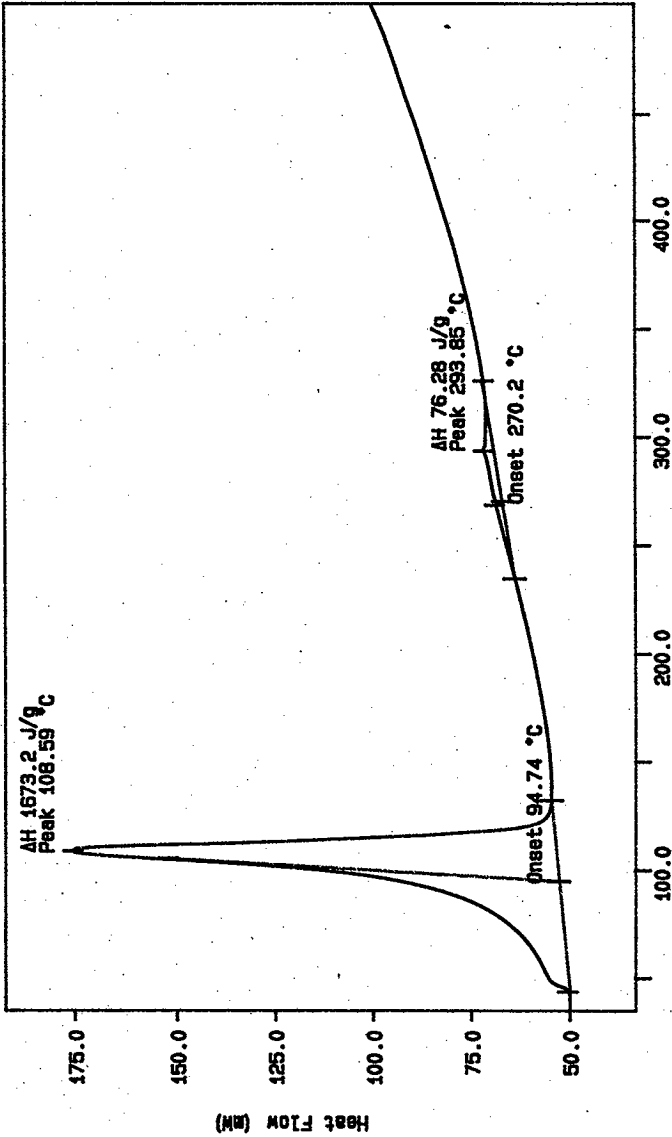
KR MONTEITH
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sun Mar 2 17: 46: 06 1997

Curve 1: DSC
File Infc: SAM030206 Sun Mar 2 18:36:31 1997
Sample Weight: 28.540 mg
S97T000216 DUP



KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 18:29:45 1997

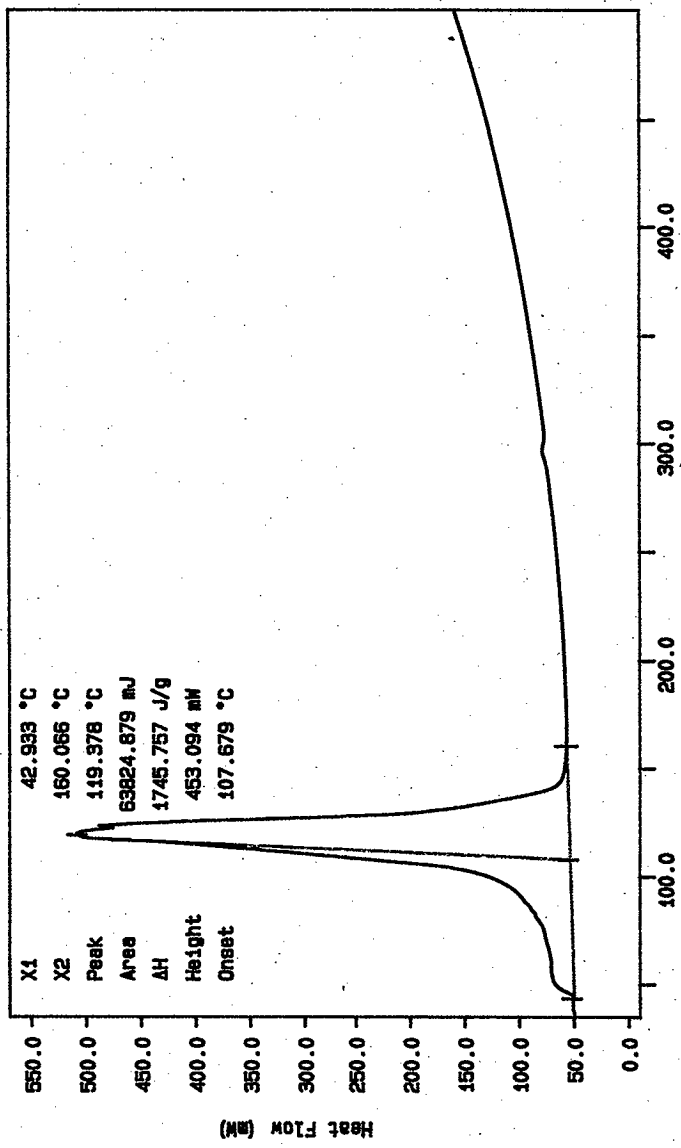
Curve 1: DSC
File info: SAK030207 Sun Mar 2 20:15:36 1997
Sample Weight: 8.840 mg
SS7T000217



N2 10C/MIN
TEMP: 30.8 C
TIME: 000.8 C

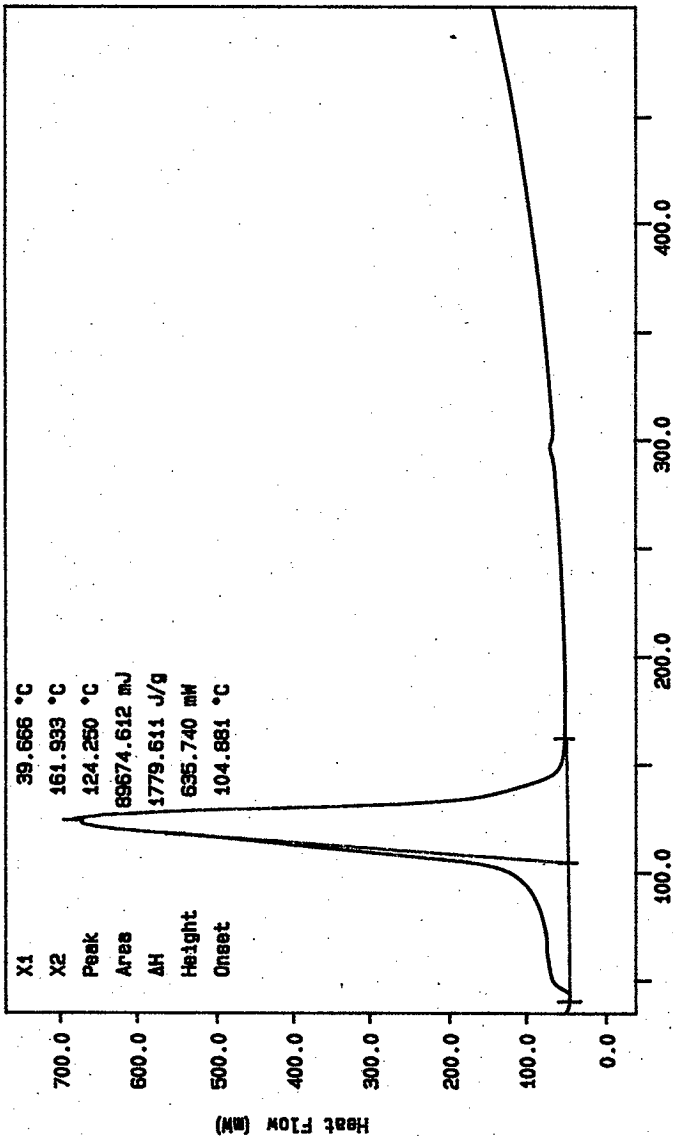
K9 MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 23:36:17 1997

Curve 1: DSC
File info: SAK030208 Sun Mar 2 22:12:42 1997
Sample Weight: 36.560 mg
S97T000217 DUP



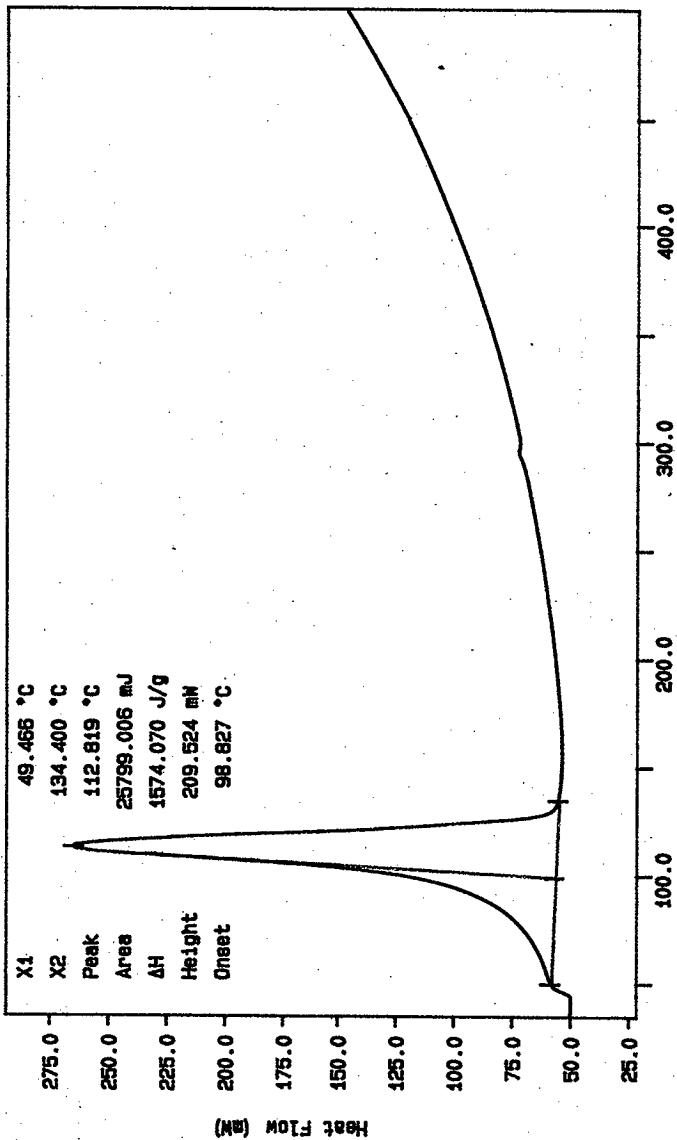
N2 10C/min
TIME 000.8 g
TIME: 0.0 min RATE: 10.0 C/min
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 23:41:30 1997

Curve 1: DSC
File Info: SAM030209 Mon Mar 3 00:16:10 1997
Sample Weight: 50.390 mg
S977000218



N2 10C/min
TEMP: 250.8 8
TIME: 0.0 min RATE: 10.0 C/min
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 00:30:06 1997

Curve 1: DSC
 File Info: SAM030210 Mon Mar 3 01:23:54 1997
 Sample Weight: 16.390 mg
 S97T000218 DUP



N2 10C/min
 TEMPS: 55.8 g
 TMRSL: 0.0 min RATE: 10.0 C/min
 KR MONTEITH
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Mar 3 07:52:52 1997

LABCORE Data Entry Template for Worklist# 16827

Analyst: Jds Instrument: DSCO 3 Book # 97A84 ^{3/1/97} _{12N148}

Method: LA-514-113-Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.09</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	S97T000219	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	S97T000219	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	S97T000220	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	S97T000220	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16827

Jds 3-2-97
Analyst Signature Date

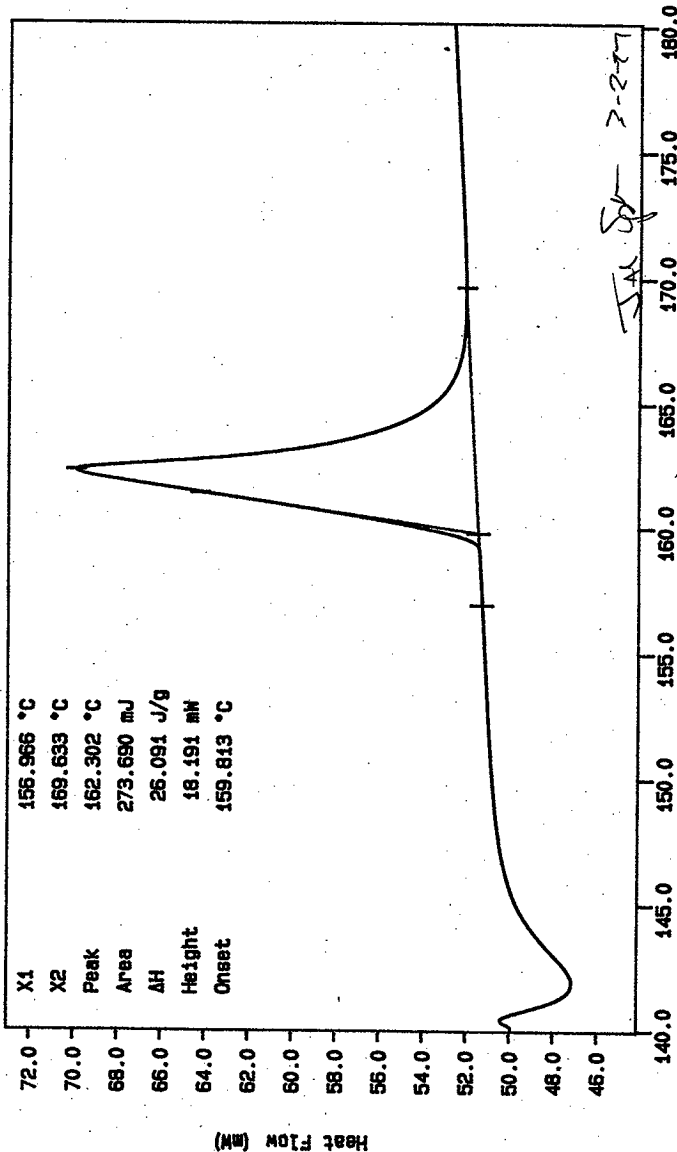
Analyst Signature Date

Data Entry Comments:
Samples run using DSC-03 @ 3/1/97

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

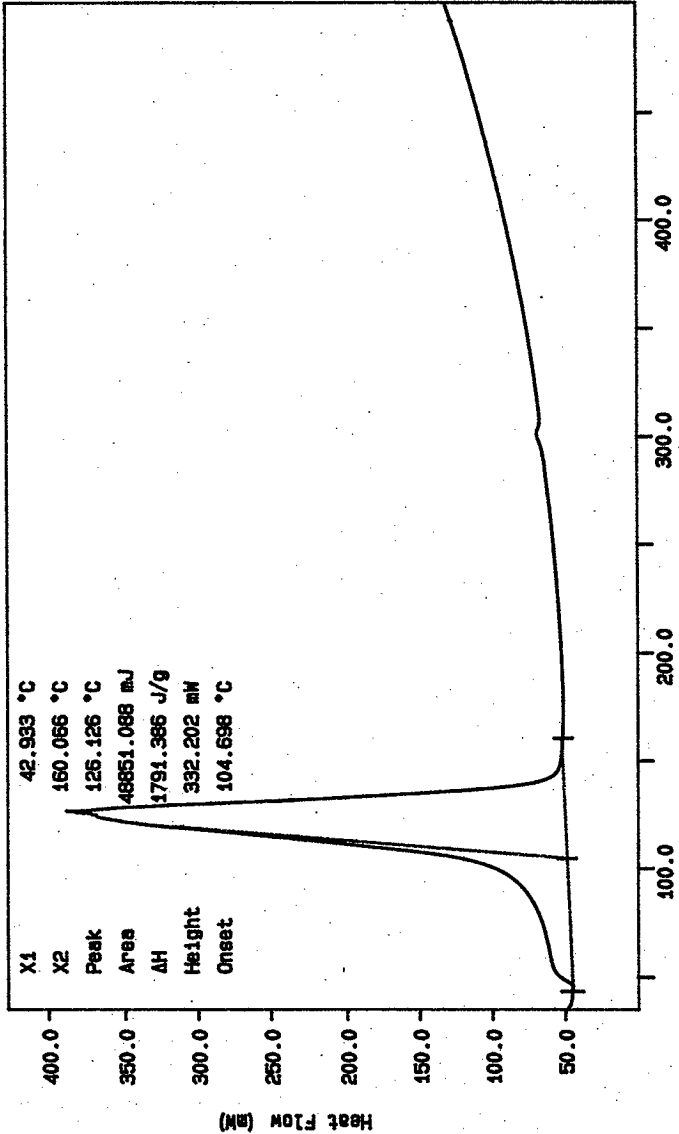
Curve 1: DSC
 File Info: IND030201 Sun Mar 2 04:39:54 1997
 Sample Weight: 10.490 mg
 STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 224 TO 228



N2, EXOTHERM DOWN
 TEMPERATURE TIME: 0.0 min RATE: 10.0 C/min
 JD SPELLMAN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sun Mar 2 04:44:14 1997

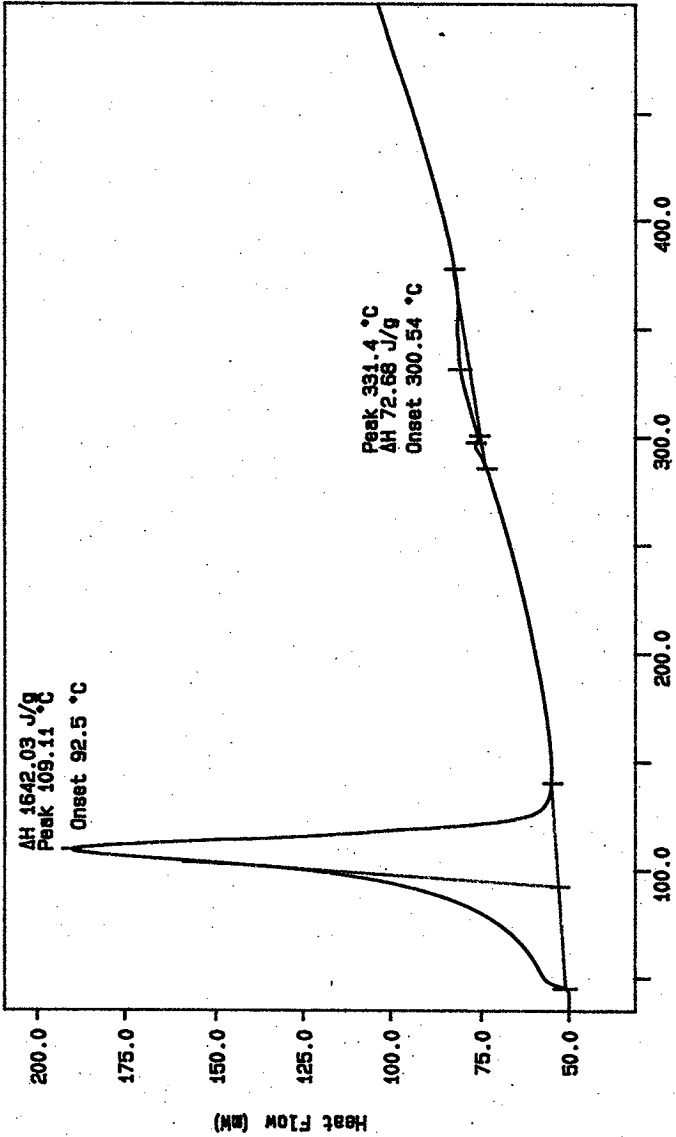
Curve 1: DSC
File info: SAM030201 Sun Mar 2 08:47:19 1997
Sample Weight: 27.270 mg
S97T000219



JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 08:52:46 1997

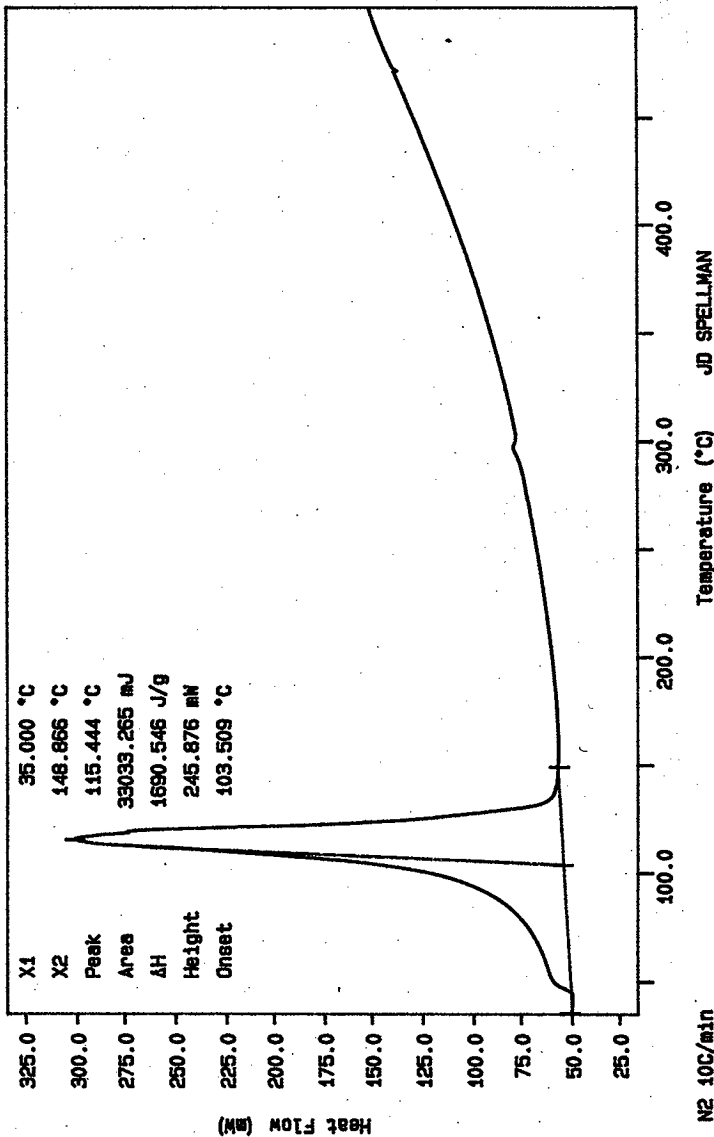
N2 10C/min
TEMP 350.0 8
TIME 280.0 8
RATE 10.0 c/min
TIME 0.0 min RATE 10.0 c/min

Curve 1: DSC
File Info: SAM030202 Sun Mar 2 09:43:57 1997
Sample Weight: 11.700 mg
S977000219DUP



N2 10C/min
TIME: 35.8 8
TIME: 665.8 8
Temperature (°C)
JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 07:55:08 1997

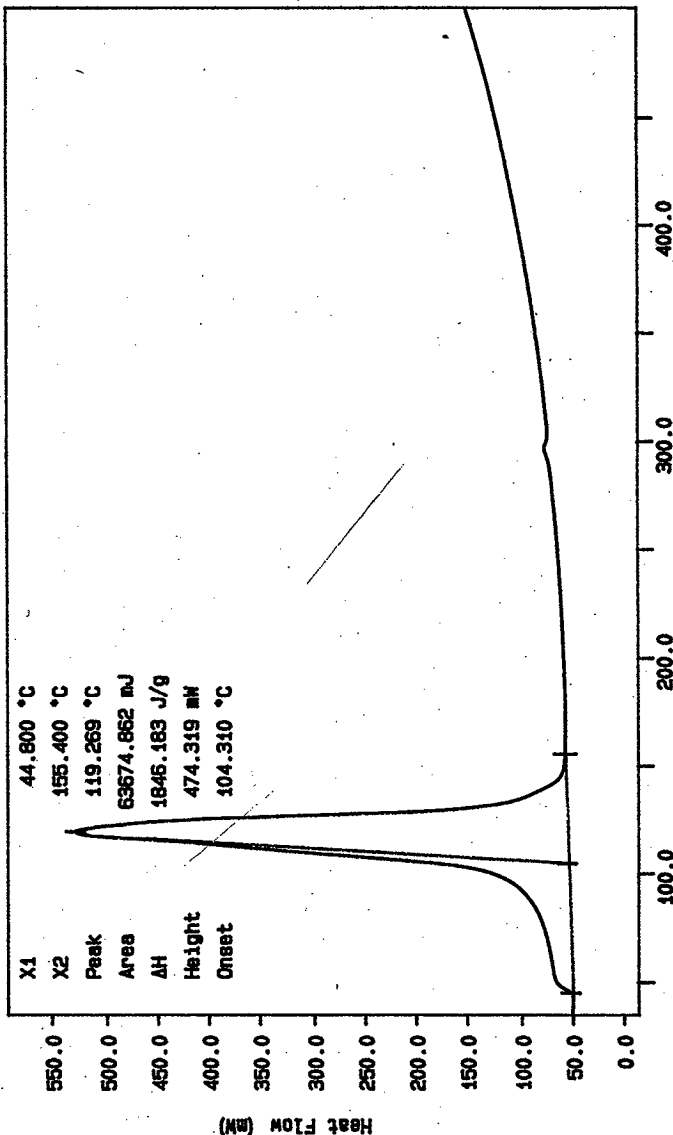
Curve 1: DSC
 File info: SAM030203 Sun Mar 2 14: 17: 37 1997
 Sample Weight: 19.540 mg
 S97T000220



JD SPELLMAN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sun Mar 2 15: 06: 13 1997

N2 10C/min
 TEMP: 35.0 °C
 TIME: 000.0 S
 TMR: 0.0 min RATE: 10.0 c/min

Curve 4: DSC
File Info: SAH030204 Sun Mar 2 16:54:49 1997
Sample Weight: 34.490 mg
S97T000220DUP



N2 10C/min
TEMP: 25.8 8
TIME: 008.8 8

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 16:48:40 1997

LABCORE Data Entry Template for Worklist# 16828

Analyst: RWK Instrument: DSC0 3 Book # 12N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>26.67</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	S97T000221 0		DSC-03	SOLID	<u>N/A</u>	<u>0</u> <u>13.513-4-97</u>		Joules/g
97000111	T-110	3 DUP	S97T000221 0		DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	S97T000222 0		DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	S97T000222 0		DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 16828

See Attached for Signature
Analyst Signature Date

Jay Hammett 3-4-97
Analyst Signature Date

Validated: S. Machelon 3/5/97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16828

Analyst: JK Instrument: DSC0 3 Book # 12/14-B

Method: LA-514-115 Rev/Mod D-0

Worklist Comment: T-110 DSC, RUN UNDER N2. 'RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.67</u>	N/A	Joules/g
97000111	T-110	2 SAMPLE	S97T000221	0	DSC-01	SOLID	N/A	<u>1340</u> ⁰ _{2H 3-4-97}		Joules/g
97000111	T-110	3 DUP	S97T000221	0	DSC-01	SOLID	<u>1340</u> ⁰	<u>1428</u> ⁰ ₃₋₄₋₉₇	N/A	Joules/g
97000111	T-110	4 SAMPLE	S97T000222	0	DSC-01	SOLID	N/A	<u>1619</u> ⁰ ₃₋₄₋₉₇		Joules/g
97000111	T-110	5 DUP	S97T000222	0	DSC-01	SOLID	<u>1619</u> ⁰	<u>1506</u> ⁰ ₃₋₄₋₉₇	N/A	Joules/g

Final page for worklist # 16828

Analyst Signature: Not King
Susie M. Dufour
Date: 3/3/97
3-4-97

Analyst Signature _____ Date _____

Data Entry Comments:

Ran samples using DSC-03. ~~SP~~ Results were for Exothermic not

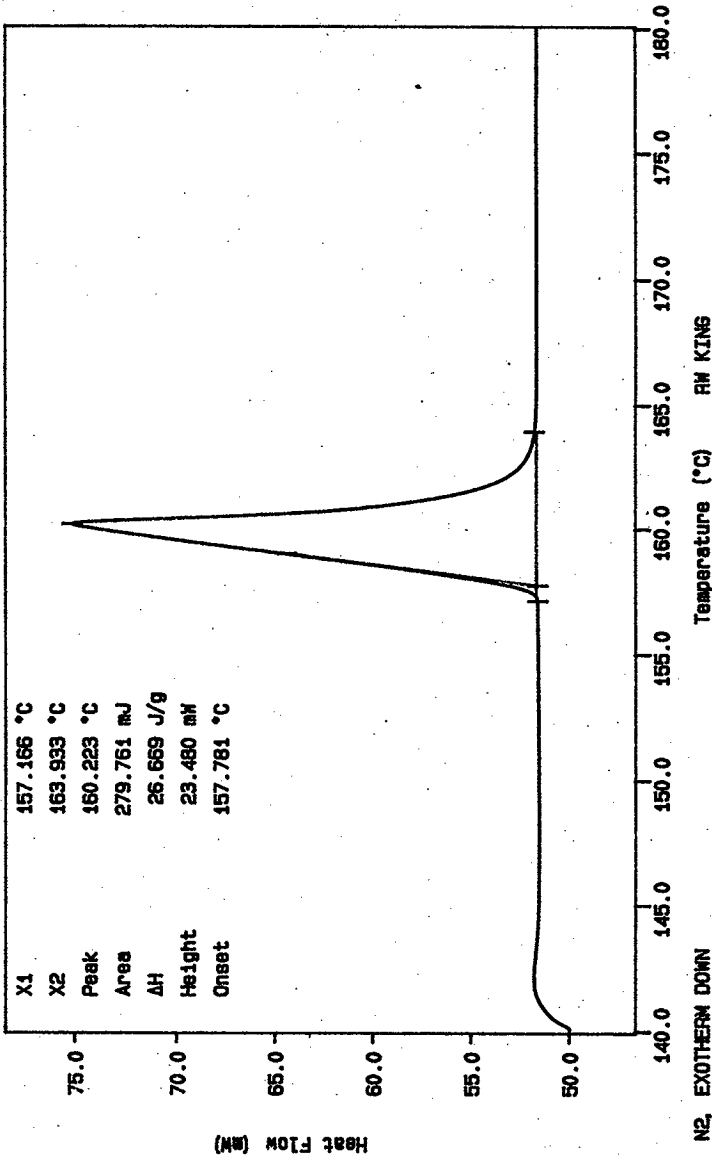
Endothermic. Changed results to reflect.

[Signature]

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
File Info: IND00302 Mon Mar 3 15: 10: 44 1997
Sample Weight: 10.490 mg
STD 12N14-B

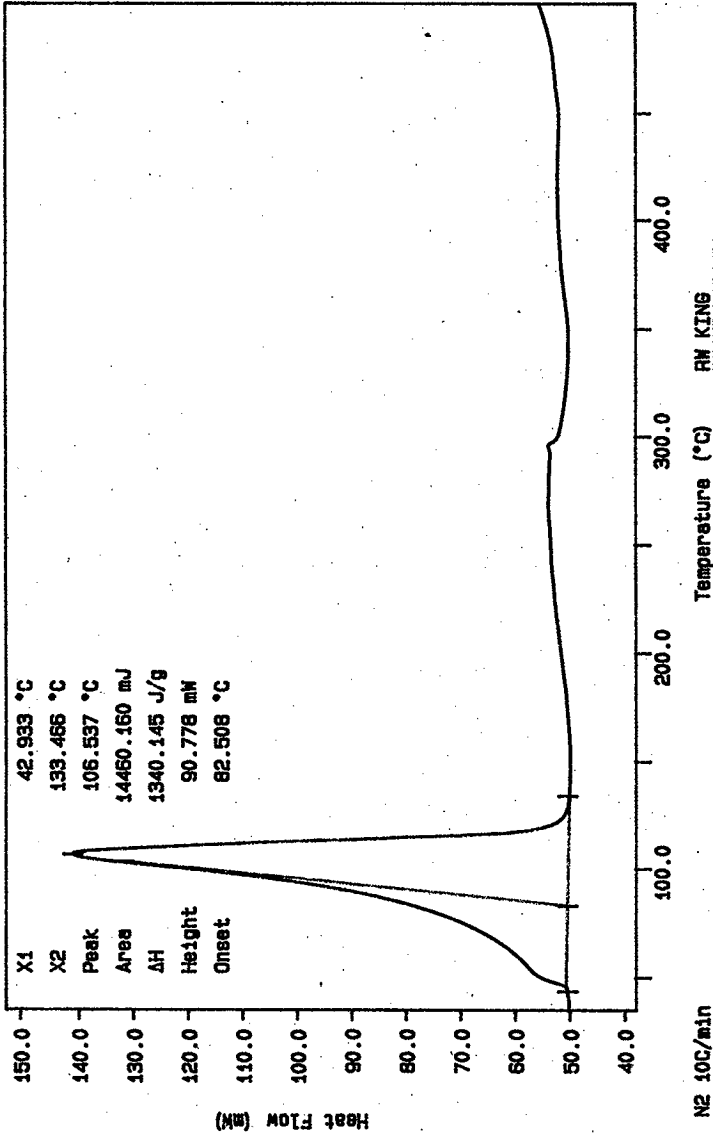
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 301 TO 307



N2, EXOTHERM DOWN
150.0 160.0 170.0 180.0
Temperature (°C)
RM KING
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 15: 25: 32 1997

Amelior 5/12/97

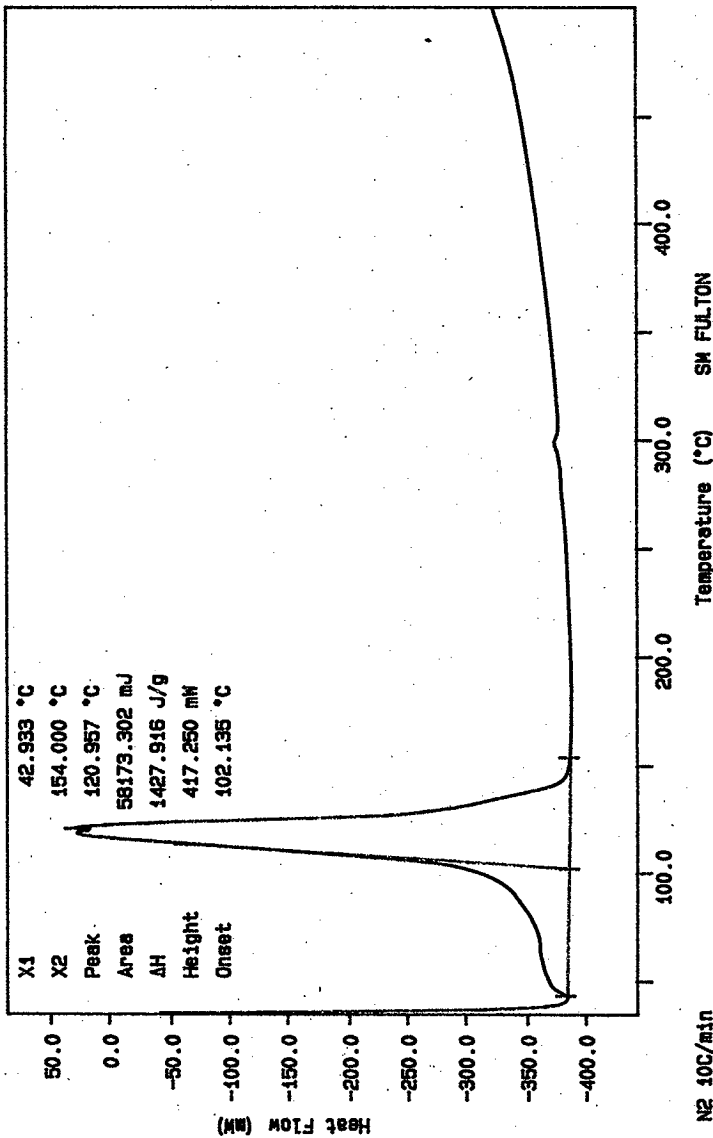
Curve 1: DSC
File info: SAM0030303 Mon Mar 3 16:08:47 1997
Sample Weight: 10.790 mg
S97T000221



RM KING
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 17:16:37 1997

N2 10C/min
TEMP: 50.0 °C
TIME: 0.0 min RATE: 10.0 C/min

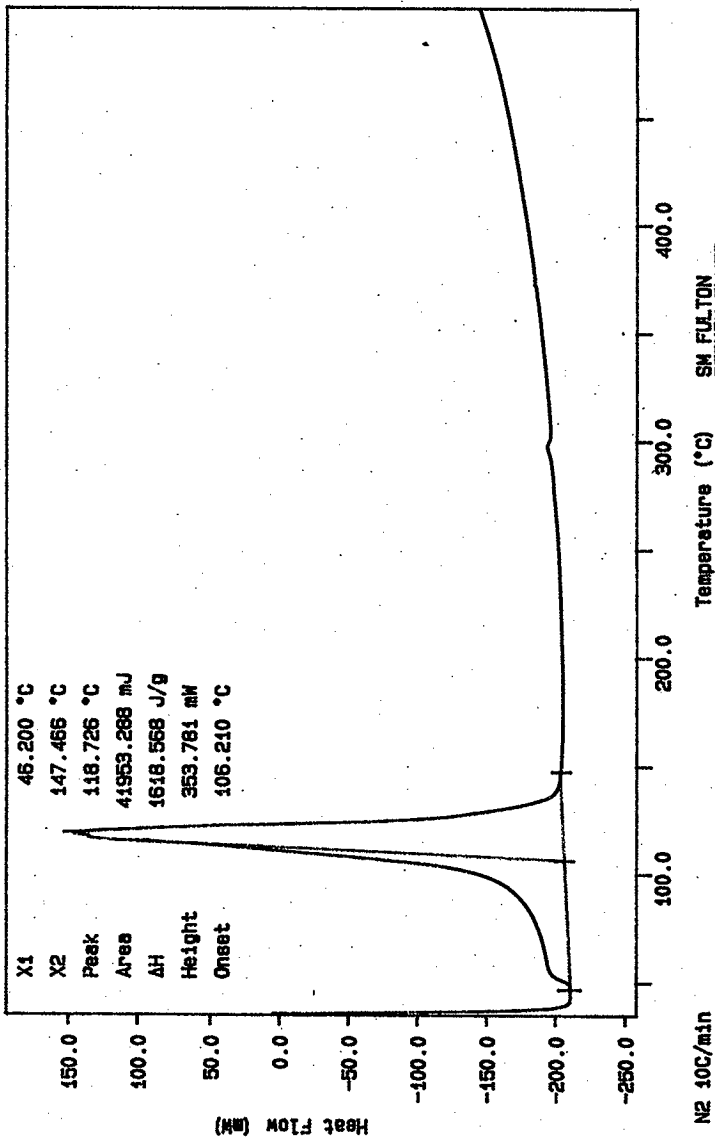
Curve 1: DSC
File info: SAM030304 Mon Mar 3 17:45:03 1997
Sample Weight: 40.740 mg
S97T000221 DUP



SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 17:48:34 1997

N2 10C/min
TEMP: 38.8 °C
TZMS: 0.0 min RATE: 40.0 C/min

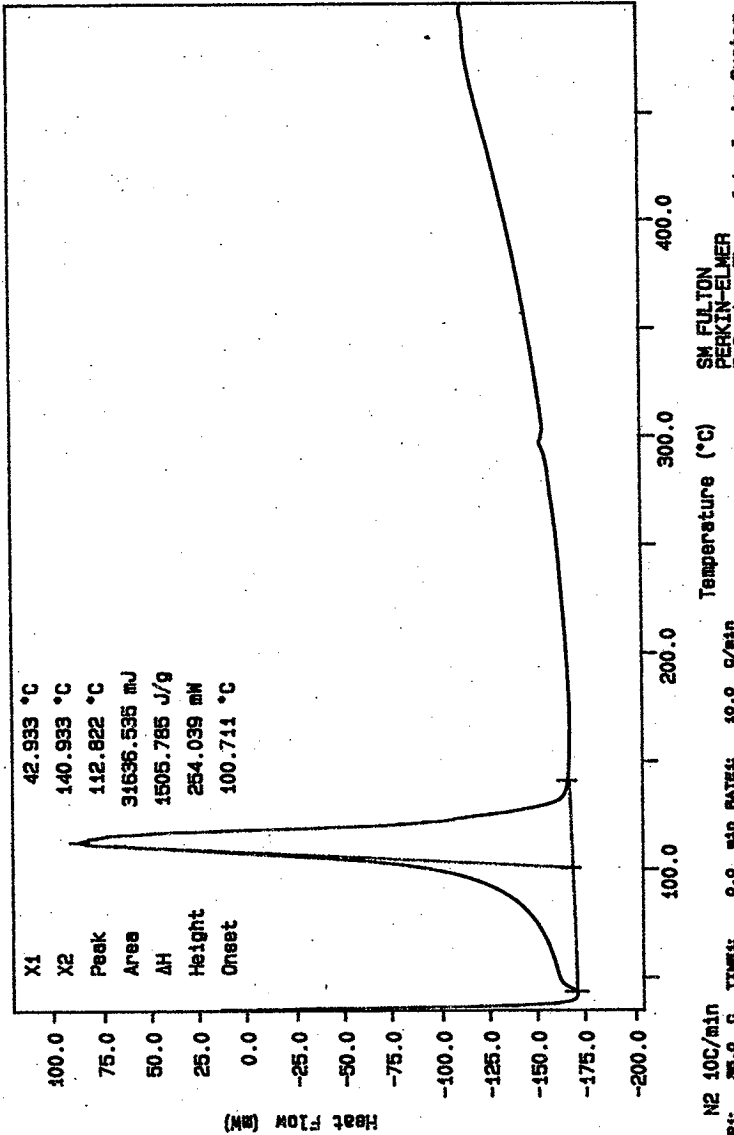
Curve 1: DSC
 File info: SAM030305 Mon Mar 3 18:37:32 1997
 Sample Weight: 25.920 mg
 597T000222



SM FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Mar 3 19:15:49 1997

N2 10C/min
 THERM 500.0 g
 TIME: 0.0 min RATE: 10.0 C/min

Curve 1: DSC
File Info: SAM030306 Mon Mar 3 20:08:41 1997
Sample Weight: 21.010 mg
S977000222 DUP



LABCORE Data Entry Template for Worklist# 16896

Analyst: ppb Instrument: DSC01 Book # N/A

Method: ~~LA-514-113 Rev/Mod~~ SP 3/5/97

Worklist Comment: DSC-02 T-110. -PPB

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	T-110	1 SAMPLE	S97T000192	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000083	T-110	2 DUP	S97T000192	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000083	T-110	3 SAMPLE	S97T000193	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000083	T-110	4 DUP	S97T000193	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	5 SAMPLE	S97T000214	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	6 DUP	S97T000214	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	7 SAMPLE	S97T000216	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	8 DUP	S97T000216	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	9 SAMPLE	S97T000217	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	10 DUP	S97T000217	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	11 SAMPLE	S97T000218	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	12 DUP	S97T000218	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	13 SAMPLE	S97T000219	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	14 DUP	S97T000219	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	15 SAMPLE	S97T000220	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	16 DUP	S97T000220	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	17 SAMPLE	S97T000221	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	18 DUP	S97T000221	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16896

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000111	T-110	19 SAMPLE	S97T000222	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	20 DUP	S97T000222	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry

Final page for worklist # 16896

Machelon
Analyst Signature

3/5/97
Date

Analyst Signature

Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

This document was too large to scan as a whole document, therefore it required breaking into smaller sections.

Document number: 50-WM-OP-238

Section 2 of 2

Title: Waste Compatibility Safety Issues
and Final Results for Tank
241-T-110 Push Mode Samples

Pgs. 308 - 604

Date: 5/15/97 Revision: A000

Originator: Nugum J-L

Co: RFSH

Recipient:

Co:

References: EDT-620399

LABCORE Data Entry Template for Worklist# 16904

Analyst: ppb Instrument: DSC01 _____ Book # N/A

Method: LA-514-113 Rev/Mod 3/6/97

Worklist Comment: DSC-02 calculations. -PPB

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	T-110	1 SAMPLE	S97T000119	0	DSC-02	LIQUID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000083	T-110	2 DUP	S97T000119	0	DSC-02	LIQUID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Final page for worklist # 16904

SS Bachelor 3/6/96
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LBCORE Data Entry Template for Worklist# 17018

Analyst: RLM Instrument: DSC0 1 Book # 12N14B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>25.6*</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000168	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	3 DUP	S97T000168	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000170	0	DSC-01	SOLID	<u>N/A</u>	<u>12.6</u>		Joules/g
97000083	T-110	5 DUP	S97T000170	0	DSC-01	SOLID	<u>12.6</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17018

RLM 3/15/97
Analyst Signature Date

RLJ 3-18-97
Analyst Signature Date

Validated 3/20/97 SMachelor

*Failed 3B
3-17-97*

Data Entry Comments: 170 Dup
Failed QC. RLJ 3-18-97

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 17018 WL Comment T-110, DSC-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-01	SOLID	STD	28.45	25.6	89.9824	NEW	03/18/97 1810	rcj
DSC-01	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1810	rcj
DSC-01	SOLID	DUP	12.6	0	200.0000	NEW	03/18/97 1810	rcj

Save (F12) End (F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 17018 WL Comment T-110, DSC-01 skm

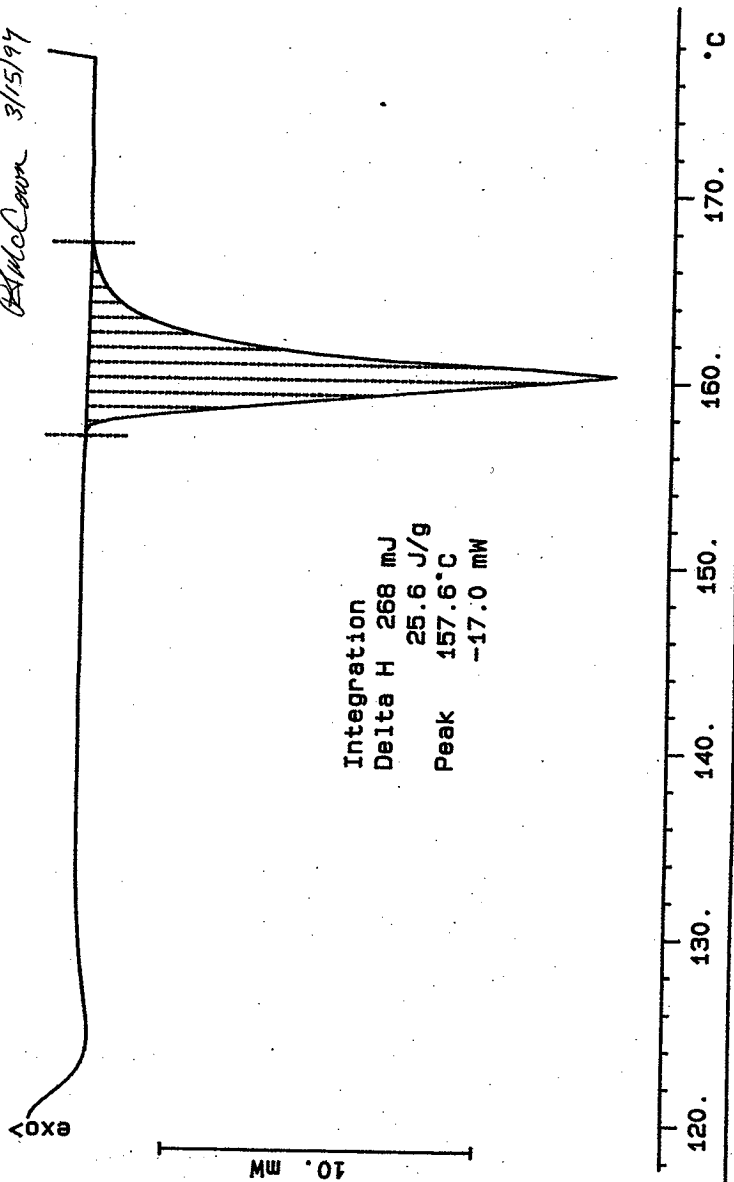
Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-01	SOLID	STD	28.45	25.6*	89.9824	TEXT	03/18/97 1810	rcj
DSC-01	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1810	rcj
DSC-01	SOLID	DUP	12.6	0	200.0000	NEW	03/18/97 1810	rcj

Save (F12) End (F3)

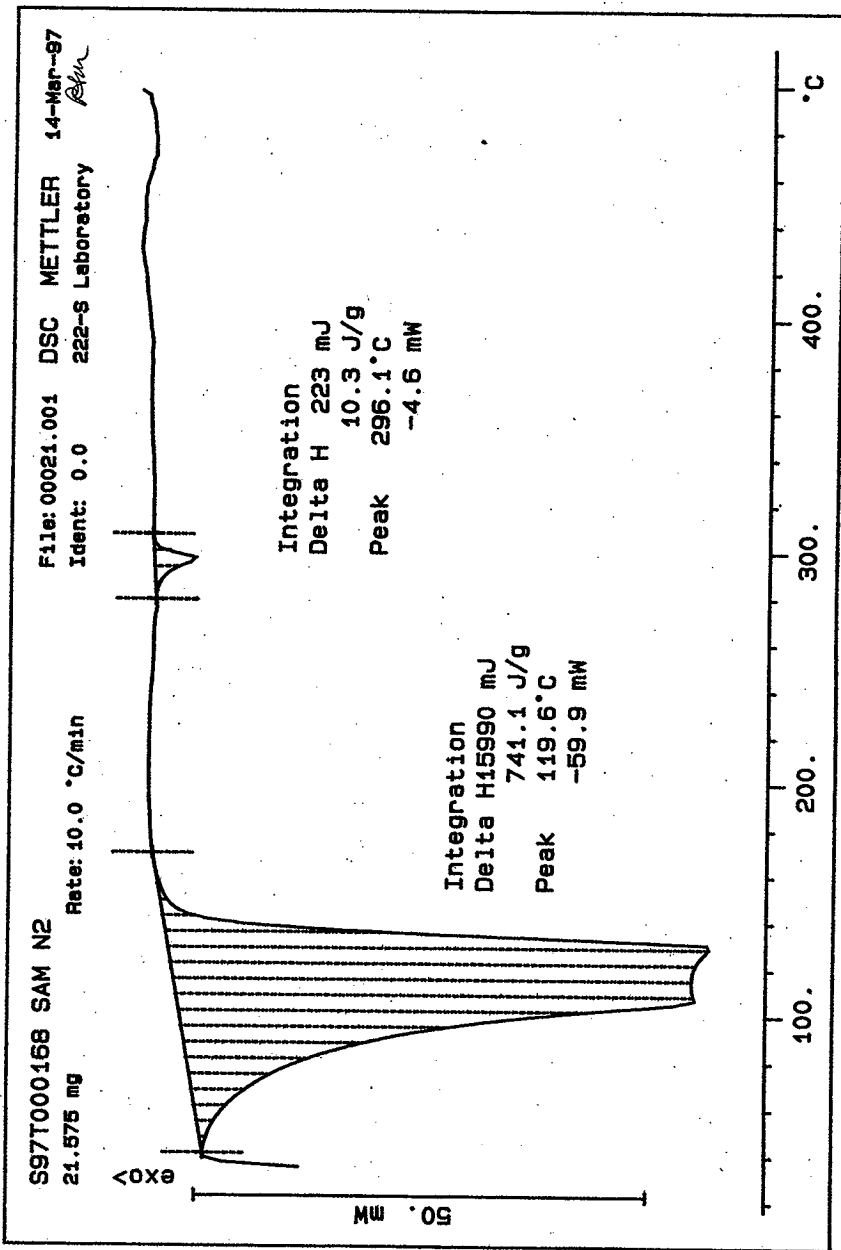
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 312 TO 316.

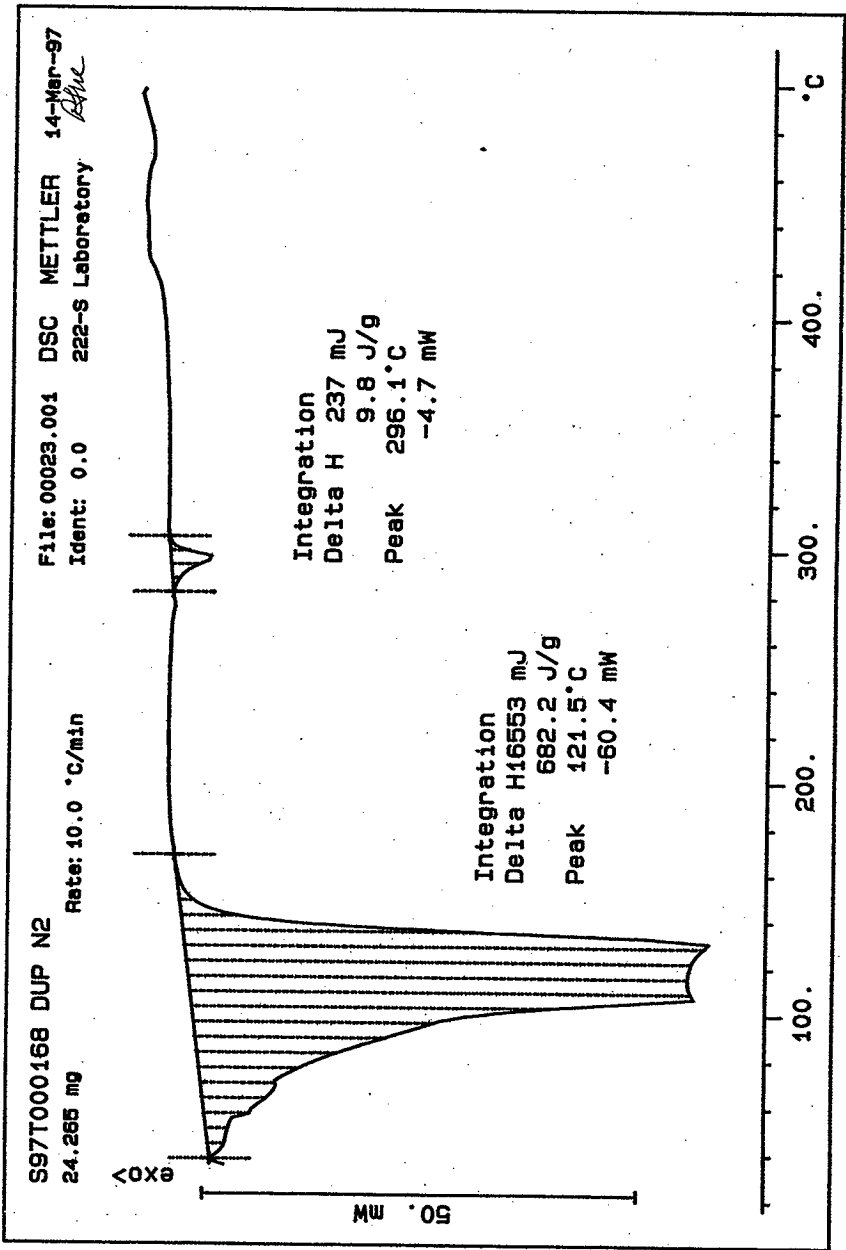
DSC STD 12N14-B N2
10.490 mg
Rate: 10.0 °C/min
File: 00011.001
Ident: 0.0
DSC METTLER 14-Mar-97
222-S Laboratory

Blum 3/15/97

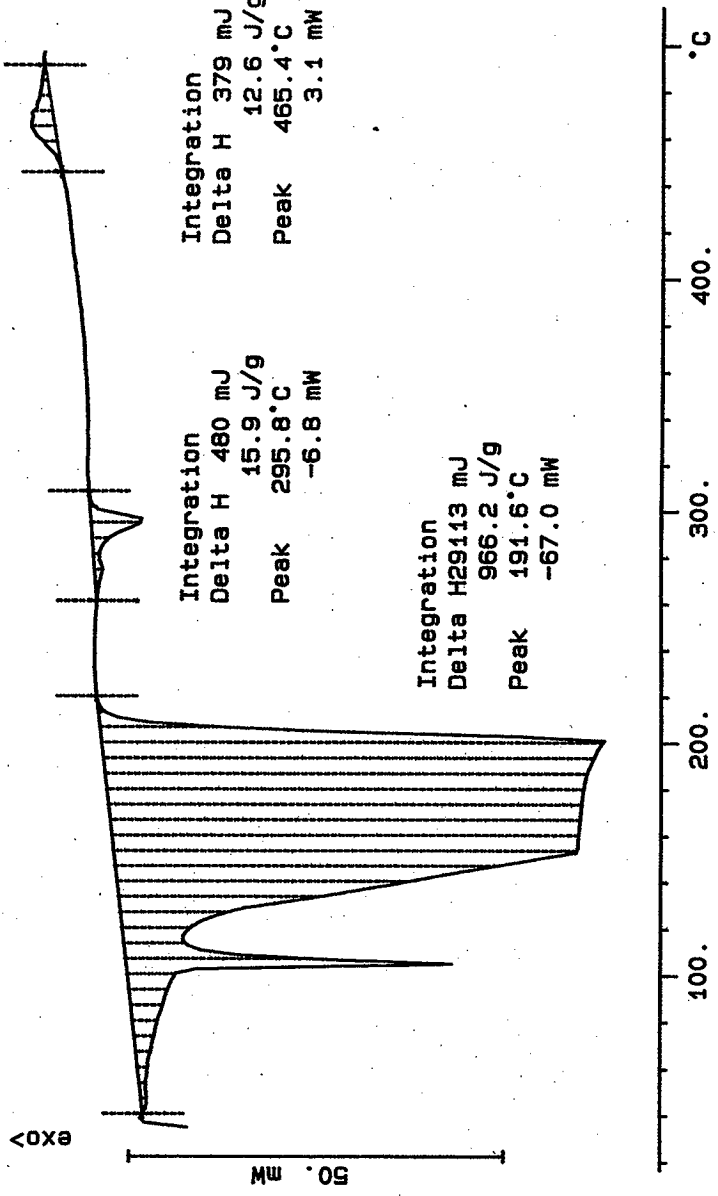


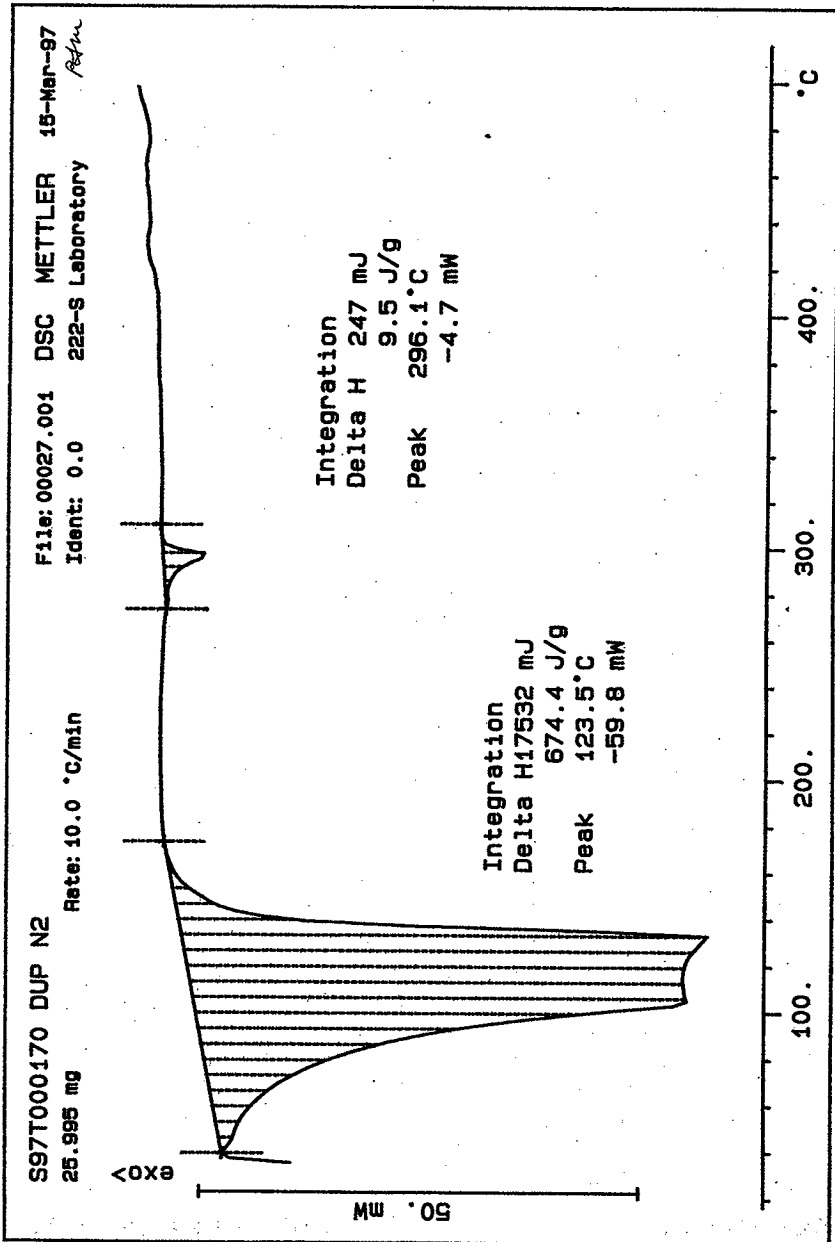
Integration
Delta H 268 mJ
25.6 J/g
Peak 157.6 °C
-17.0 mW





S97T000170 SAM N2
30.133 mg
Rate: 10.0 °C/min
File: 00025.001 DSC METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory





LABCORE Data Entry Template for Worklist# 17019

Analyst: RJM Instrument: DSC0 3 Book # 12N1413

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-03	SOLID	<u>28.45</u>	<u>27.53</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000174	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	3 DUP	S97T000174	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000175	0	DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	5 DUP	S97T000175	0	DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17019

See Attached for Signature
Analyst Signature Date

[Signature] 3-17-97
Analyst Signature Date

Validated 3/20/97 [Signature]

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 17019

Analyst: Phu Instrument: DSC0 3 Book # 12N14B

Method: LA-514-¹¹⁴113 Rev/Mod D-0

Rev. 3/15/97

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>27.53</u>	<u>N/A</u>	Joules/g
97000083	T-110	2 SAMPLE	S97T000174	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	3 DUP	S97T000174	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000083	T-110	4 SAMPLE	S97T000175	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000083	T-110	5 DUP	S97T000175	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17019

Phu Analyst Signature 3/15/97 Date

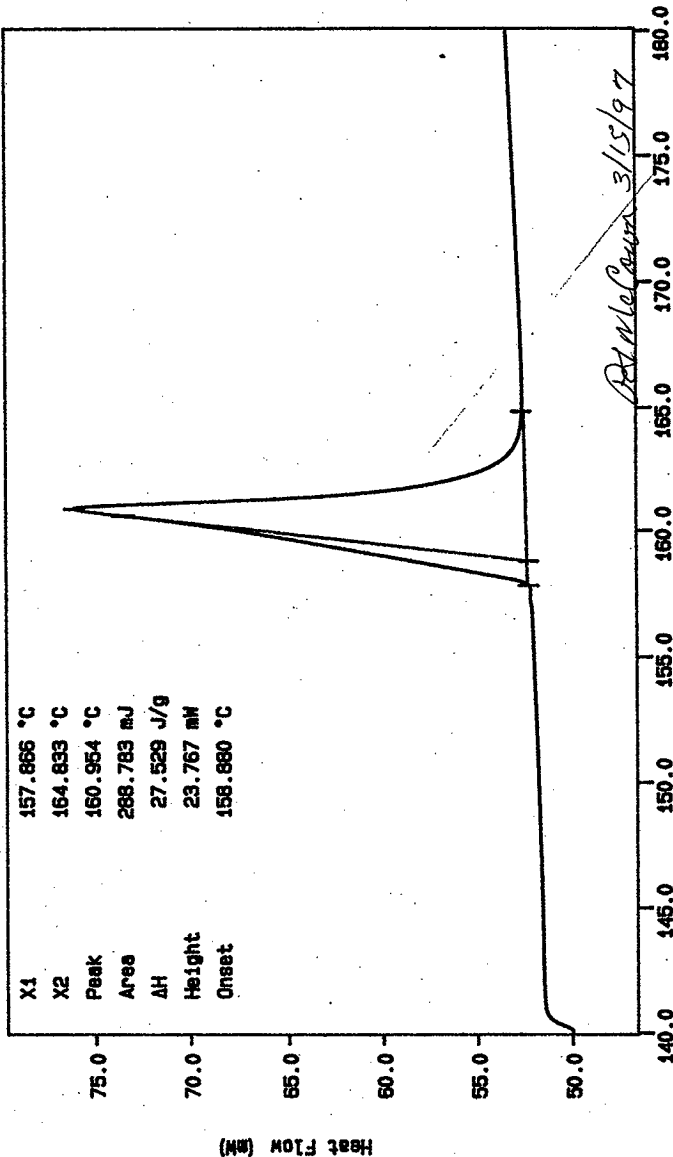
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: DSC
 File Info: IND031401 Fri Mar 14 20:12:18 1997
 Sample Weight: 10.490 mg
 STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 319 TO 325

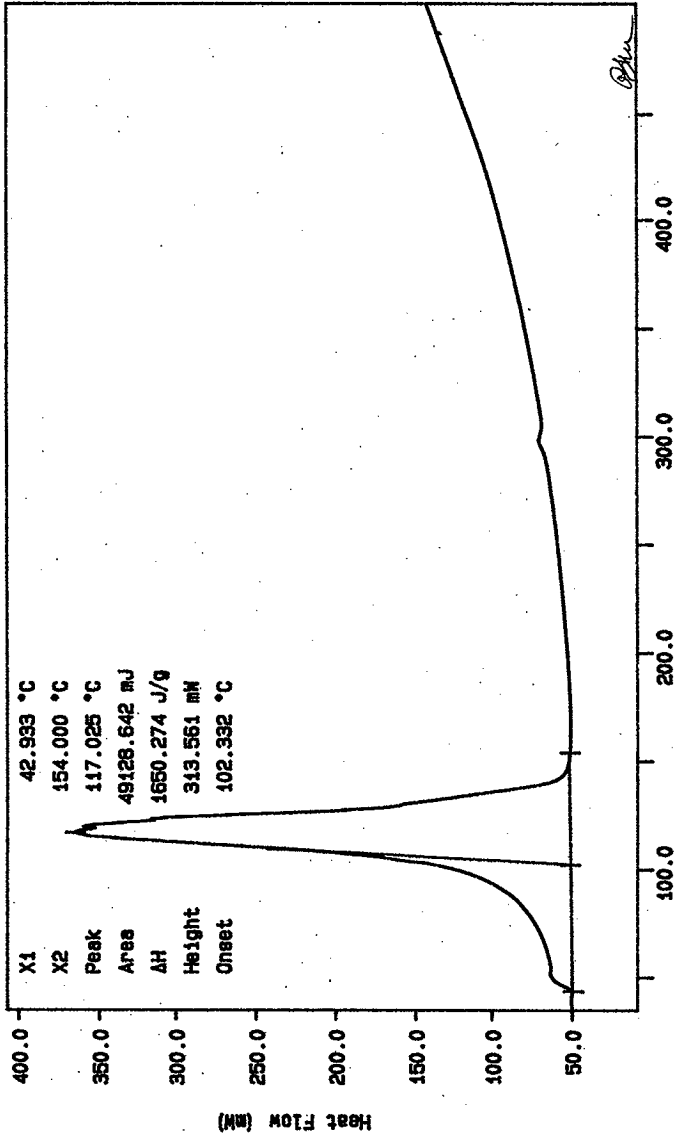


PJ MCCOWN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Mar 14 20:32:29 1997

Temperature (°C)

N2, EXOTHERM DOWN
 0.0 scan RATE: 10.0 C/min
 TIME: 148.88

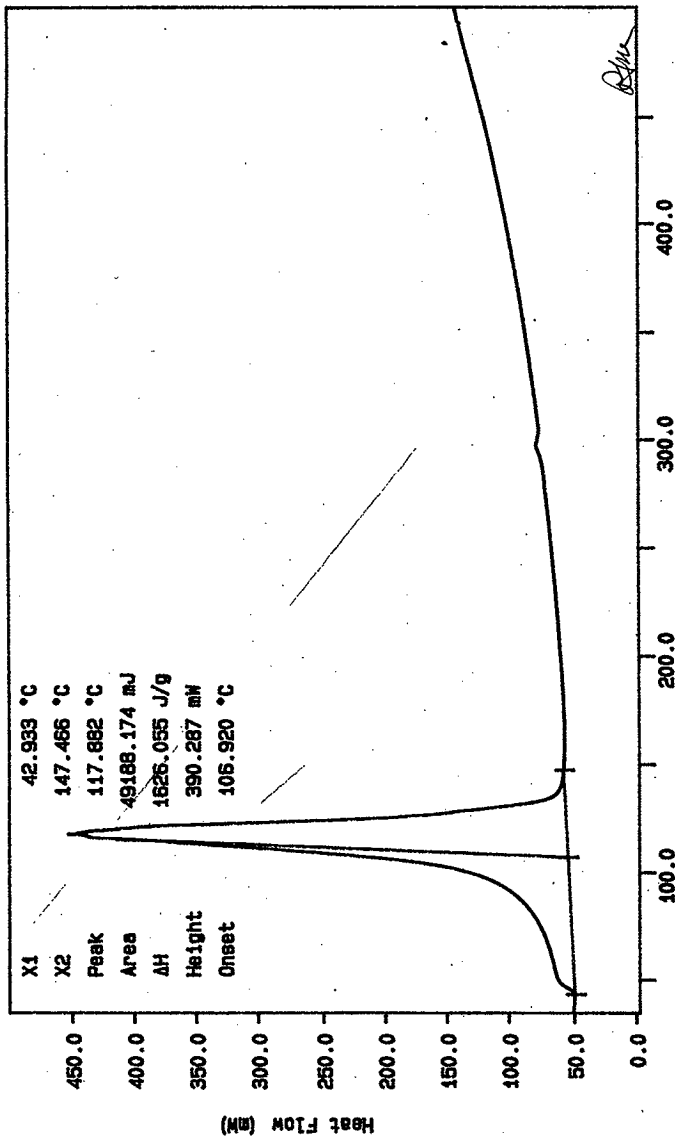
Curve 1: DSC
File Info: SAM031401 Fri Mar 14 21: 41: 43 1997
Sample Weight: 29.770 mg
S97T000174 SAM



PJ MCCOY
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Mar 14 21: 48: 40 1997

N2 10C/min
TEMP 35.8 °C
TIME 05.8
TUNNEL 0.0 min RATE: 10.0 C/min

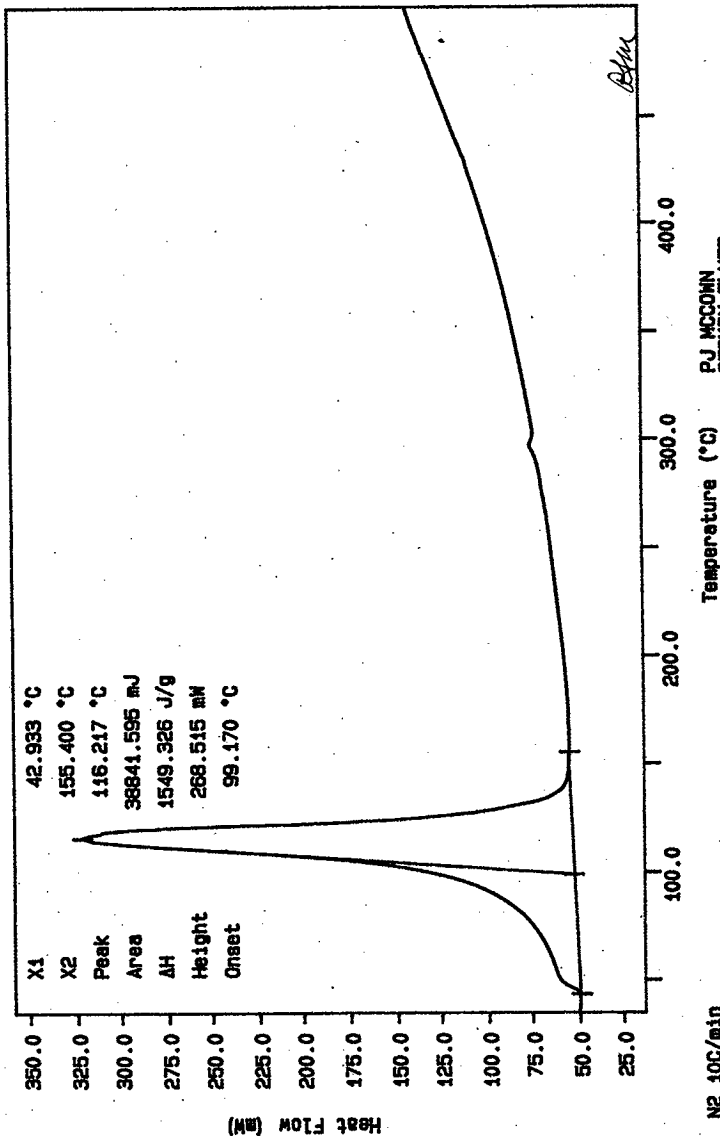
Curve 1: DSC
 File Info: SAM031402 Fri Mar 14 22:41:09 1997
 Sample Weight: 30.250 mg
 S97T000174 DUP



PJ MCCOMIN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Fri Mar 14 23:32 1997

N2 10C/min
 TEMPS 55:8 8
 TUNNELS 0.0 MIN RATE: 10.0 C/min

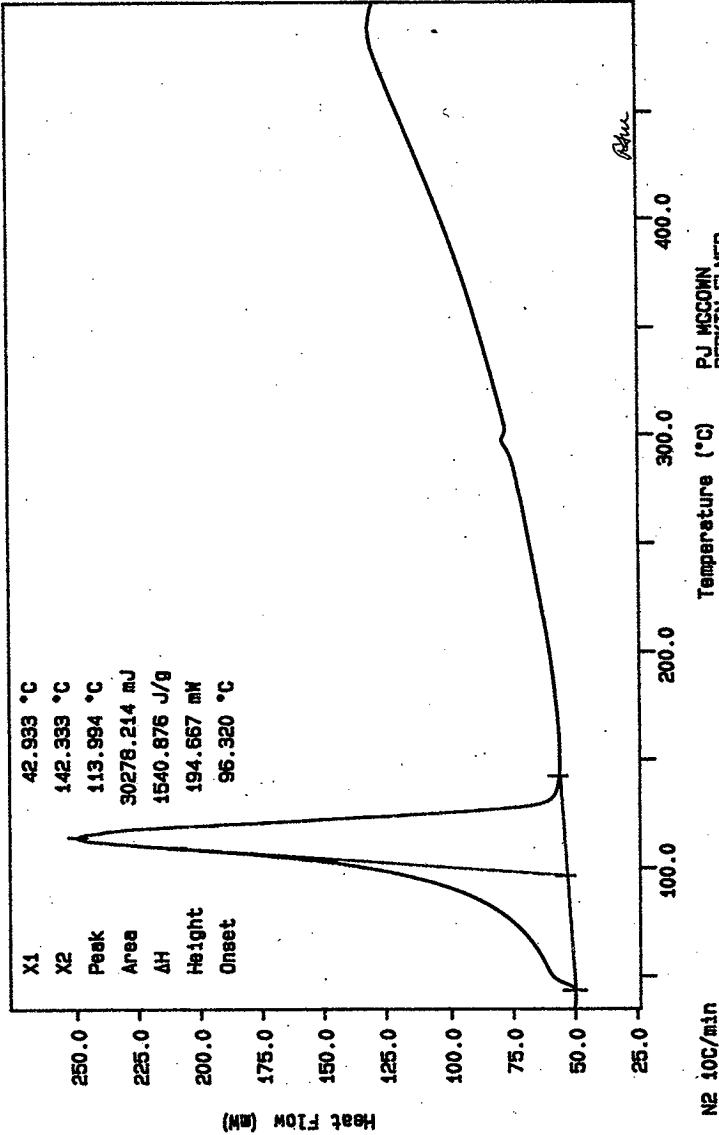
Curve 1: DSC
File Info: SAM031501 Sat Mar 15 00:34:43 1997
Sample Weight: 25.070 mg
S97T000175 SAM



PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 00:50:00 1997

N2 100/min
TEMP 25.0 °C
TIME 0:0
0.0 min RATE: 10.0 °C/min

Curve 1: DSC
File info: SAM031502 Sat Mar 15 01:52:24 1997
Sample Weight: 19.650 mg
S97T000175 DUP



PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 01:57:04 1997

N2 10C/min
TEMP 25.0 °C
TIME: 0.0 min RATE: 10.0 C/min

LABCORE Data Entry Template for Worklist# 17020

Analyst: ADP Instrument: DSC0 3 Book # 2N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: DSC-01, T-110 skm

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	<u>28.45</u>	<u>26.96</u>	<u>N/A</u>	Joules/g
97000111	T-110	2	SAMPLE	S97T000261	0		DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3	DUP	S97T000261	0		DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4	SAMPLE	S97T000262	0		DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5	DUP	S97T000262	0		DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17020

See Attached for Signature
Analyst Signature ADP
Date 3/20/97
Validated 3/20/97 [Signature]

[Signature] 3-18-97
Analyst Signature [Signature]
Date 3-18-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 17020


Analyst: ADP Instrument: DSC0 3 Book # 12M4-B

Method: LA-514-H3 Rev/Mod C+D0

Worklist Comment: DSC-01, T-110 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.96</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	S97T000261	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	S97T000261	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	S97T000262	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	S97T000262	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17020


Analyst Signature 3-15-97
Date

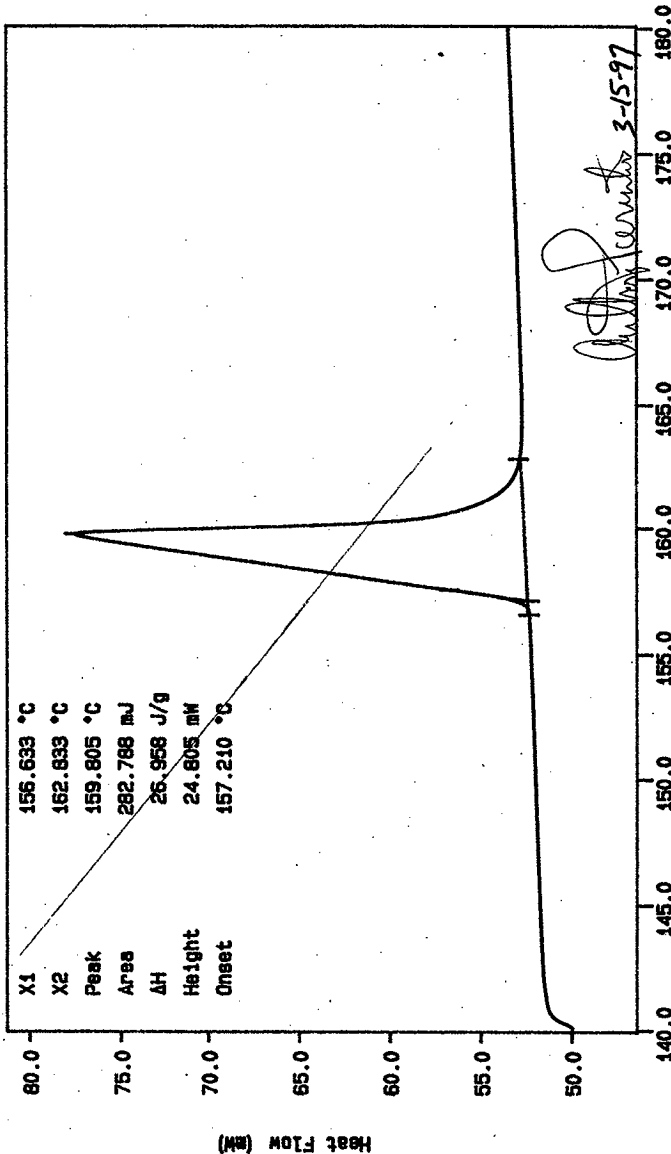
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

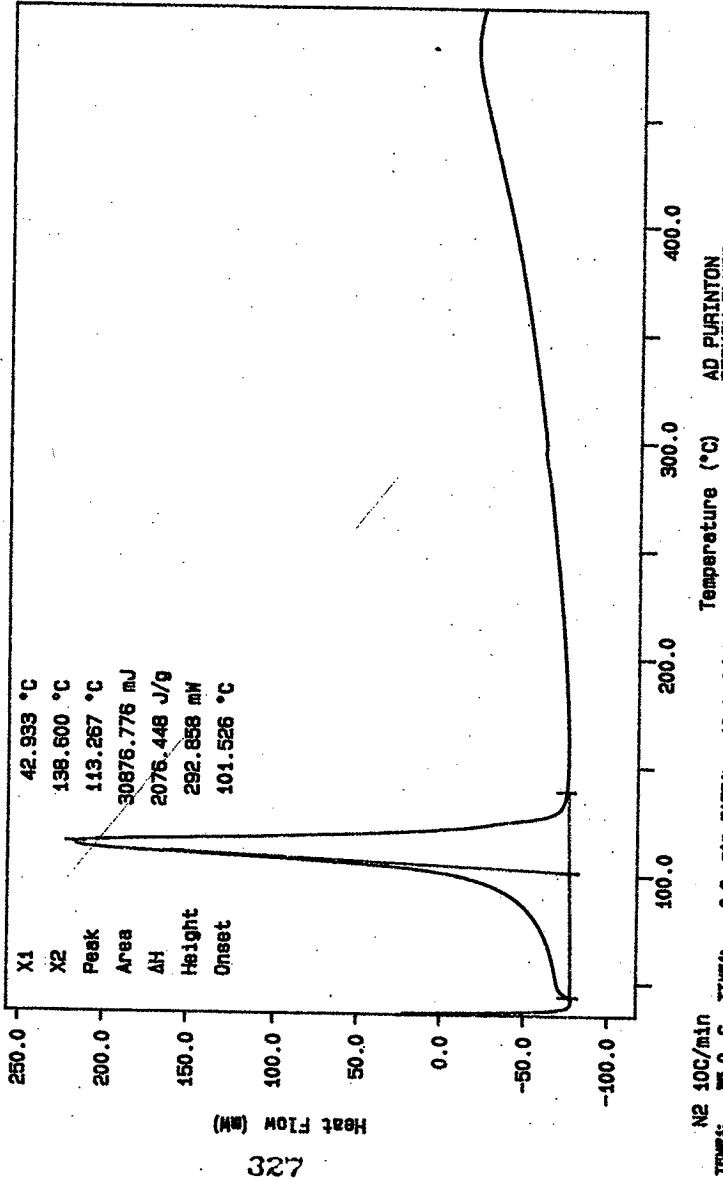
Curve 1: DSC
 File Info: IN0031501 Set Mar 15 05: 17: 12 1997
 Sample Weight: 10.490 mg
 STD 12N14-B

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 232c TO 232d.



N2, EXOTHERM DOWN
 THERM: 168.8 8 TOWER: 0.0 min RATE: 10.0 °C/min
 AD PURINTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sat Mar 15 05: 19: 41 1997

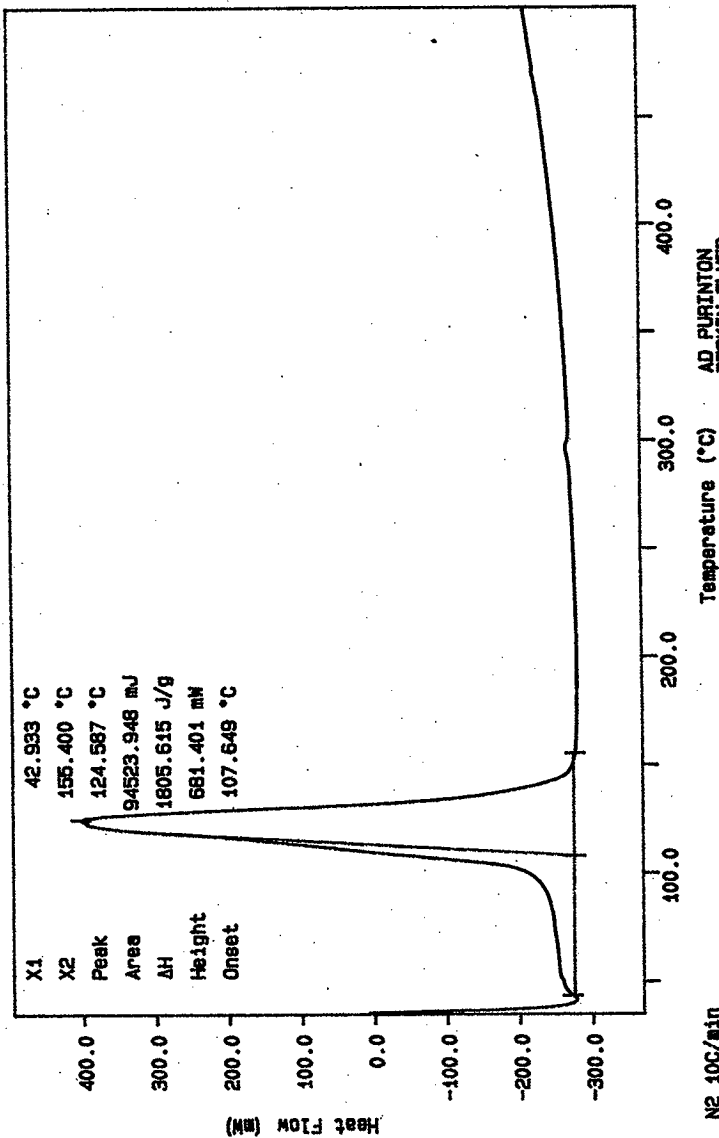
Curve 4: DSC
File Info: SAM031505 Sat Mar 15 06:30:10 1997
Sample Weight: 14.870 mg
S97T00261 SAM



N2 100/min
TEMP: 55.8 8
TIME: 55.8 8

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 07:20:34 1997

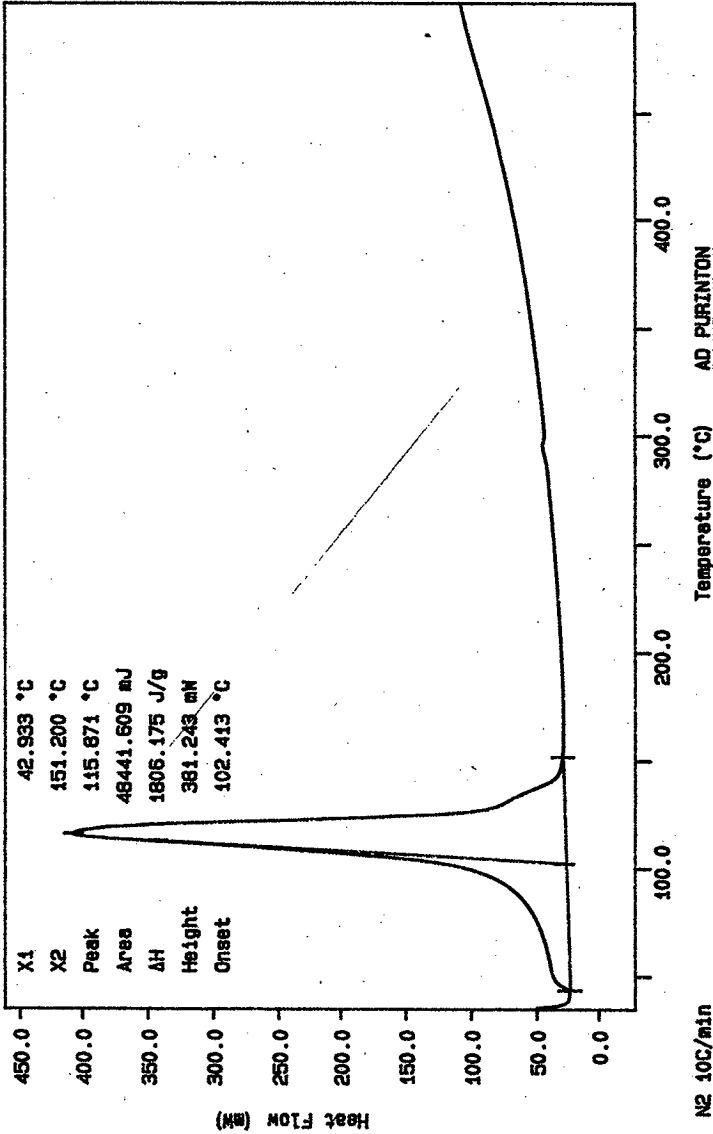
Curve 1: DSC
File Info: SAM031506 Sat Mar 15 08:16:49 1997
Sample Weight: 52.350 mg
S97T000261 DUP



AD PURINION
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 08:51:07 1997

N2 10C/min
TEMP: 55.8 °C
TIME: 55.8 s
MODE: 0.0 min RATE: 10.0 C/min

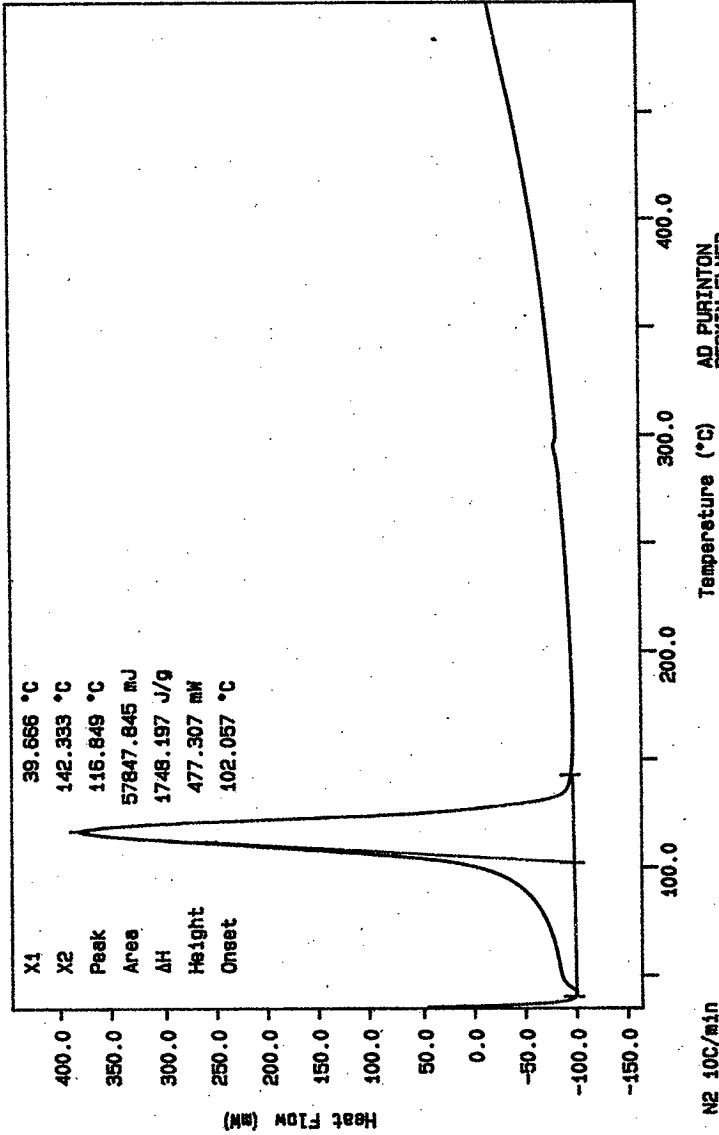
Curve 1: DSC
 File info: SAM101507 Sat Mar 15 09:45:10 1997
 Sample Weight: 26.820 mg
 S97000262 SAM



AD PURINTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sat Mar 15 10:02:27 1997

N2 10C/min
 TIME: 88.88
 RATE: 10.0 C/MIN

Curve 1: DSC
File Info: SAM031508 Sat Mar 15 10:58:09 1997
Sample Weight: 33.090 mg
S97000262 SAM^{ADP}
DUP



AD. PURINTON
PERKIN-ELMER
7 Ser-186 Thermal Analysis System
Sat Mar 15 11:22:42 1997

N2 10C/min
TEMP: 50.0 °C
TIME: 6
0.0 min RATE: 10.0 C/min

LABCORE Data Entry Template for Worklist# 17021

Analyst: ADP Instrument: DSC0 3 Book # 12-N14B

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				DSC-03	SOLID	<u>28.45</u>	<u>26.96*</u>	<u>N/A</u>	Joules/g
97000111	T-110	2	SAMPLE	S97T000263	0		DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3	DUP	S97T000263	0		DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4	SAMPLE	S97T000264	0		DSC-03	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5	DUP	S97T000264	0		DSC-03	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17021

See Attached for Signature
Analyst Signature Date

L. Jones 3-18-97
Analyst Signature Date

Validated 3/20/97 [Signature]

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 17021

Analyst: ASD Instrument: DSC0 3 Book # 12N14-B

Method: LA-514-113 Rev/Mod 114-97 5/1/95 CTD-0

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>26.96</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	S97T000263	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	S97T000263	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	S97T000264	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	S97T000264	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17021

Anthony Parente 3-15-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Y Sample ID
 Group# Customer
 Worklist# 17021 WL Comment T-110, DSC-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.96	94.7627	NEW	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj

Save (F12) End (F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Y Sample ID
 Group# Customer
 Worklist# 17021 WL Comment T-110, DSC-01 skm

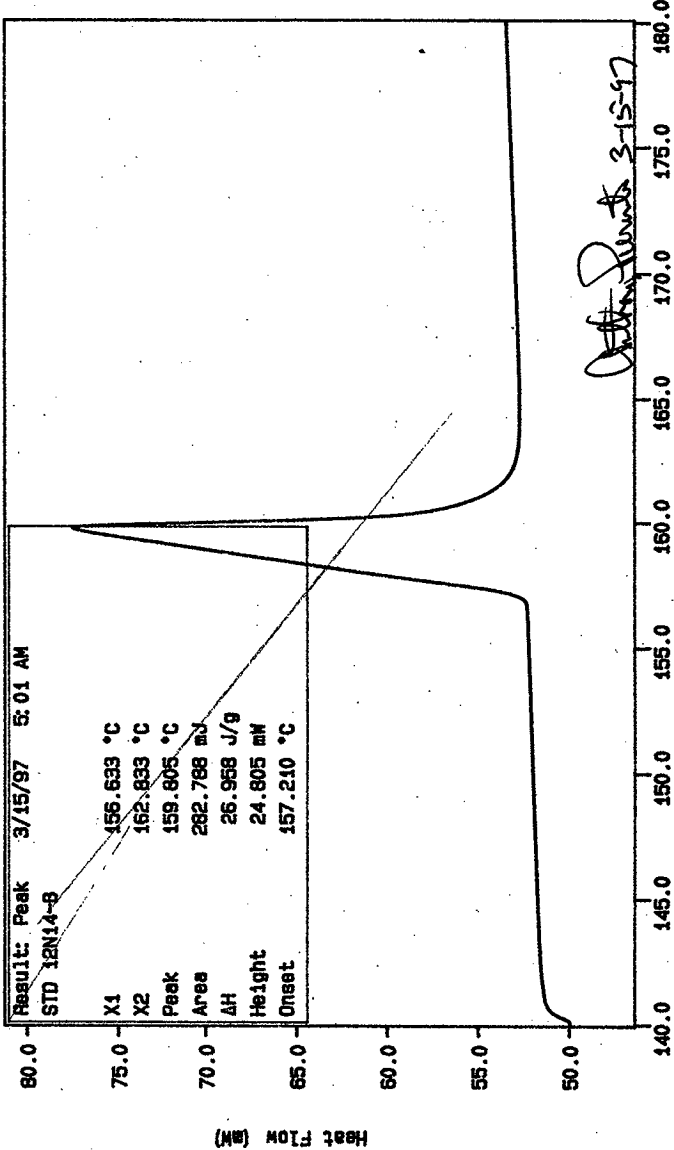
Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
DSC-03	SOLID	STD	28.45	26.96*	94.7627	TEXT	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj
DSC-03	SOLID	DUP	0	0	0.0000	NEW	03/18/97 1739	rcj

Save (F12) End (F3)

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 335 TO 339

Curve 4: DSC
File Info: IND031501 Sat Mar 15 05:17:12 1997
Sample Weight: 10.490 mg
STD 12N14-B

1 STD 12N14-B: IND031501
Heat Flow (mW)

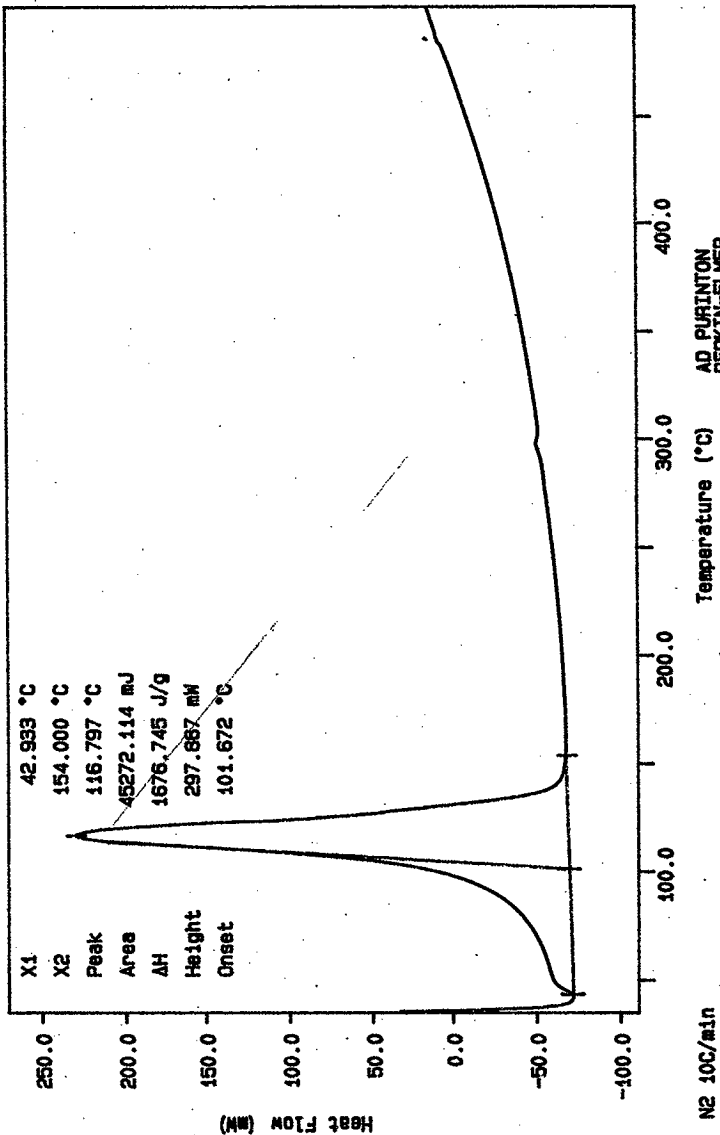


John Roberts 3-15-97

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 05:46:21 1997

N2, EXOTHERM DOWN
TEMP: 148.8 °C
TIME: 0.0 min RATE: 10.0 °C/min

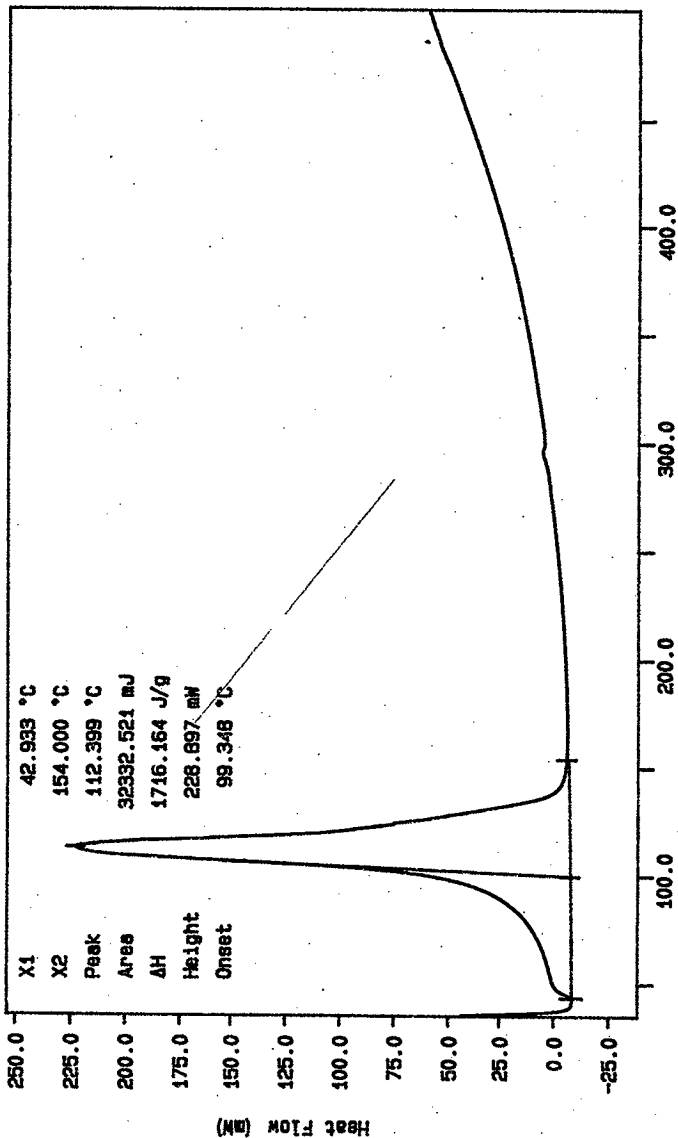
Curve 1: DSC
File Info: SAM031509 Sat Mar 15 12:16:30 1997
Sample Weight: 27.000 mg
S97T000263 SAM



AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 12:18:24 1997

N2 10C/min
TIME: 555.8 s
RATE: 555.8 s
0.0 min RATE: 50.0 C/min

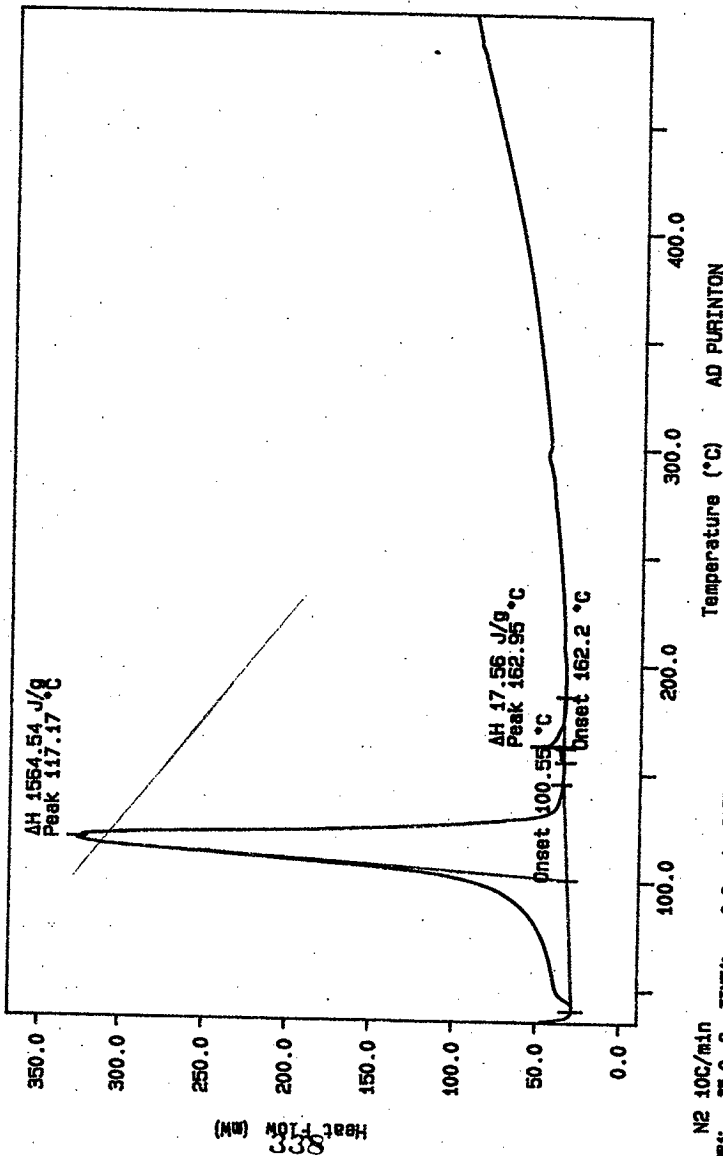
Curve 1: DSC
File info: SAM031510 Sat Mar 15 13:15:13 1997
Sample Weight: 18.840 mg
S977000263 DUP



AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 13:36:29 1997

N2 10C/min
TEMP: 28.8 °C
TIME: 00:08
TIME: 0.0 min RATE: 10.0 C/min

Curve 1: DSC
File Info: SAM031511 Sat Mar 15 14:32:36 1997
Sample Weight: 22.860 mg
S977000264 SAM

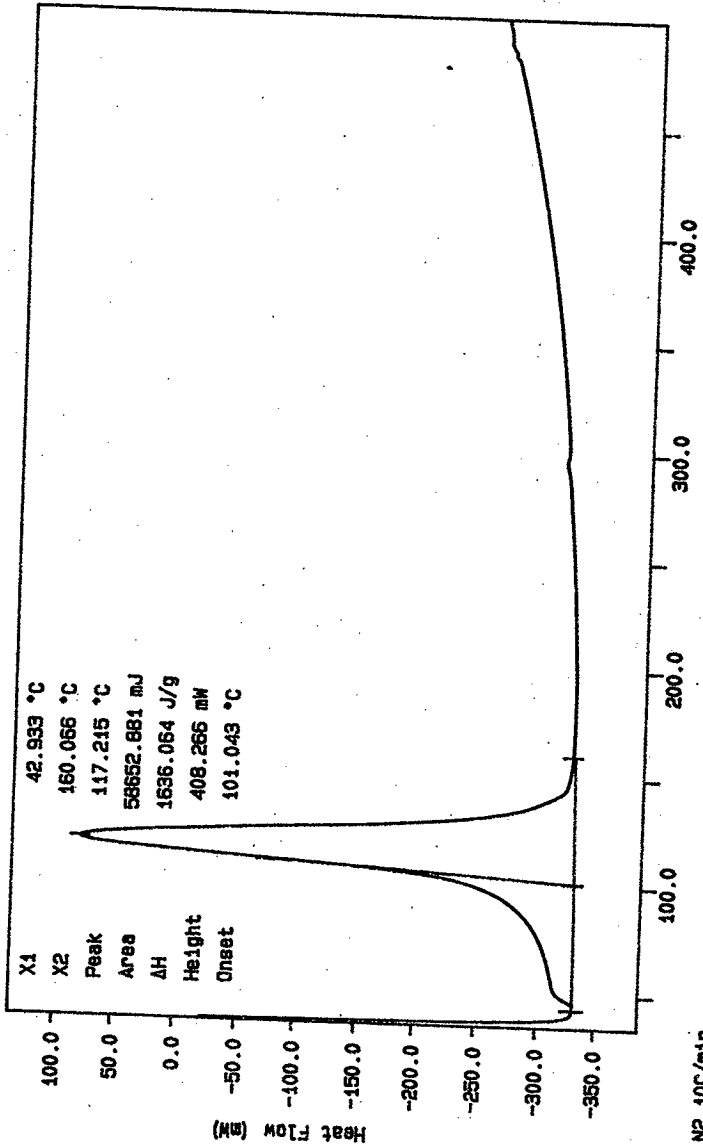


N2 10C/min
TEMP 55.8 C
TIME 566.8 S

AD PURINTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 15 14:33:35 1997

0.0 min RATE: 40.0 C/min

Curve 1: DSC
File info: SAM031512 Sat Mar 15 15: 27: 05 1997
Sample Weight: 35.850 mg
S97T000264 DUP



N2 10C/min
 TEMPS: 25.0 8
 TIME: 0.0 min RATE: 10.0 C/min
 AD. PURINTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sat Mar 15 16: 39: 53 1997

LBCORE Data Entry Template for Worklist# 17022

Analyst: BM Instrument: DSC0 1 Book # 12014B

Method: LA-514-113 Rev/Mod CI

Worklist Comment: T-110, DSC-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>24.85</u>	<u>25.6</u>	<u>N/A</u>	Joules/g
97000111	T-110	2 SAMPLE	S97T000265	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	3 DUP	S97T000265	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g
97000111	T-110	4 SAMPLE	S97T000266	0	DSC-01	SOLID	<u>N/A</u>	<u>0</u>		Joules/g
97000111	T-110	5 DUP	S97T000266	0	DSC-01	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g

Final page for worklist # 17022

BM 3/16/97
Analyst Signature Date

RJ 3-18-97
Analyst Signature Date

Validated 3/20/97 Drachler

Final 3B
3-17-97

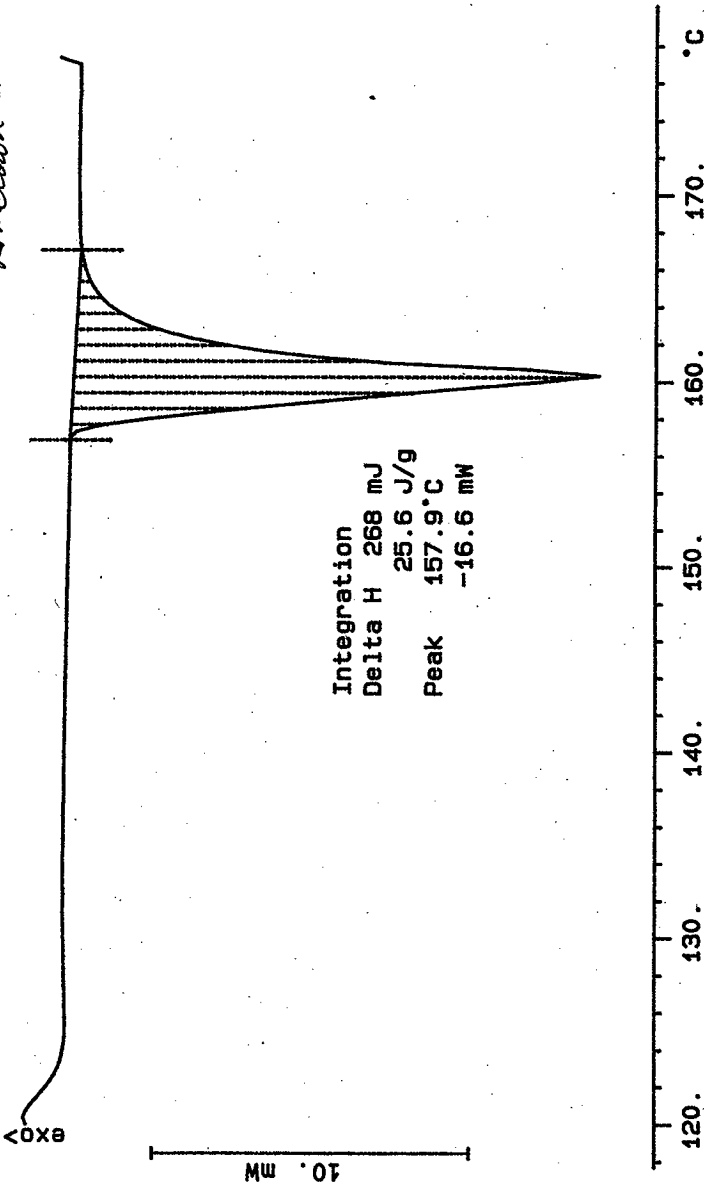
Data Entry Comments:

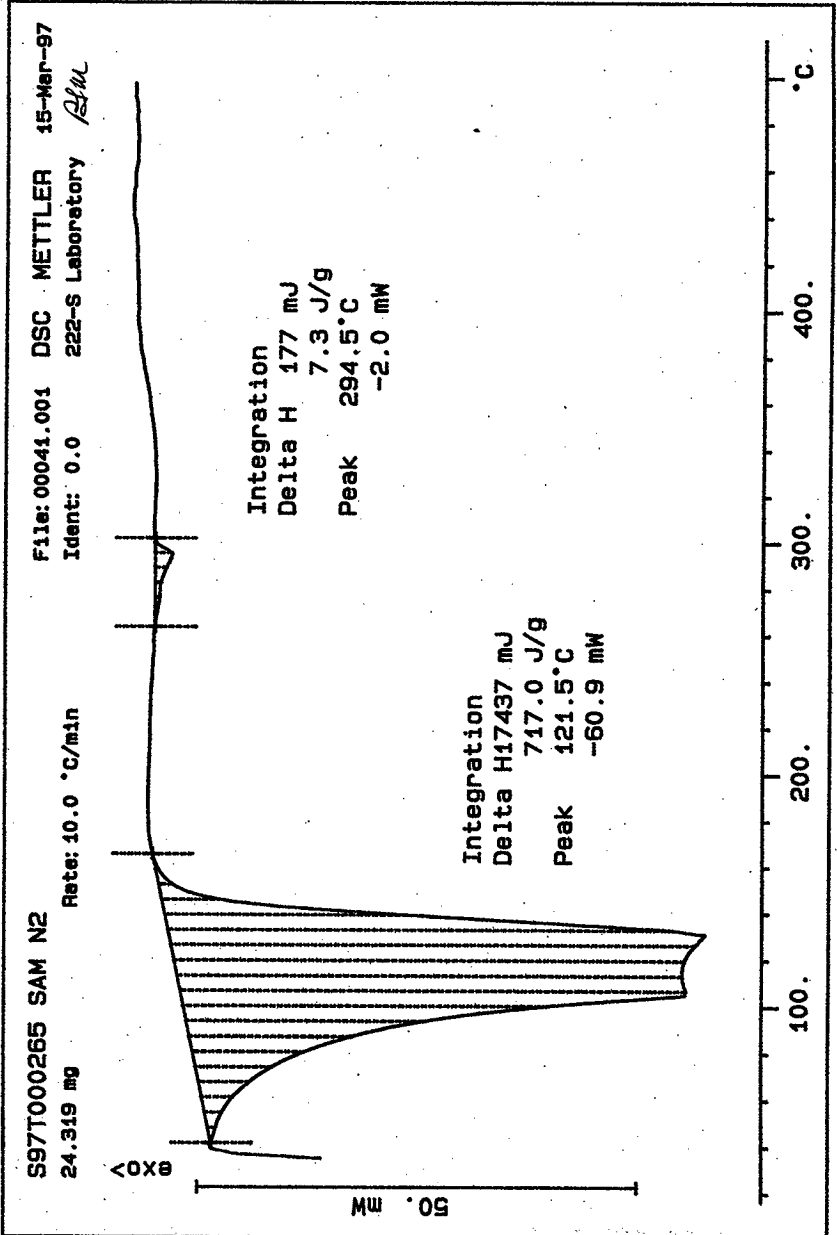
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 341 TO 345.

DSC STD 12N14B N2 File: 00039.001 DSC METTLER 15-Mar-97
10.490 mg Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory

R. McCown 3/16/97

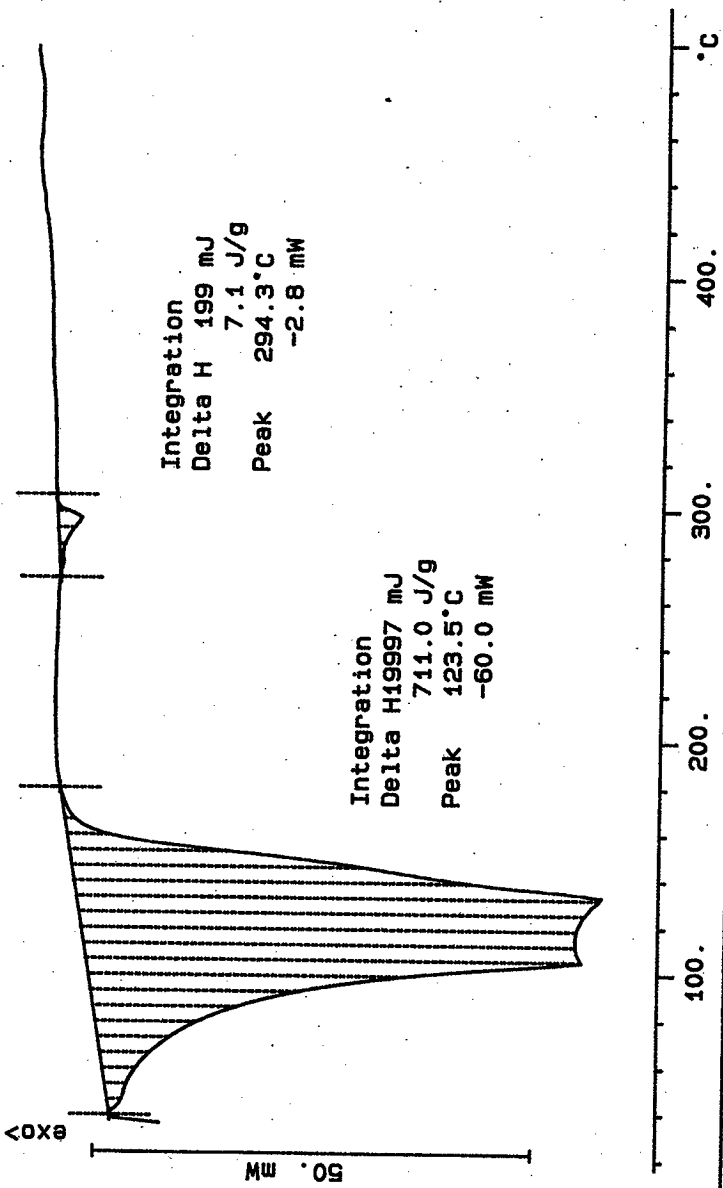




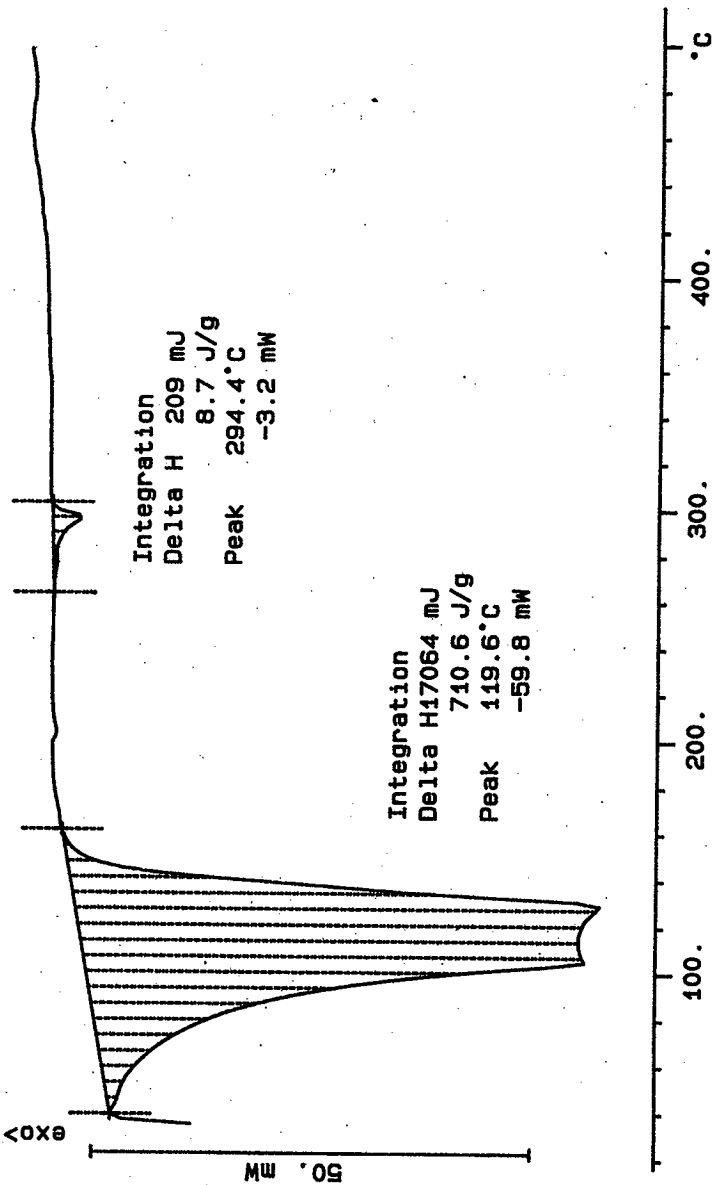
S97T000265 DUP N2
28.124 mg

File: 00049.001 DSC METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory *RW*

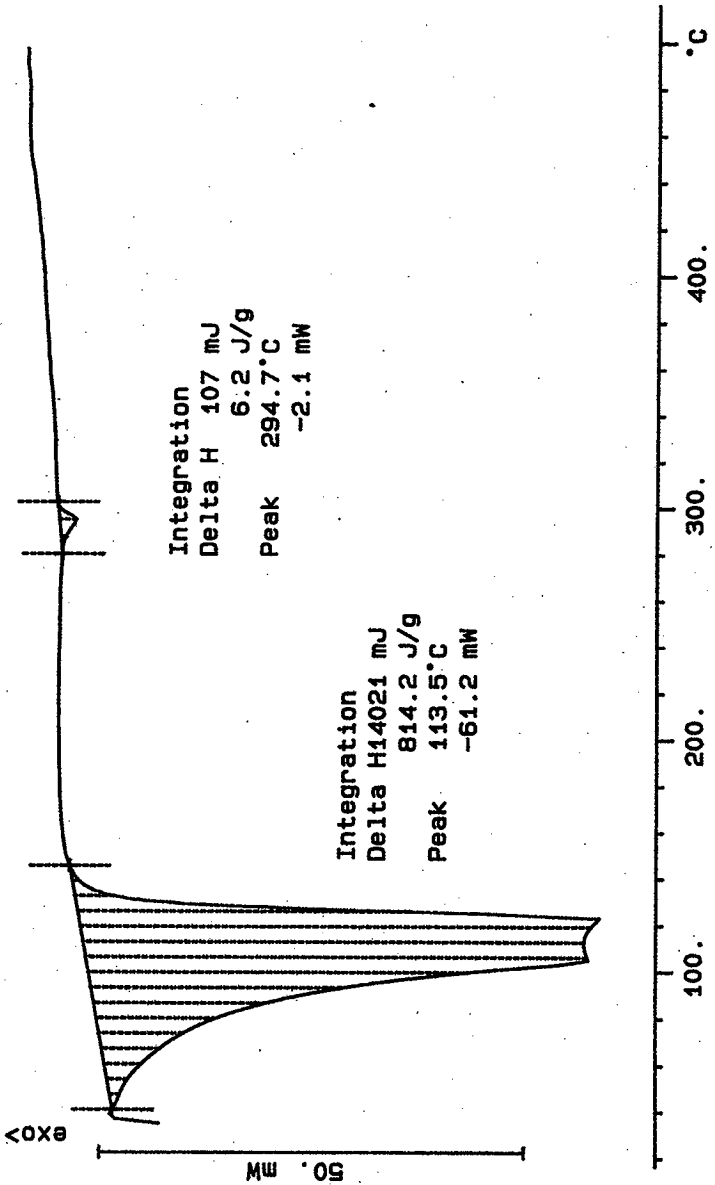
Rate: 10.0 °C/min



S97T000266 SAM N2
24.014 mg
Rate: 10.0 °C/min
F11: 00045.001 DSC METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory *RM*



S97T000266 DUP N2
17.221 mg
Rate: 10.0 °C/min
File: 00047.001 DSC METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory *RHL*



LABCORE Data Entry Template for Worklist# 17125

Analyst: ppb Instrument: DSC01 Book # N/A

Method: LA-514-113 Rev/Mod 3/2/97

Worklist Comment: DSC-02 T-110. -PPB

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
97000083	T-110	1 SAMPLE	S97T000168	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000083	T-110	2 DUP	S97T000168	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000083	T-110	3 SAMPLE	S97T000170	0	DSC-02	SOLID	<u>N/A</u>	<u>51.27</u> <u>0</u> 0 <u>3/21/97</u>		Joules/g Dry
97000083	T-110	4 DUP	S97T000170	0	DSC-02	SOLID	<u>51.27</u> <u>0</u> 0 <u>3/21/97</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000083	T-110	5 SAMPLE	S97T000174	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000083	T-110	6 DUP	S97T000174	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000083	T-110	7 SAMPLE	S97T000175	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000083	T-110	8 DUP	S97T000175	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	9 SAMPLE	S97T000261	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	10 DUP	S97T000261	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	11 SAMPLE	S97T000262	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	12 DUP	S97T000262	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	13 SAMPLE	S97T000263	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	14 DUP	S97T000263	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	15 SAMPLE	S97T000264	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	16 DUP	S97T000264	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry
97000111	T-110	17 SAMPLE	S97T000265	0	DSC-02	SOLID	<u>N/A</u>	<u>0</u>		Joules/g Dry
97000111	T-110	18 DUP	S97T000265	0	DSC-02	SOLID	<u>0</u>	<u>0</u>	<u>N/A</u>	Joules/g Dry

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 17125

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
97000111	T-110	19 SAMPLE	S97T000266	0	DSC-02	SOLID	N/A	0		Joules/g Dry
97000111	T-110	20 DUP	S97T000266	0	DSC-02	SOLID	0	0	N/A	Joules/g Dry

Final page for worklist # 17125

Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16707

Analyst: SMF Instrument: TGA0 3 Book # 97N8-A

Method: LA-514-114 Rev/Mod D-0

T110

Worklist Comment: TGA-01 FOR T-110 GRAB (RUN UNDER NITROGEN)TERLIQSTD RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	LIQUID	<u>59.4</u>	<u>58.16</u>	<u>N/A</u>	%
96001704	T-110 GRAB	2 SAMPLE	S97T000008 0		TGA-03	LIQUID	<u>N/A</u>	<u>86.96</u>		%
96001704	T-110 GRAB	3 DUP	S97T000008 0		TGA-03	LIQUID	<u>86.96</u>	<u>86.60</u>	<u>N/A</u>	%
97000083	T-110	4 SAMPLE	S97T000119 0		TGA-03	LIQUID	<u>N/A</u>	<u>99.66</u>		%
97000083	T-110	5 DUP	S97T000119 0		TGA-03	LIQUID	<u>99.66</u>	<u>99.62</u>	<u>N/A</u>	%

Final page for worklist# 16707

See attached for signatures
Analyst Signature SMF Date 2-20-97

Frank J. Mark
Analyst Signature Date 2-20-97

Verified/Validated by
Blandina
Valezzola
2-20-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16707

Analyst: SMF Instrument: TGA0 _____ Book # 97N8-A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: TGA-01 FOR T-110 GRAB (RUN UNDER NITROGEN)TERLIQSTD RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	LIQUID	_____	_____	N/A	%
96001704	T-110 GRAB	2 SAMPLE	S97T000008	0	TGA-01	LIQUID	N/A	_____	_____	%
96001704	T-110 GRAB	3 DUP.	S97T000008	0	TGA-01	LIQUID	_____	_____	N/A	%
97000083	T-110	4 SAMPLE	S97T000119	0	TGA-01	LIQUID	N/A	_____	_____	%
97000083	T-110	5 DUP	S97T000119	0	TGA-01	LIQUID	_____	_____	N/A	%

Final page for worklist # 16707

Susie M. Dalton 2-18-97
Analyst Signature Date

Analyst Signature Date

TGA-03 instruments
was used.

2-20-97

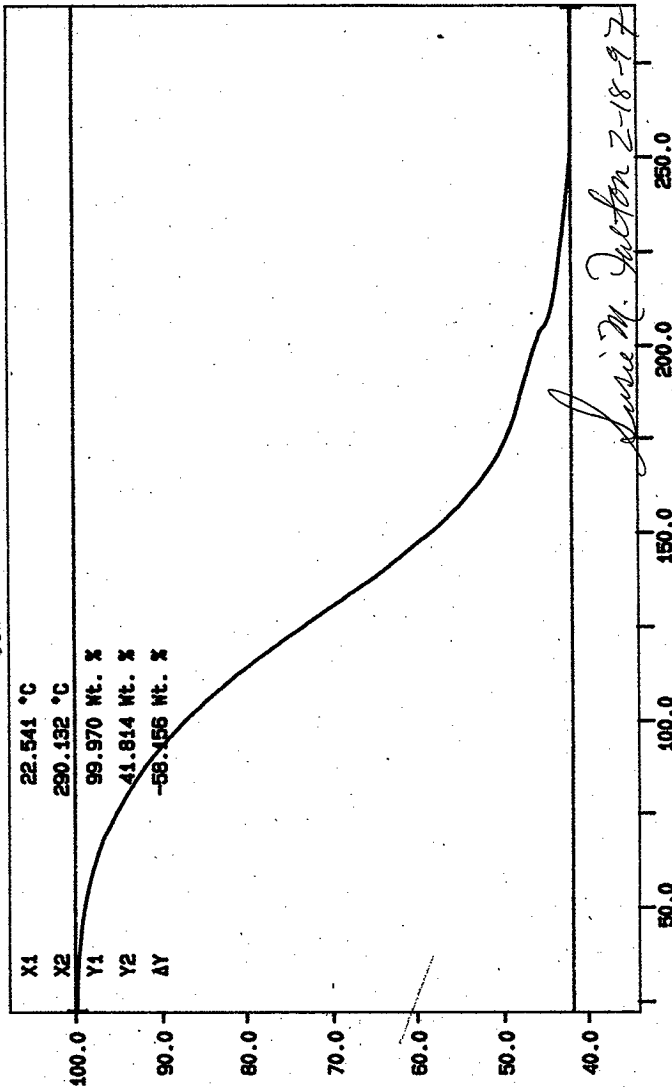
*Blandina
Valenzuela*

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TERO21801 Tue Feb 18 07:32:50 1997
Sample Weight: 21.723 mg
TGA STD 97NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 350 TO 354.



Jessie M. Fulton 2-18-97

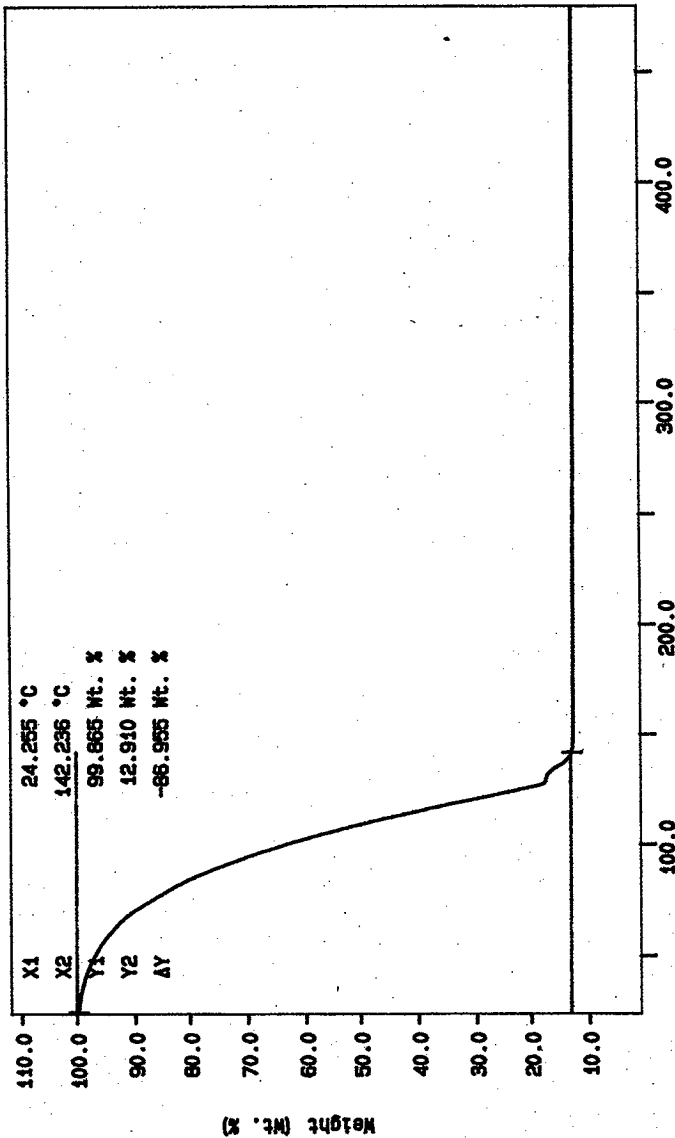
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 07:35:18 1997

Temperature (°C)

N2 10C/MIN
TRACE 33.8 g
TURNS 0.0 min RATE: 10.0 C/min

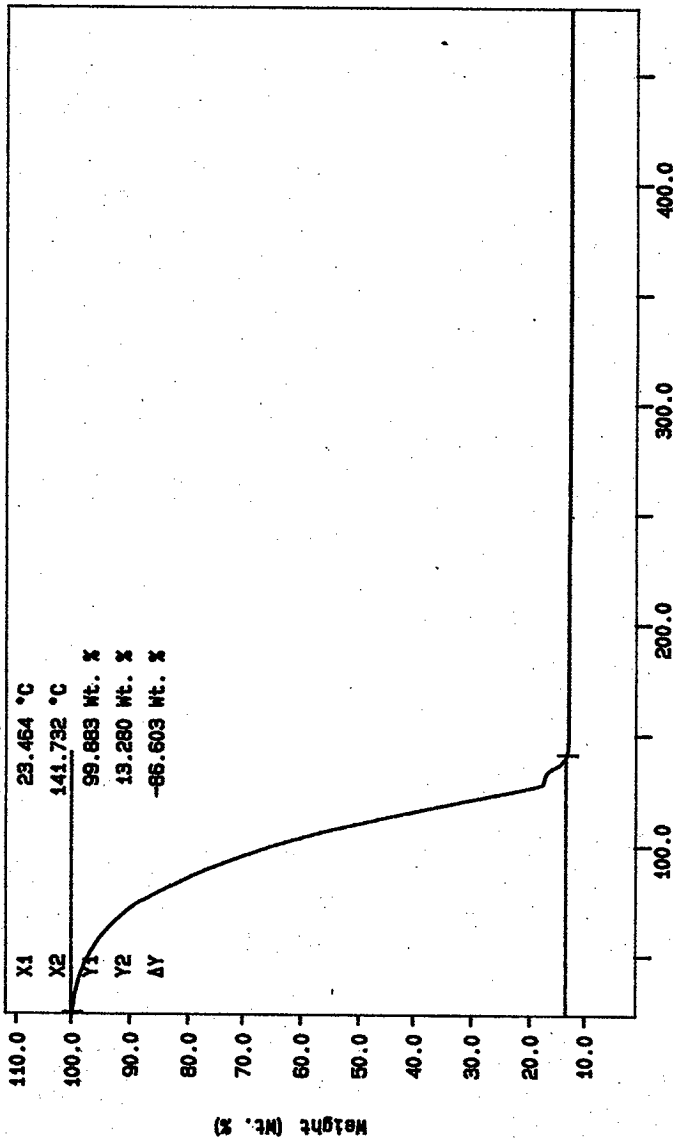
053
Weight %

Curve 1: TEA
File Info: SAM021601 Tue Feb 18 09:13:20 1997
Sample Weight: 10.203 mg
S97T000008



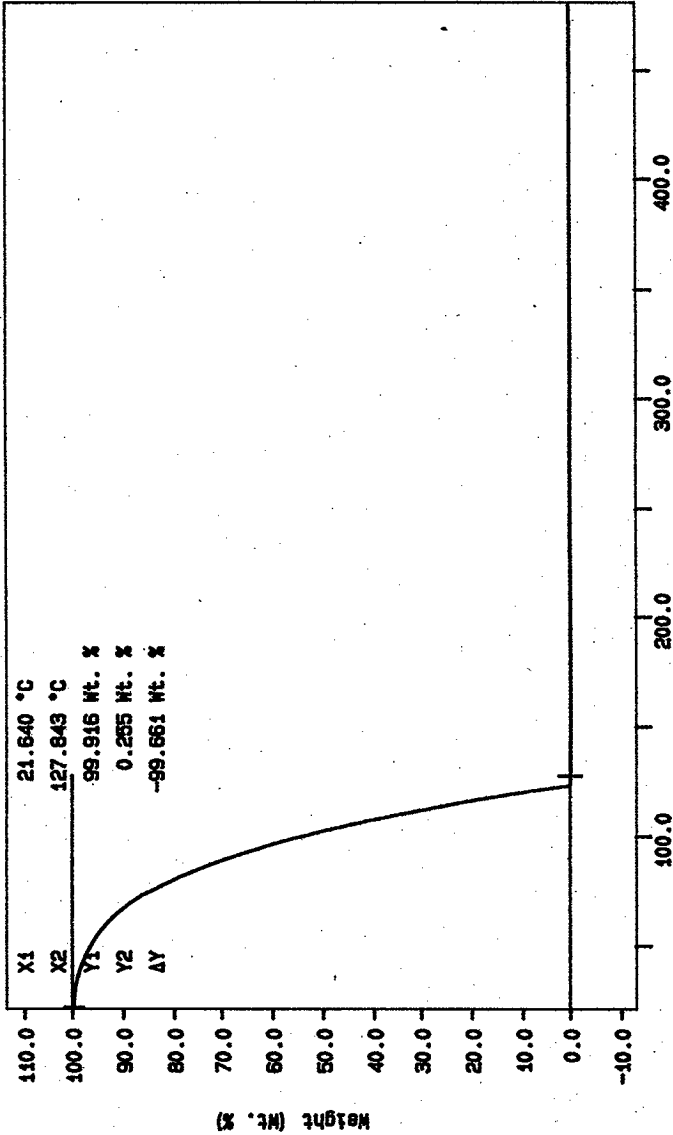
10C/MIN N2
THERM: 36.8 g
TURNS: 0.0 min RATE: 10.0 g/min
SM PLATON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 09:58:53 1997

Curve 1: TGA
File Infr: SAM021802 Tue Feb 18 10:52:55 1997
Sample Weight: 10.592 mg
997T000008 DUP



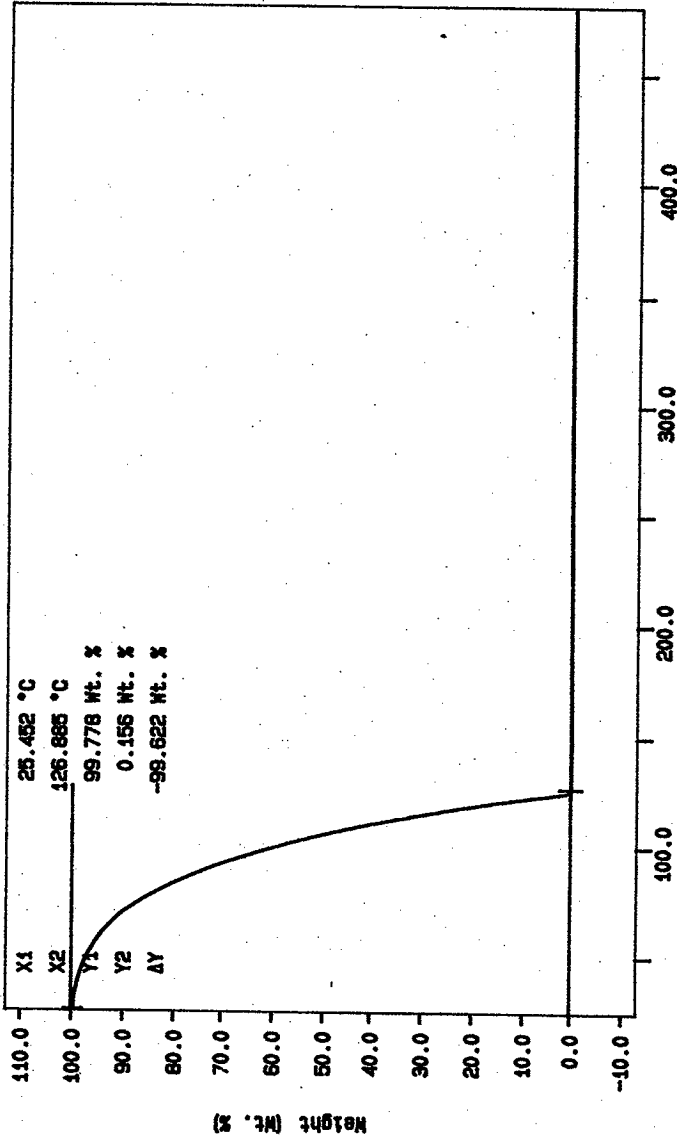
10C/MIN N2
THERM 88.8 8 TURNS 0.0 min RATE: 10.0 c/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 11:26:35 1997

Curve 1: TGA
File Info: SAM021803 Tue Feb 18 12:32:43 1997
Sample Weight: 8.967 mg
S97T000119



100/MIN N2
TEMP: 558.8 8
TIMES: 0.0 min RATE: 10.0 d/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 14:17:45 1997

Curve 4: T6A
 File info: SAM021804 Tue Feb 18 15: 15: 08 1997
 Sample Weight: 9.063 mg
 S97T000119 DUP



10C/MIN N2
 TEMPS 550.0 8
 TIRMS 0.0 MIN RATELS 49.0 C/MIN
 SM FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Feb 18 15: 18: 49 1997

LABCORE Data Entry Template for Worklist# 16709

Analyst: ALL Instrument: TGA0 1 Book # 97NBA

Method: LA-560-112 Rev/Mod D-0

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>59.9 *</u>	<u>N/A</u>	%
97000083	T-110	2 SAMPLE	S97T000125	0	TGA-01	SOLID	<u>N/A</u>	<u>79.73</u>		%
97000083	T-110	3 DUP	S97T000125	0	TGA-01	SOLID	<u>79.73</u>	<u>79.69</u>	<u>N/A</u>	%
97000083	T-110	4 SAMPLE	S97T000141	0	TGA-01	SOLID	<u>N/A</u>	<u>79.12</u>		%
97000083	T-110	5 DUP	S97T000141	0	TGA-01	SOLID	<u>79.12</u>	<u>77.80</u>	<u>N/A</u>	%

Final page for worklist # 16709

Adambel 2-18-97
Analyst Signature Date

Frank Mech 2-20-97
Analyst Signature Date

Verified/Validated by
Blandina
Valencia
2-20-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 356 TO 360

R. Lambert 2.18.94

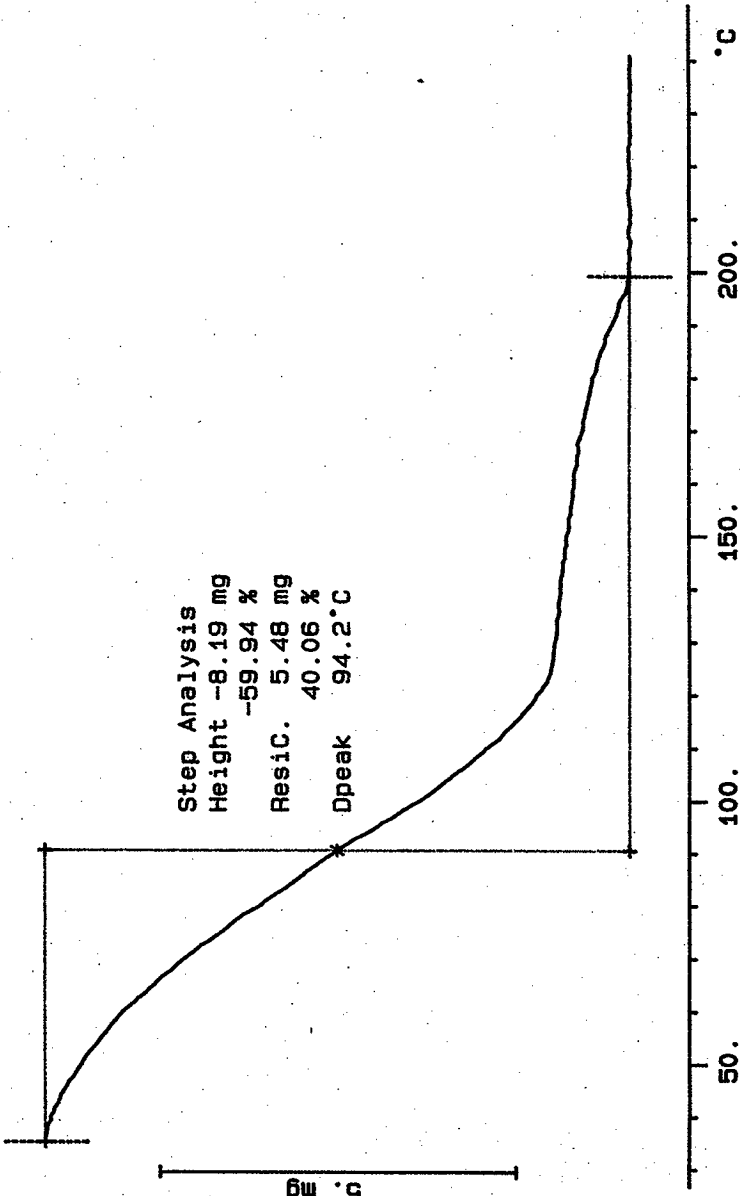
TGA STD 97N8-A

13.670 mg

Rate: 10.0 °C/min

File: 00047.001 TG METTLER 18-Feb-97

Ident: 0.0 222-S Laboratory

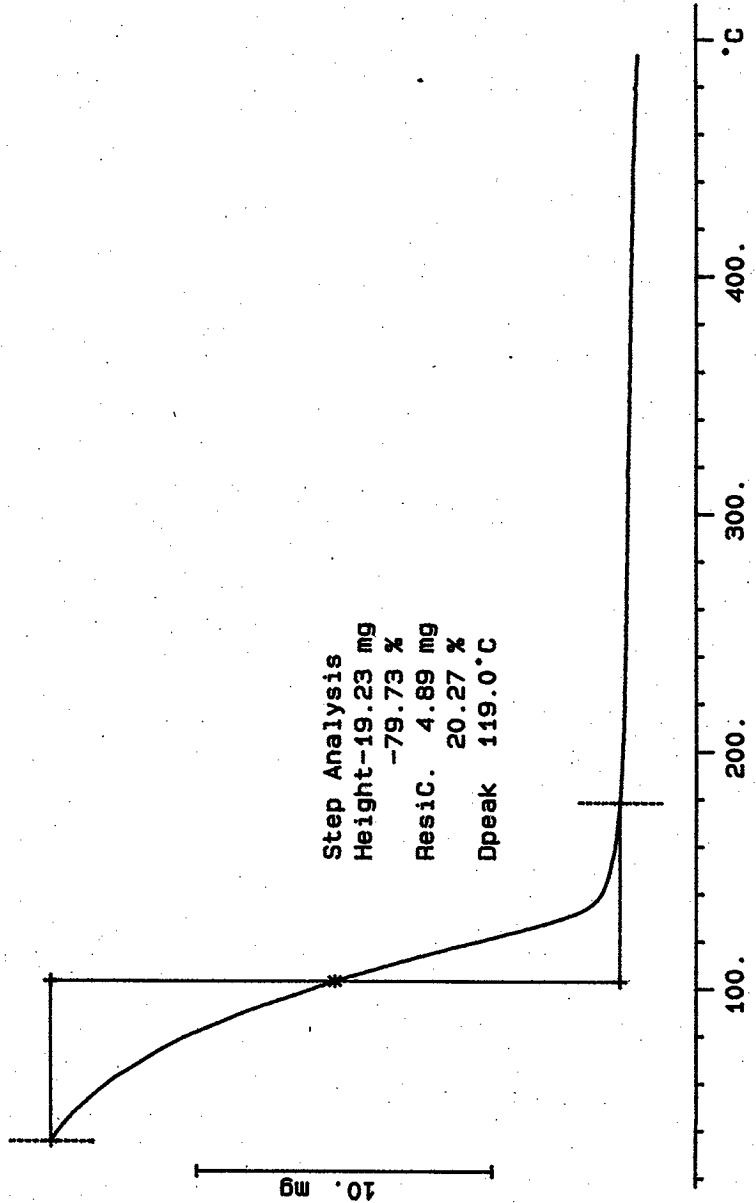


S97T000125 N2

24.418 mg

Rate: 10.0 °C/min

F11e: 00057.001 TG METTLER 18-Feb-97
Ident: 0.0 222-S Laboratory



10. mg

S97T000125 DUP N2

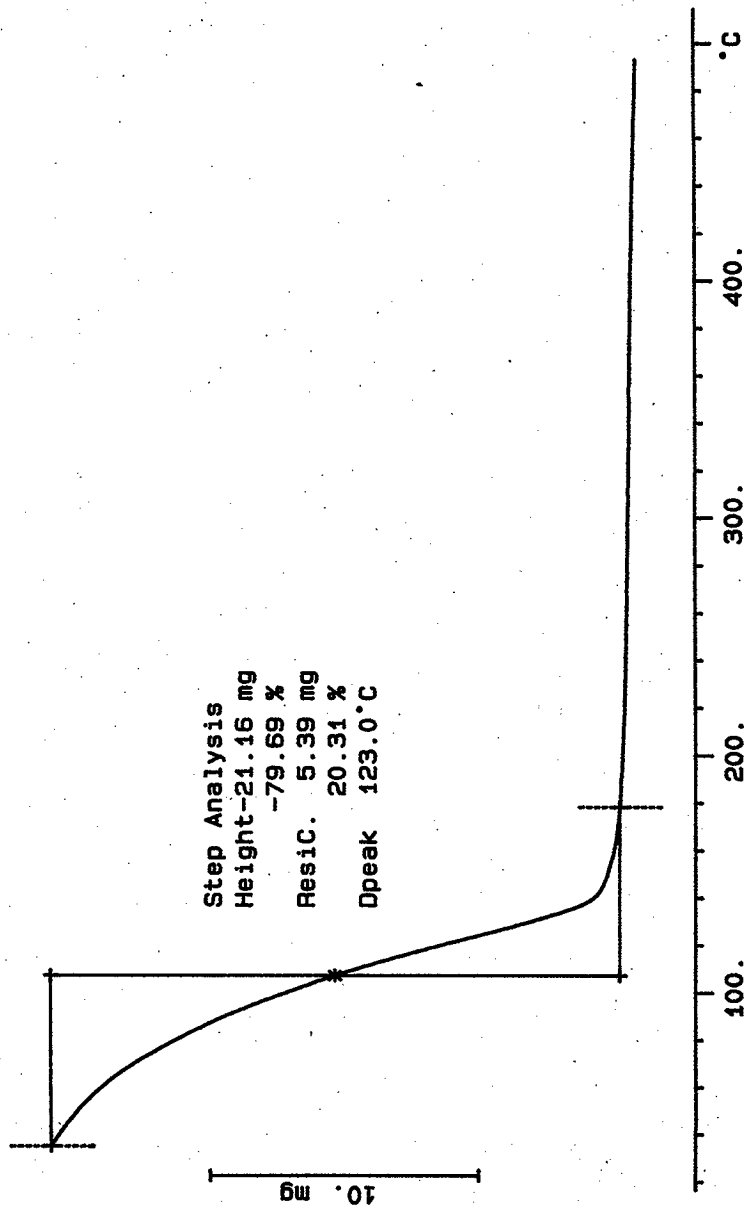
26.549 mg

Rate: 10.0 °C/min

File: 00059.001 TG

METTLER 18-Feb-97

Ident: 0.0 222-S Laboratory



LABCORE Completed Worklist Report for Worklist# 16710

Analyst: eal Instrument: TGA03 Book# 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD		0	TGA-03	SOLID	5.94*01	58.16*	97.912	% Recovery
2 SAMPLE	S97T000142	0	TGA-03	SOLID	N/A	77.51		%
3 DUP	S97T000142	0	TGA-03	SOLID	77.51	76.07	1.875	RPD
4 SAMPLE	S97T000143	0	TGA-03	SOLID	N/A	75.94		%
5 DUP	S97T000143	0	TGA-03	SOLID	75.94	76.13	0.250	RPD

Final page for worklist# 16710

See attached for signatures 2-20-97
Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

Blandina Valenzuela 2-20-97
Reviewer Signature _____ Date _____

LBCORE Data Entry Template for Worklist# 16710

Analyst: *ASL* Instrument: TGA0 _____ Book # *97NBA*

Method: LA-560-112 Rev/Mod _____

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	_____	_____	N/A	%
97000083	T-110	2 SAMPLE	S97T000142	0		TGA-01	SOLID	N/A	_____	_____	%
97000083	T-110	3 DUP	S97T000142	0		TGA-01	SOLID	_____	_____	N/A	%
97000083	T-110	4 SAMPLE	S97T000143	0		TGA-01	SOLID	N/A	_____	_____	%
97000083	T-110	5 DUP	S97T000143	0		TGA-01	SOLID	_____	_____	N/A	%

Final page for worklist # 16710

 A Lambel *2-18-97*
Analyst Signature Date

Analyst Signature Date

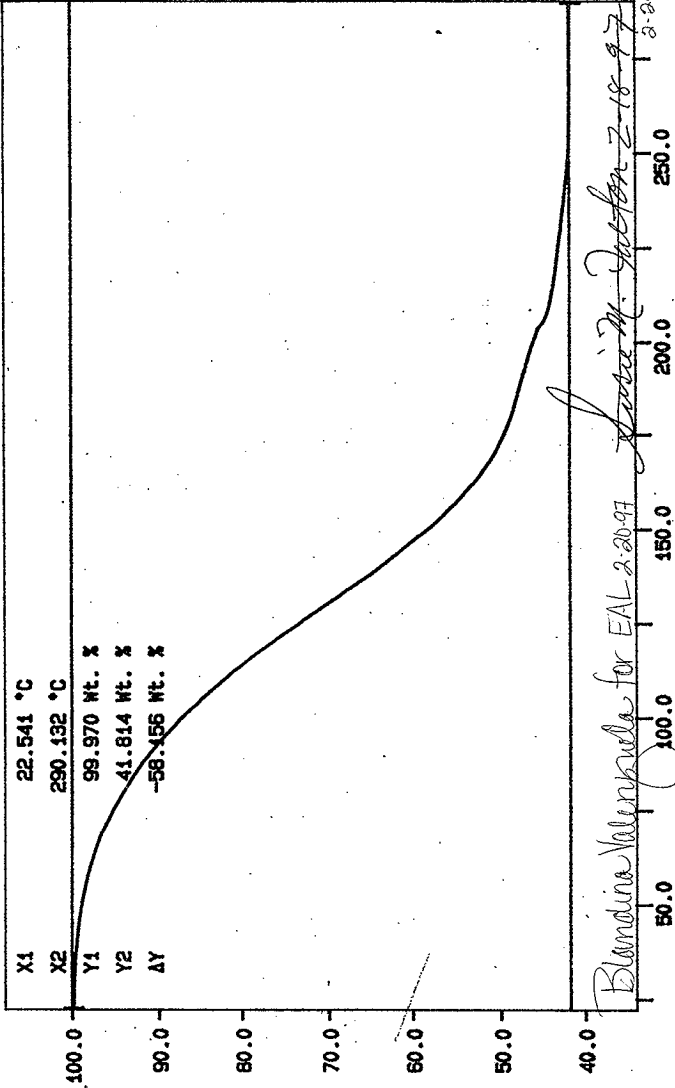
*TGA-03 instrument
was used.
2-20-97
Blandina
Valenzuela*

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File Info: TER021801 Tue Feb 18 07:32:50 1997
Sample Weight: 21.723 mg
TGA STD 97N8-A

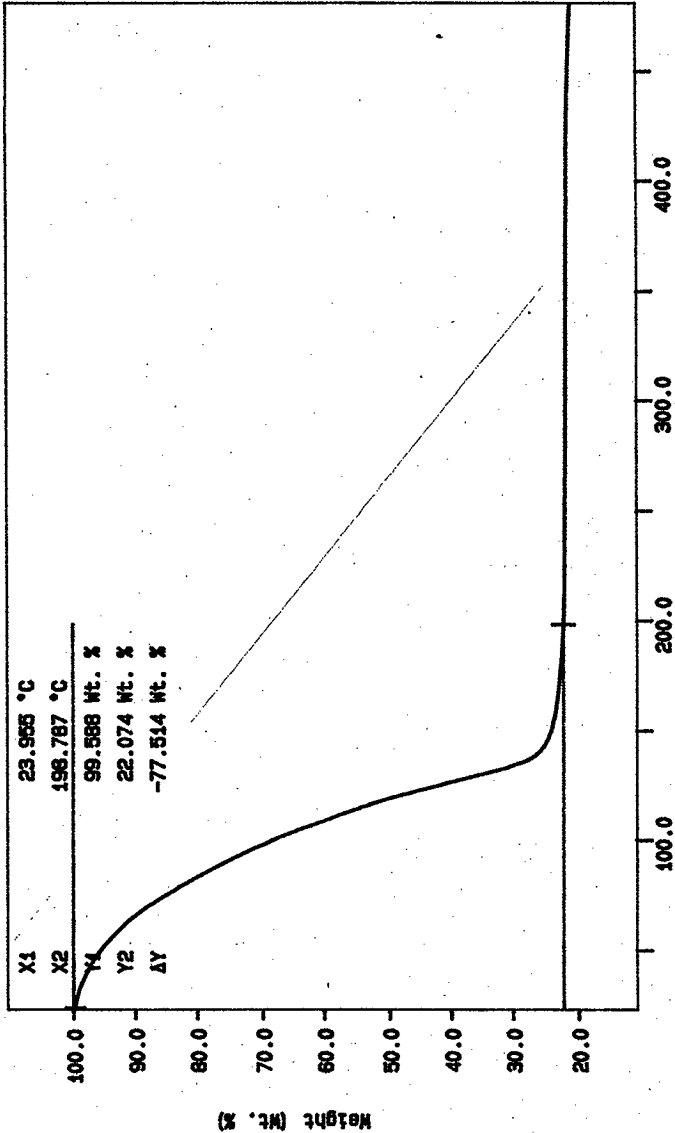
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 363 TO 367.



363
Weight (wt. %)

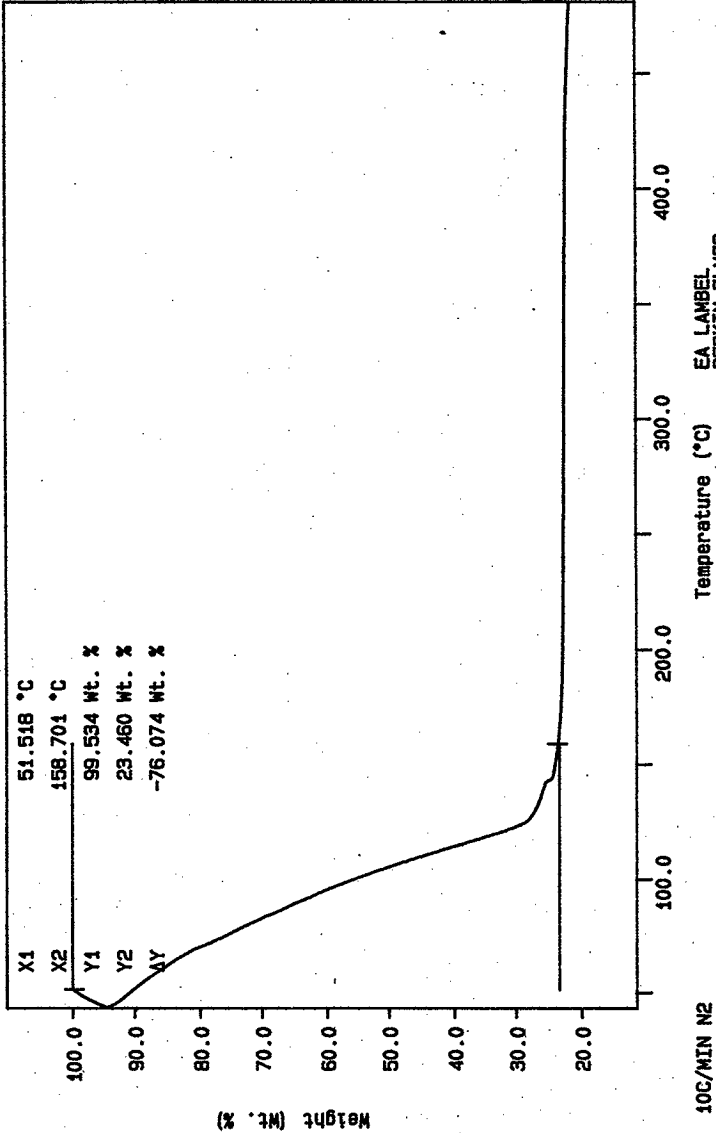
N2 10C/MIN
 THERM 363.8 8
 THERM 0.0 min RATE: 10.0 C/min
 Temperature (°C)
 SM FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Tue Feb 18 07:35:18 1997

Curve 1: TGA
File Info: SAM021605 Tue Feb 18 17:30:51 1997
Sample Weight: 18.676 mg
S977000142



10C/MIN N2
TEMP# 88.8 8 TDM#1 0.0 min RATE#1 10.0 C/min
EA LAMBDA
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 17:39:58 1997

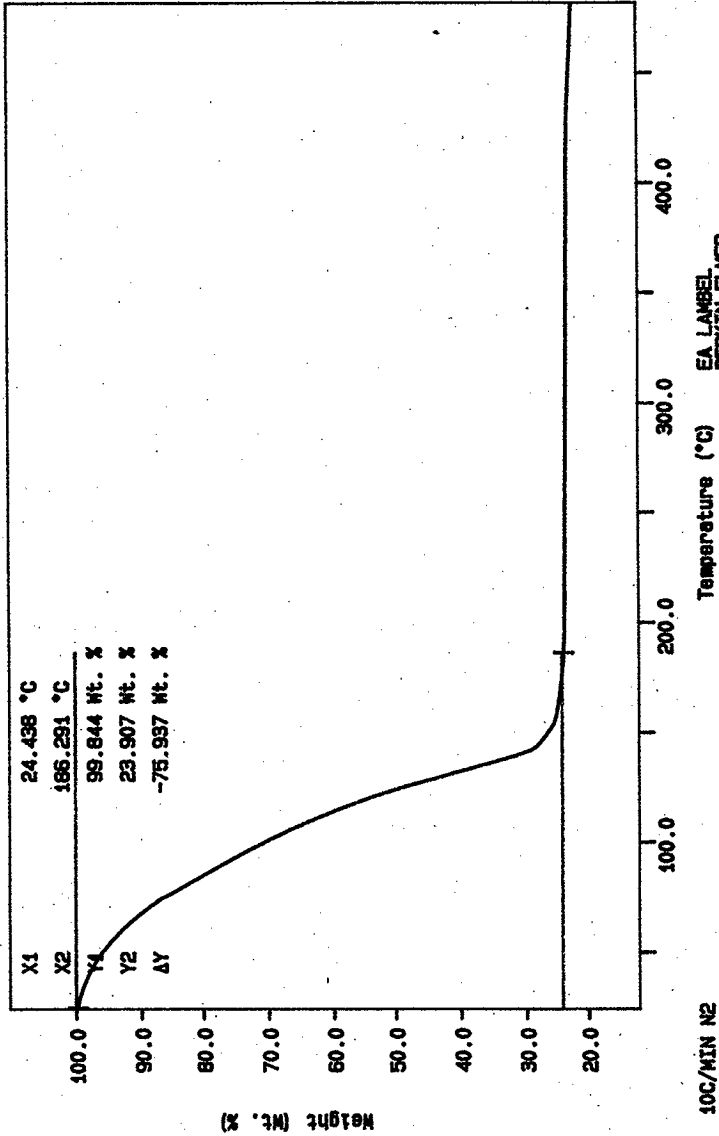
Curve 1: TGA
File Info: SAM021806 Tue Feb 18 18:32:14 1997
Sample Weight: 16.351 mg
S97T000142DUP



EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 12:36:34 1997

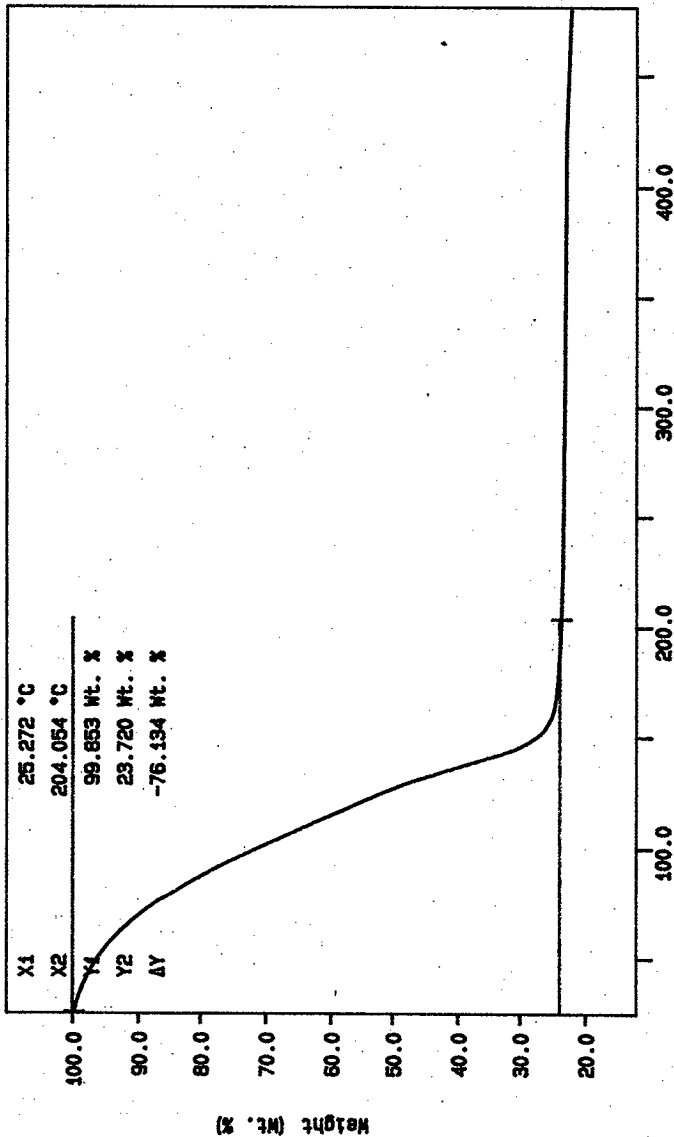
10C/MIN N2
TEMP: 35.0 °C
TIME: 600.0 S
RATE: 0.0 min RATE: 40.0 C/min

Curve 1: TGA
File Infc: SAW021607 Tue Feb 18 20:37:55 1997
Sample Weight: 29.197 mg
S97T000143



10C/MIN N2
TEMP: 200.0 °C
THERM: 0.0 min RATE: 10.0 C/min
EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 20:52:50 1997

Curve 1: TGA
File info: SAM021808 Tue Feb 18 22:03:45 1997
Sample Weight: 27.237 mg
S97T000143DUP



10C/MIN N2
TIME: 55.8 8
TMR: 0.0 min RATE: 10.0 g/min
EA LABEL
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Feb 18 23:25:01 1997

LABCORE Data Entry Template for Worklist# 16711

Analyst: KRM Instrument: TGA0 1 Book # 97N8A

Method: LA-560-112 Rev/Mod C-0

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>59.27</u>	<u>N/A</u>	%
9700083	T-110	2 SAMPLE	S97T000144	0	TGA-01	SOLID	<u>N/A</u>	<u>78.82</u>		%
9700083	T-110	3 DUP	S97T000144	0	TGA-01	SOLID	<u>78.82</u>	<u>73.47</u>	<u>N/A</u>	%
9700083	T-110	4 SAMPLE	S97T000145	0	TGA-01	SOLID	<u>N/A</u>	<u>78.29</u>		%
9700083	T-110	5 DUP	S97T000145	0	TGA-01	SOLID	<u>78.29</u>	<u>85.13</u>	<u>N/A</u>	%

Final page for worklist # 16711

[Signature] 2-19-97
Analyst Signature Date

[Signature] 2-20-97
Analyst Signature Date

Verified/Validated by
Blandina Valenzuela
2-20-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

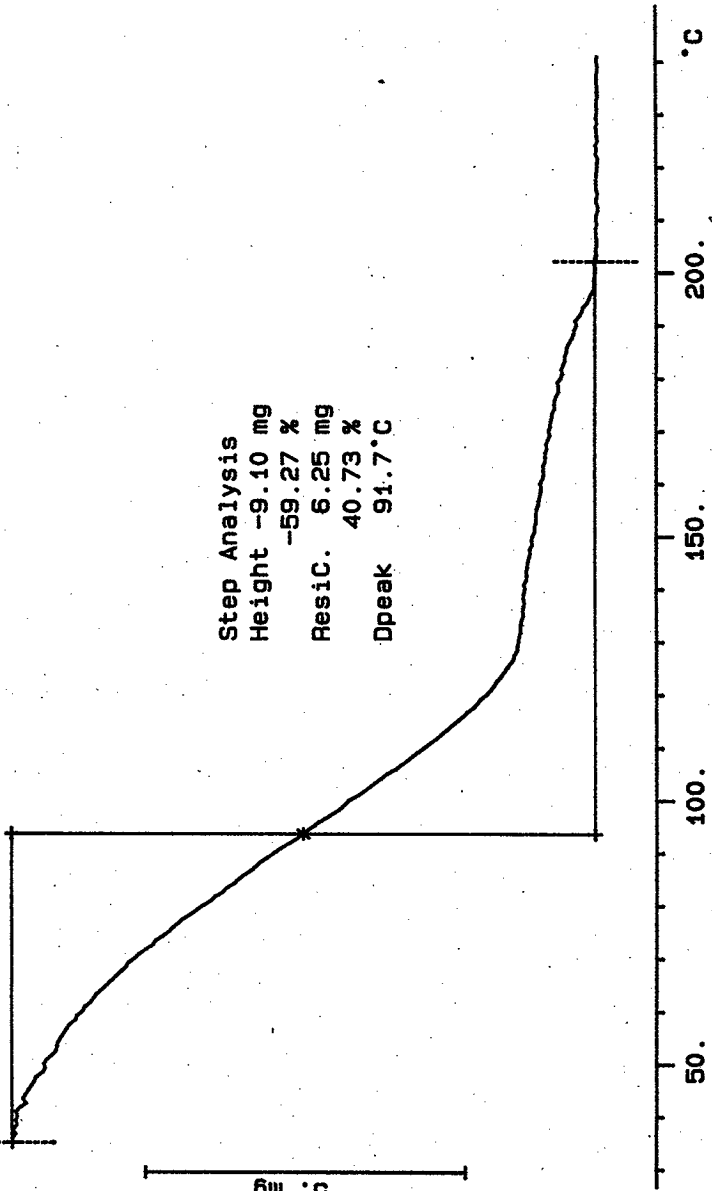
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 369 TO 373.

TGA STD 97N8A

15.351 mg

File: 00069.001 TG METTLER 19-Feb-97

Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory



Signature 2-19-97

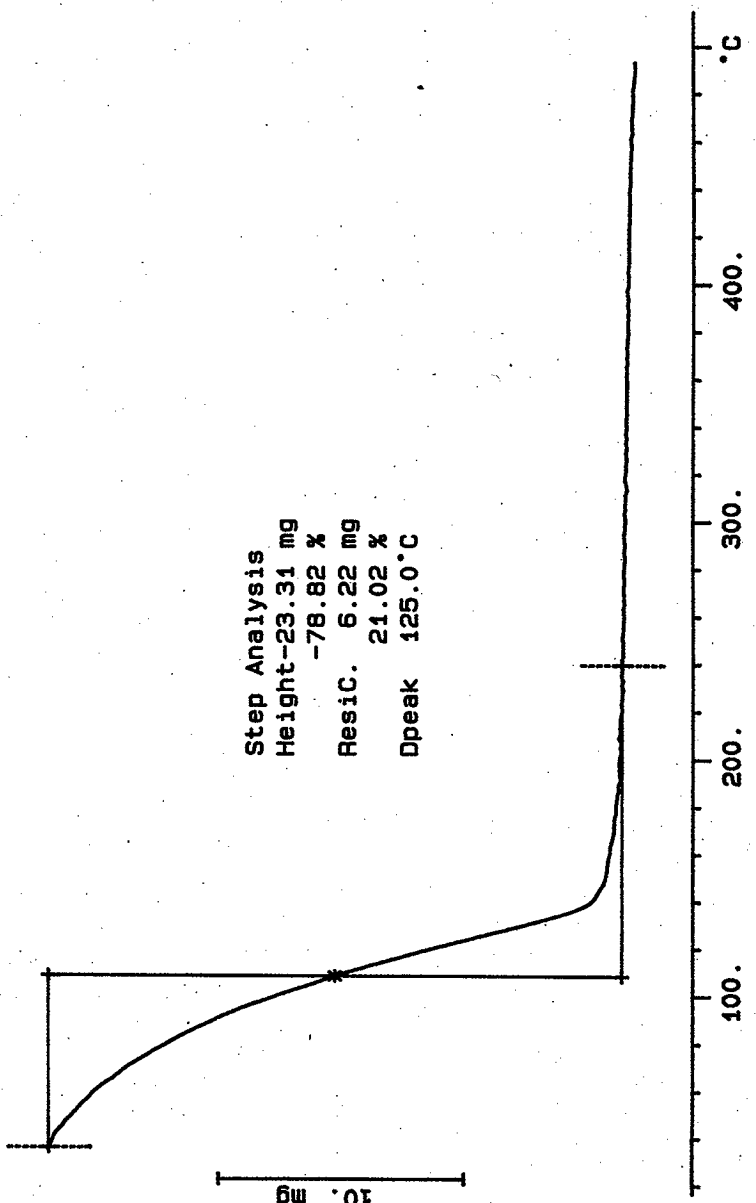
S97T000144 N2
29.573 mg

File: 00071.001 TG METTLER 19-Feb-97
Ident: 0.0 222-S Laboratory

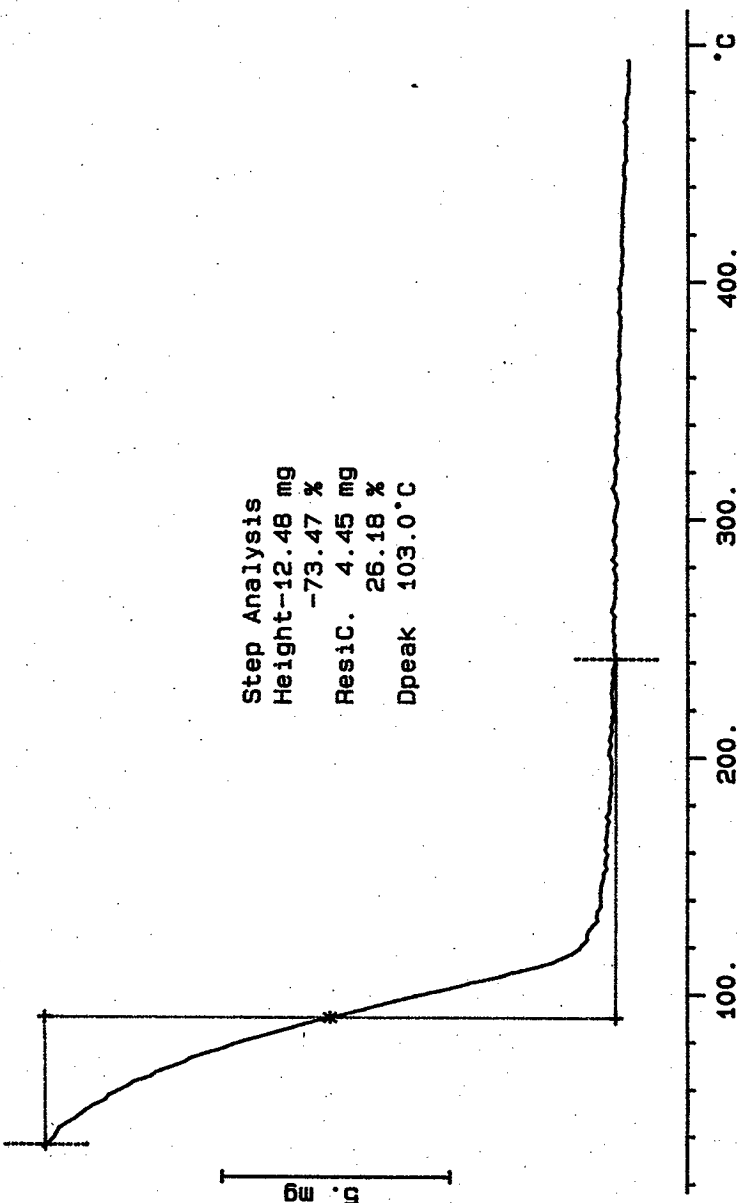
Rate: 10.0 °C/min

10. mg

Step Analysis
Height-23.31 mg
-78.82 %
Resic. 6.22 mg
21.02 %
Dpeak 125.0 °C



S97T000144 DUP N2
16.988 mg
Rate: 10.0 °C/min
File: 00073.001 TG METTLER 19-Feb-97
Ident: 0.0 222-S Laboratory

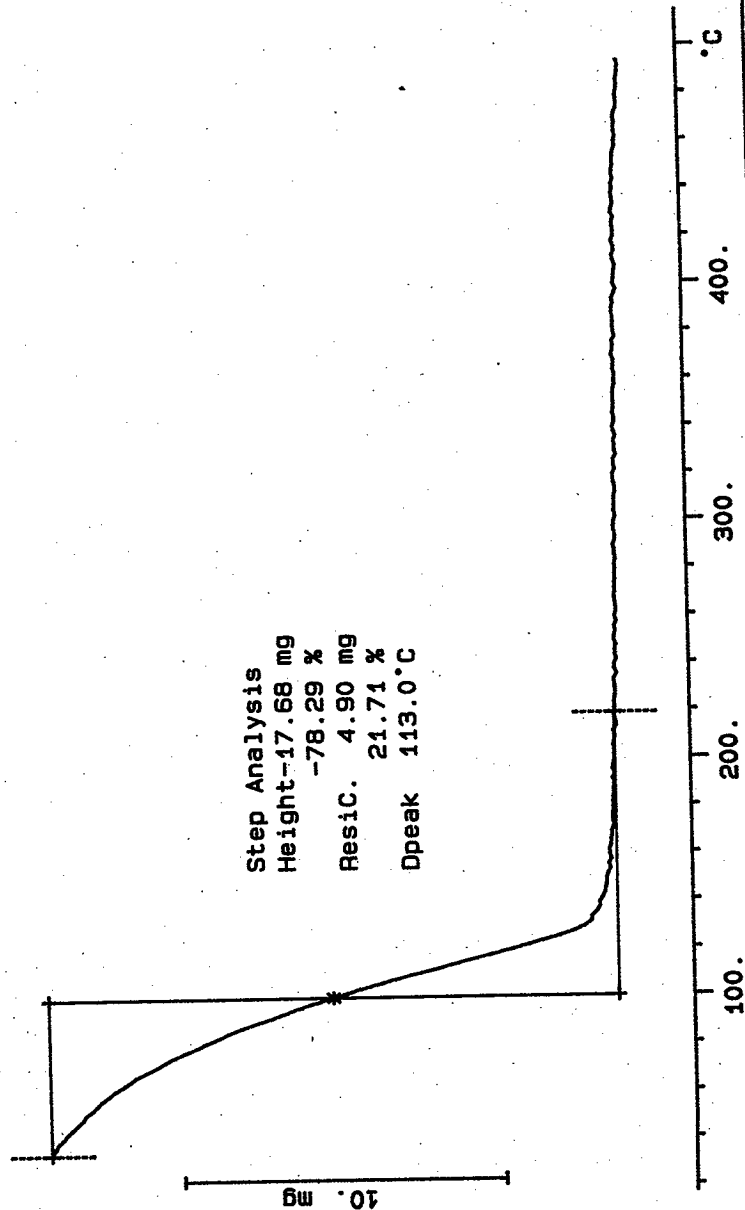


File: 00075.001 TG METTLER 19-Feb-97
Ident: 0.0 222-S Laboratory

S97T000145 N2
22.580 mg

Rate: 10.0 °C/min

Step Analysis
Height-17.68 mg
-78.29 %
Resid. 4.90 mg
21.71 %
Dpeak 113.0 °C

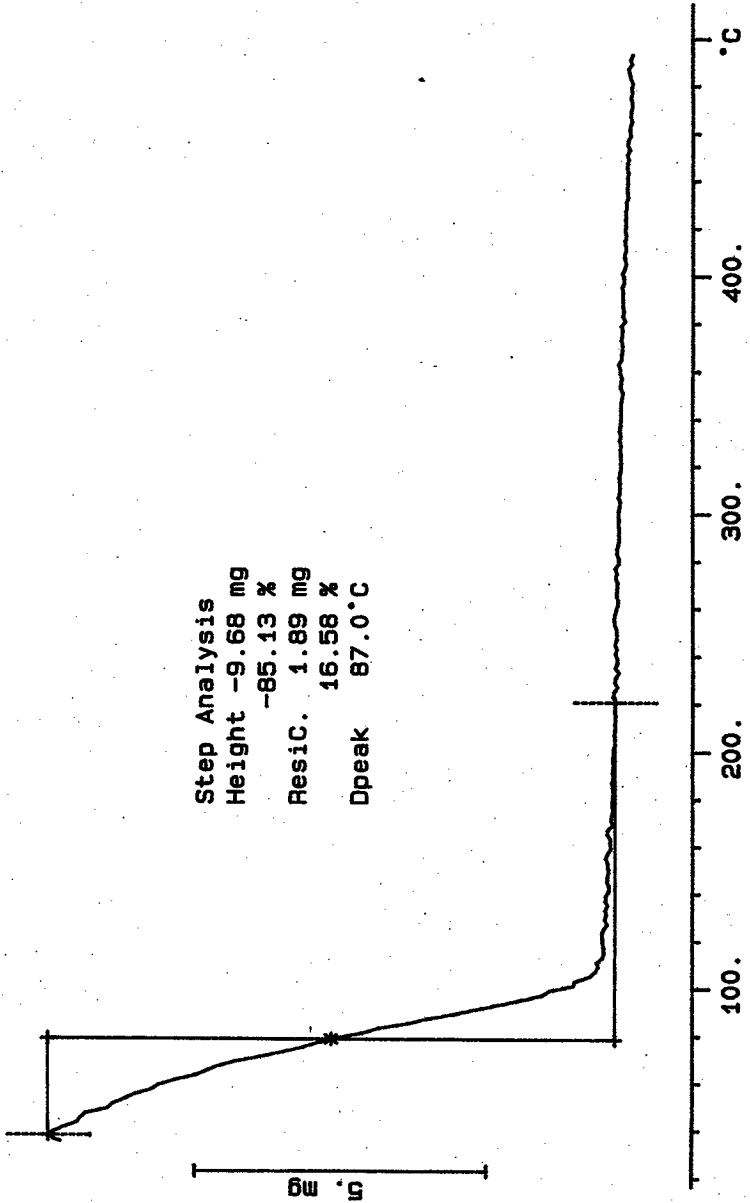


S97T000145 DUP N2
11.374 mg

Rate: 10.0 °C/min

File: 00077.001 TG

METTLER 19-Feb-97
222-S Laboratory



Step Analysis
Height -9.68 mg
Resid. -85.13 %
Resid. 1.89 mg
Dpeak 16.58 %
Dpeak 87.0 °C

LABCORE Data Entry Template for Worklist# 16712

Analyst: KRM **Instrument:** TGA0 3 **Book #** 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ **RTS**

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.4</u>	<u>58.8</u>	<u>N/A</u>	%
97000083	T-110	2 SAMPLE	S97T000146	0	TGA-03	SOLID	<u>N/A</u>	<u>75.5</u>		%
97000083	T-110	3 DUP	S97T000146	0	TGA-03	SOLID	<u>75.5</u>	<u>75.9</u>	<u>N/A</u>	%
97000083	T-110	4 SAMPLE	S97T000147	0	TGA-03	SOLID	<u>N/A</u>	<u>76.0</u>		%
97000083	T-110	5 DUP	S97T000147	0	TGA-03	SOLID	<u>76.0</u>	<u>76.8</u>	<u>N/A</u>	%

Final page for worklist # 16712

See attached for signatures
Analyst Signature [Signature] **Date** 2-20-97
BDR

[Signature] 2-20-97
Analyst Signature **Date**

Verified/Validated by
Blandina
Valenzuela 2-20-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16712

Analyst: KRM Instrument: TGA0 _____ Book # 97N8A

Method: LA-560-112 Rev/Mod _____

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	_____	_____	N/A	%
97000083	T-110	2 SAMPLE	S97T000146	0	TGA-01	SOLID	N/A	_____	_____	%
97000083	T-110	3 DUP	S97T000146	0	TGA-01	SOLID	_____	_____	N/A	%
97000083	T-110	4 SAMPLE	S97T000147	0	TGA-01	SOLID	N/A	_____	_____	%
97000083	T-110	5 DUP	S97T000147	0	TGA-01	SOLID	_____	_____	N/A	%

Final page for worklist # 16712


Analyst Signature Date 2-19-97

Analyst Signature Date

TGA-03 instrument
was used.

2-20-97

Blandina

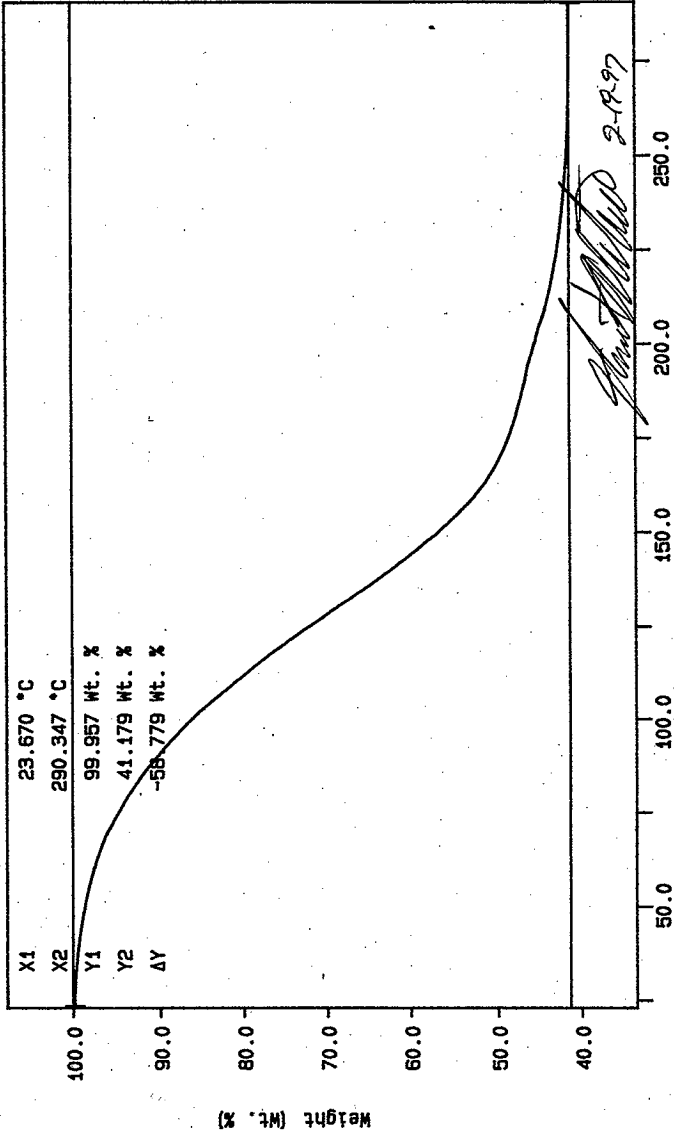
Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File Info: TER021901 Wed Feb 19 03:58:03 1997
Sample Weight: 21.311 mg
TGA STD 97NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 376 TO 380.

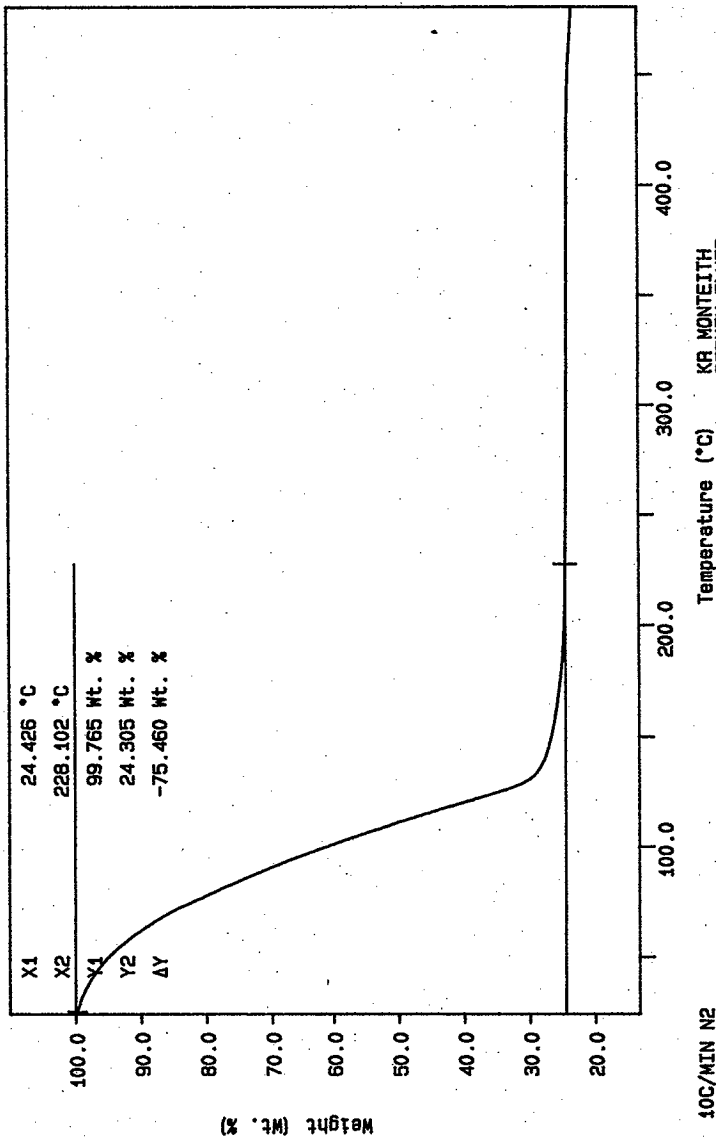


N2 10C/MIN
TEMP: 55.0 C
TIME: 366.0 S
0.0 min RATE: 10.0 C/min
Temperature (°C)
250.0
200.0
150.0
100.0
50.0

Signature: *[Handwritten Signature]* 2-19-97

KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 04:32:05 1997

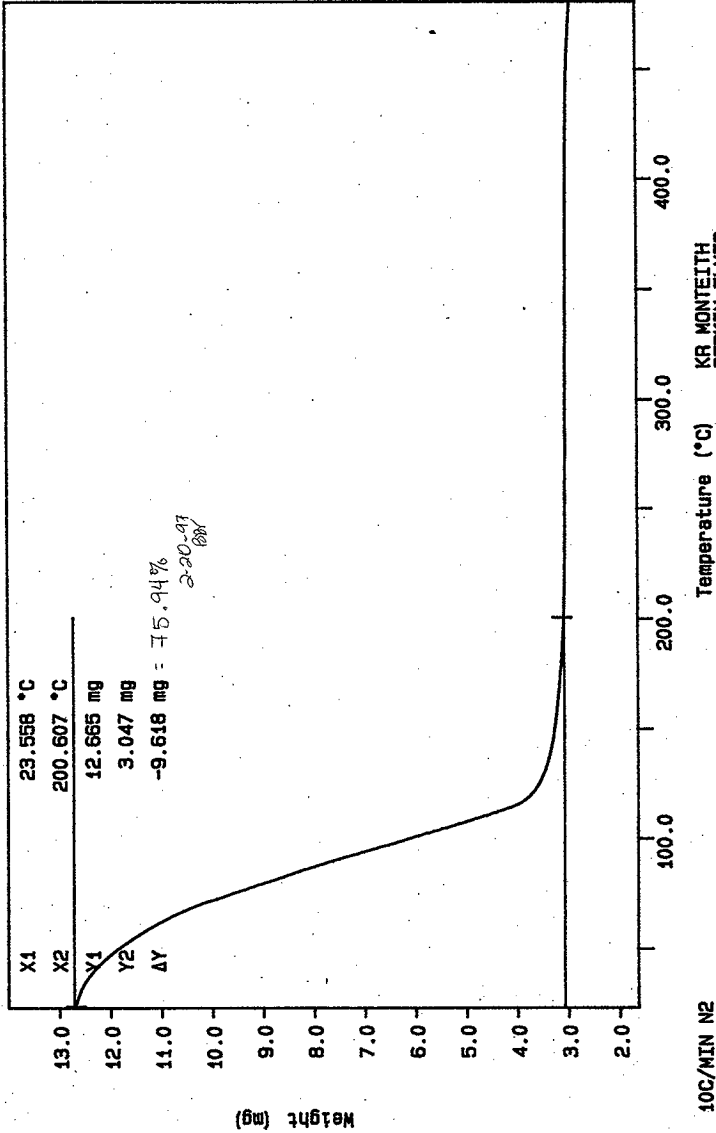
Curve 1: TGA
File info: SAM021901 Wed Feb 19 05: 35: 55 1997
Sample Weight: 16.399 mg
S97T000146



KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 07: 16: 15 1997

100/MIN N2
TEMP: 35.0 C
TEMP2: 500.0 C
TIME: 0.0 min RATE: 10.0 C/min

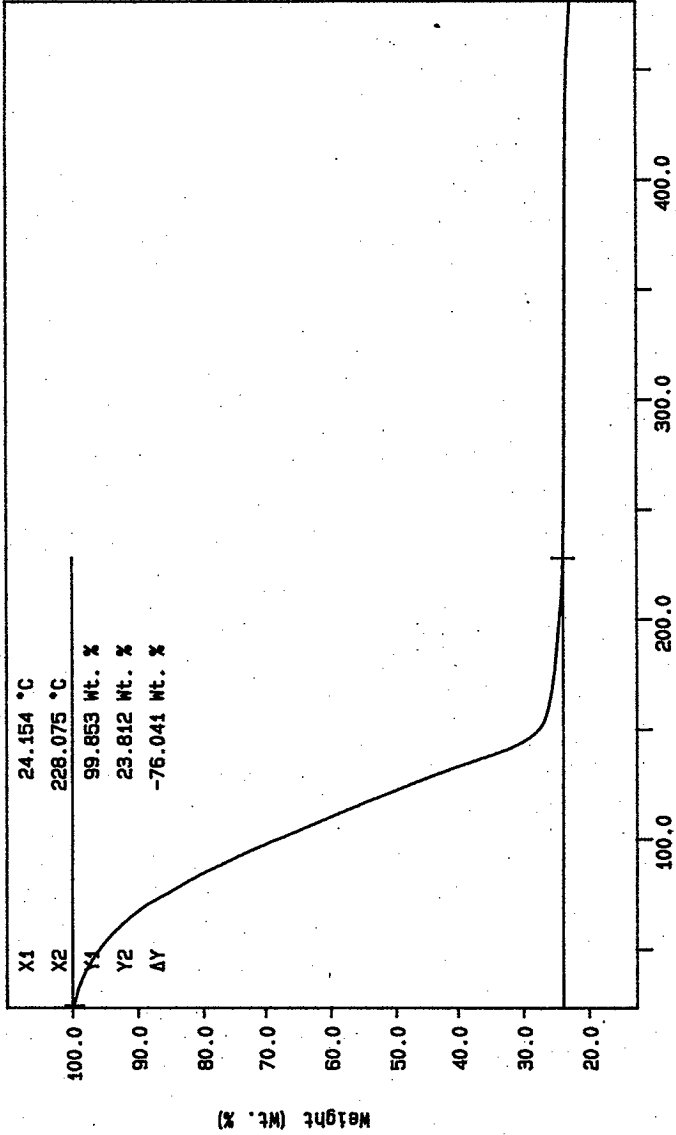
Curve 1: TGA
File info: SAM021902 Wed Feb 19 08:03:53 1997
Sample Weight: 12.697 mg
S97T000146 DUP



KB MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 09:14:26 1997

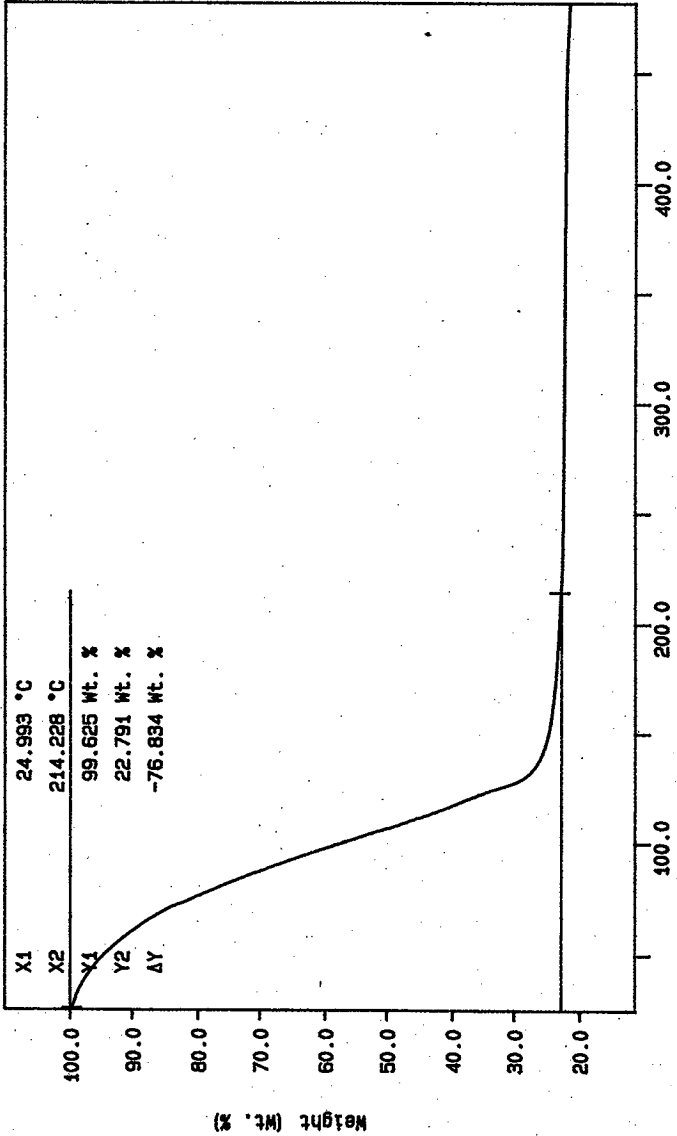
10C/MIN N2
TEMP: 35.0 C
TIME: 550.0 S
0.0 min RATE: 10.0 C/min

Curve 1: TGA
File info: SAM021903 Wed Feb 19 09: 59: 39 1997
Sample Weight: 23.317 mg
S97T000147



100/MIN N2
TEMP: 600.0 °C
TIME: 0.0 min
RATES: 10.0 C/min
Temperature (°C)
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 11: 48: 34 1997

Curve 1: TGA
File info: SAM021904 Wed Feb 19 12:28:31 1997
Sample Weight: 19.139 mg
S97T000147 DUP



10C/MIN N2
TEMP: 56.0 C
TIME: 506.8 S
0.0 min RATE: 10.0 C/min
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Feb 19 12:44:03 1997

LABCORE Data Entry Template for Worklist# 16713

Analyst: PDM Instrument: TGA0 3 Book # 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.4</u>	<u>58.89</u>	<u>N/A</u>	%
97000083	T-110	2 SAMPLE	S97T000158	0	TGA-03	SOLID	<u>N/A</u>	<u>71.27</u>		%
97000083	T-110	3 DUP	S97T000158	0	TGA-03	SOLID	<u>71.27</u>	<u>72.82</u>	<u>N/A</u>	%
97000083	T-110	4 SAMPLE	S97T000159	0	TGA-03	SOLID	<u>N/A</u>	<u>74.80</u>		%
97000083	T-110	5 DUP	S97T000159	0	TGA-03	SOLID	<u>74.80</u>	<u>73.80</u>	<u>N/A</u>	%

Final page for worklist # 16713

See Attached for Signature
Analyst Signature Date

Pt Doh 3/4-97
Analyst Signature Date

Validated: Smachlor 3/5/97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

ABCORE Data Entry Template for Worklist# 16713

Analyst: SW Instrument: TGA0 3 Book # 97N8A
 Method: A-56 Rev/Mod D-0
 Worklist Comm: TGA-01 FOR T-110(RUN UNDER NITROGEN)TERLIQ RTS

GROUP	PROJECT	QTY	TYPE	SAMPLE#	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
			STD				TGA-01	SOLID	<u>59.4</u>	<u>58.89</u>	<u>N/A</u>	%
97000083	T-110	2	SAMPLE	S97T000158	0		TGA-01	SOLID	<u>N/A</u>	<u>71.27</u>		%
97000083	T-110	3	DUP	S97T000158	0		TGA-01	SOLID	<u>71.27</u>	<u>72.82</u>	<u>N/A</u>	%
97000083	T-110	4	SAMPLE	S97T000159	0		TGA-01	SOLID	<u>N/A</u>	<u>74.80</u>		%
97000083	T-110	5	DUP	S97T000159	0		TGA-01	SOLID	<u>74.80</u>	<u>73.80</u>	<u>N/A</u>	%

Final page for worklist # 16713

SW
 Analyst Signature 2/28/97
 Date

Analyst Signature _____
 Date _____

Forward to 3
 2/28/97
 to pgs tot.

Data Entry Comm: Run using TGA-03. SW 3/4/97

Units shown for QC (QC & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 4: TGA
File Info: TGA022701 Thu Feb 27 20: 27: 54 1997
Sample Weight: 24.738 mg
TGA STD 97N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 282 TO 287

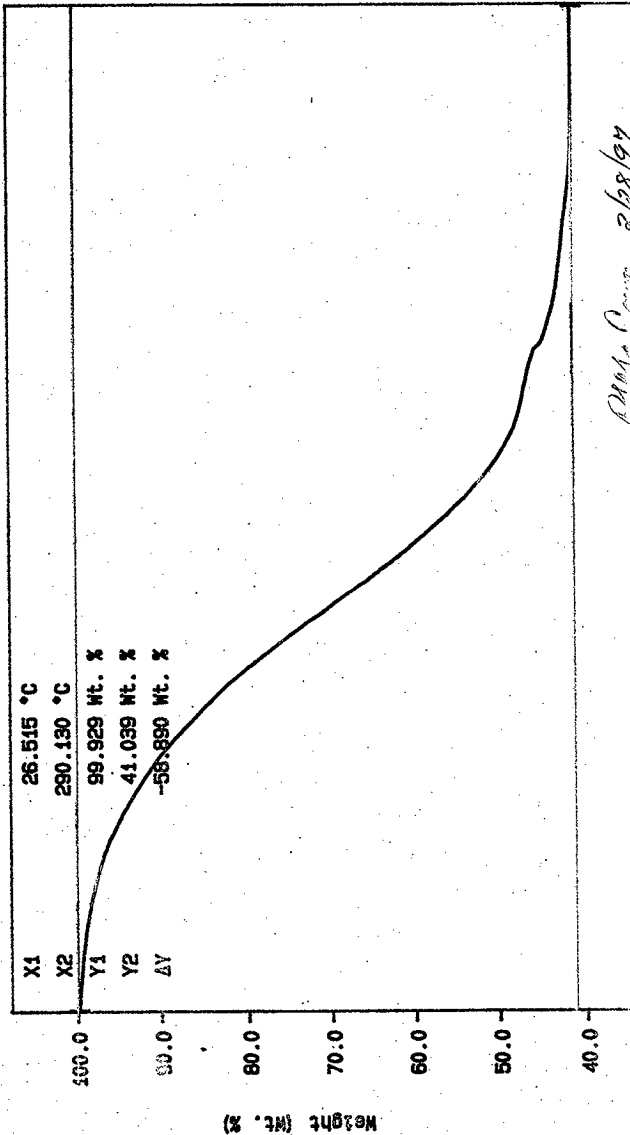
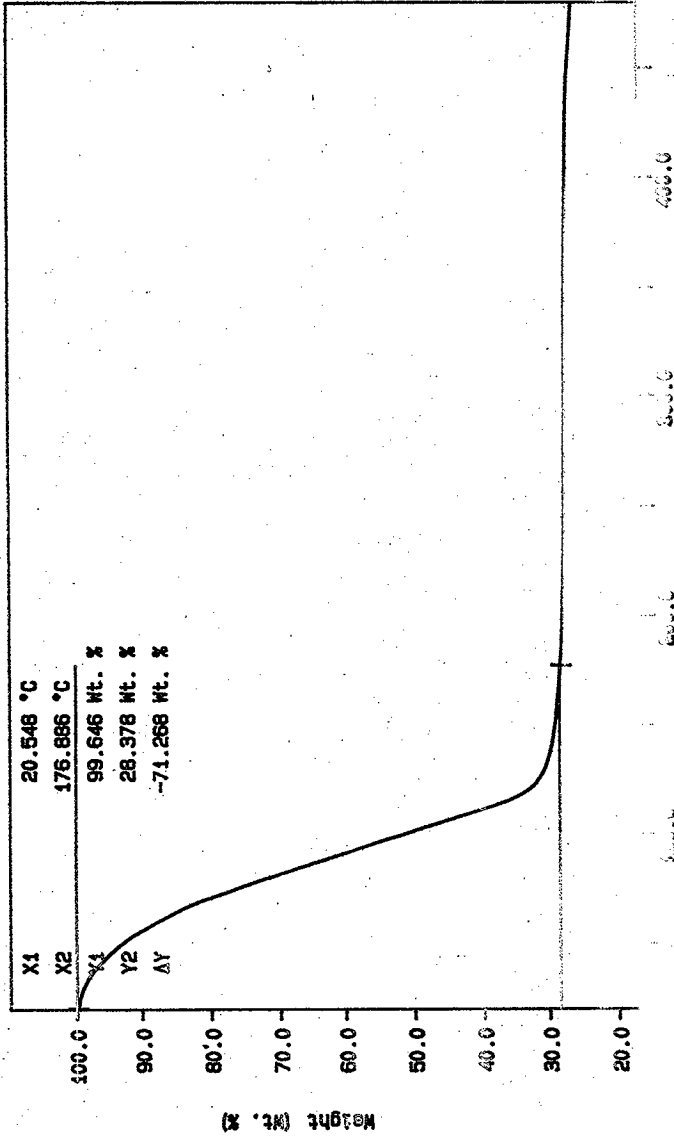


Photo Curve 2/28/97

270.0 275.0 280.0 285.0 290.0

PJ MCCORIN
ANALYST
Thu Feb 27 20: 29: 40 1997

Curve 1: TGA
File Info: SAM022701 Thu Feb 27 21:52:06 1997
Sample Weight: 14.866 mg
S97T000158 SAM



600/MIN HE
 100.0
 90.0
 80.0
 70.0
 60.0
 50.0
 40.0
 30.0
 20.0

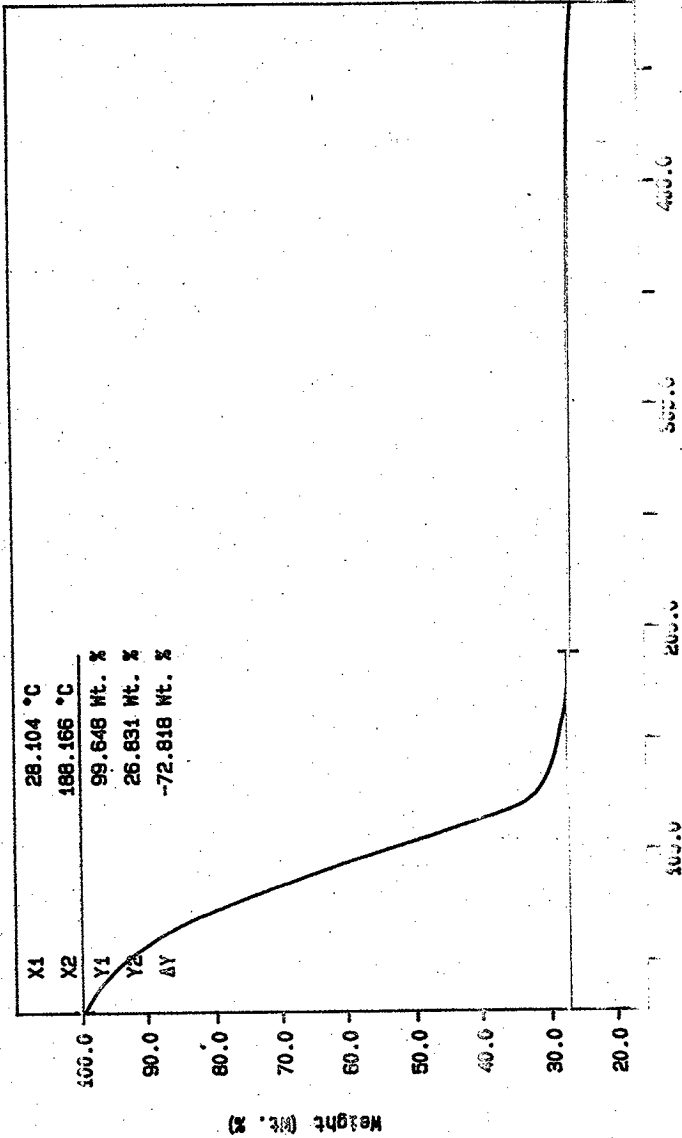
100.0
 200.0
 300.0
 400.0

Temperature (°C)

PJ MCCOMB
 PERKIN-ELMER

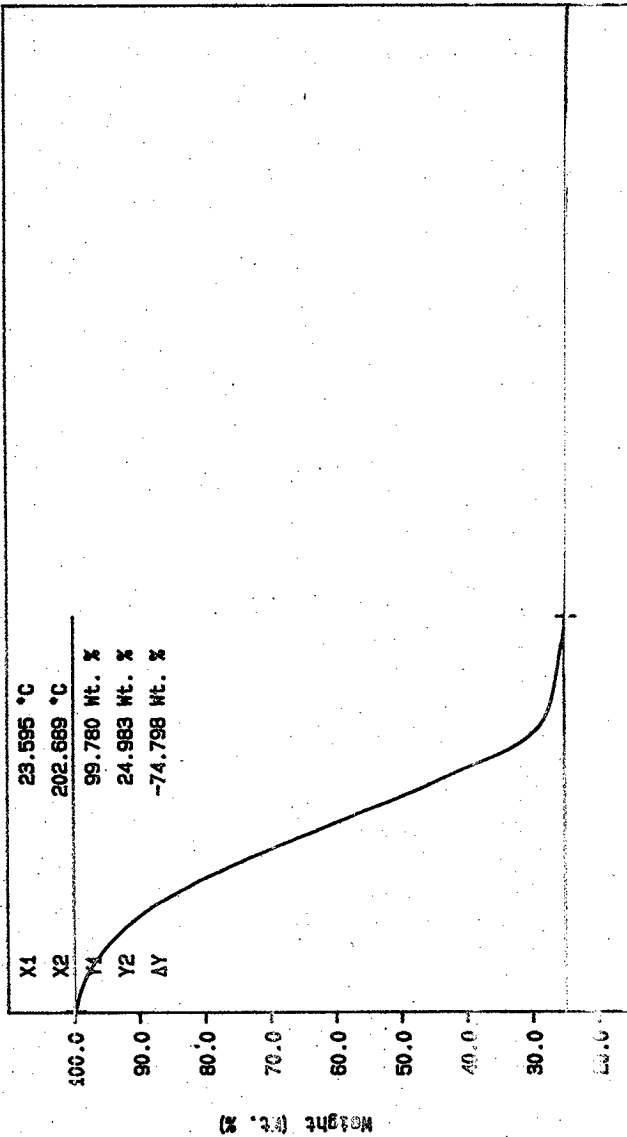
Thu Feb 27 21:54:50 1997

Curve 1: TGA
 File Info: S4402702 Thu Feb 27 23: 01: 50 1997
 Sample Weight: 16.570 mg
 S977000158 DUP



DUPLICATE
 FILE: S4402702
 Thu Feb 27 23: 24: 41 1997

Curve 1: TGA
File Info: SAM022601 Fri Feb 28 00:17:49 1997
Sample Weight: 28.261 mg
S97T000159 SAM

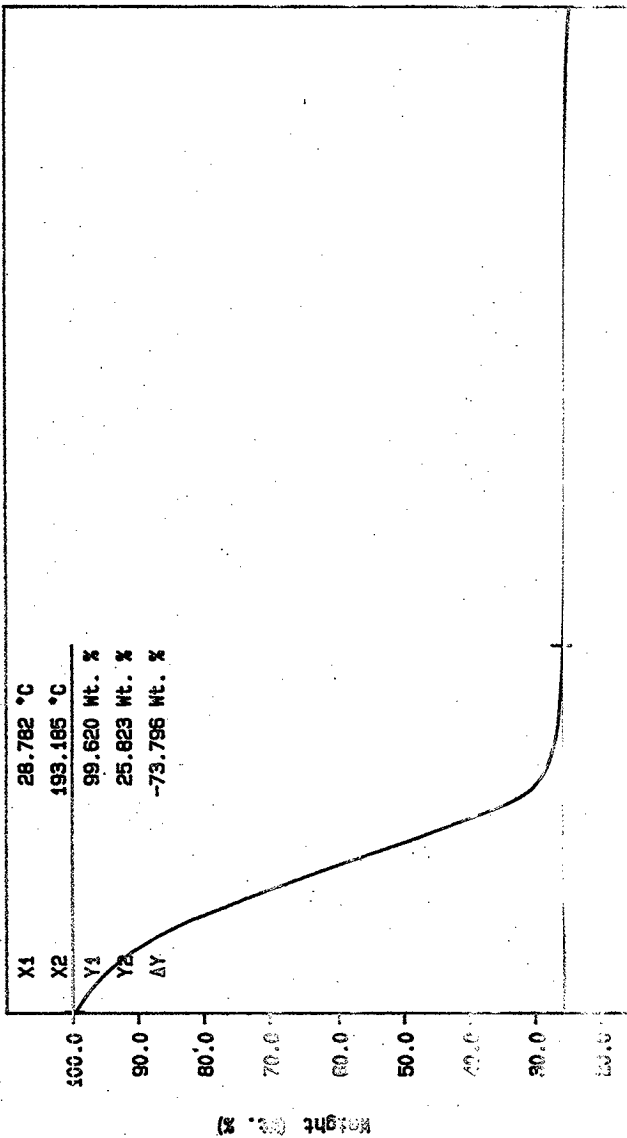


386
Weight (%)

400.0
300.0
200.0
100.0
0.0
Temperature (°C)

PJ MOOGWIN
DUKEN-ELMER
Analytical System
Fri Feb 28 00:24:49 1997

Curve 1: TGA
File Info: S4022602 Fri Feb 28 01:28:15 1997
Sample Weight: 15.800 mg
S97T000159 DUP



PJ MCCOHN
PERKIN-ELMER
CALORIMETER ANALYSIS SYSTEM
Fri Feb 28 01:35:08 1997

LABCORE Data Entry Template for Worklist# 16830

Analyst: SMF Instrument: TGA0 3 Book # 97N8-A
Method: LA-560-112 Rev/Mod D-D

Worklist Comment: T-110 TGA, RUN UNDER N2! RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>58.98</u>	<u>N/A</u>	%
97000083	T-110	2 SAMPLE	S97T000192	0	TGA-01	SOLID	<u>N/A</u>	<u>73.08</u>	<u>31497</u>	%
97000083	T-110	3 DUP	S97T000192	0	TGA-01	SOLID	<u>73.08</u>	<u>72.65</u>	<u>N/A</u>	%
97000083	T-110	4 SAMPLE	S97T000193	0	TGA-01	SOLID	<u>N/A</u>	<u>72.14</u>		%
97000083	T-110	5 DUP	S97T000193	0	TGA-01	SOLID	<u>72.14</u>	<u>72.64</u>	<u>N/A</u>	%
97000111	T-110	6 SAMPLE	S97T000214	0	TGA-01	SOLID	<u>N/A</u>	<u>9.28</u>		%
97000111	T-110	7 DUP	S97T000214	0	TGA-01	SOLID	<u>9.28</u>	<u>76.91</u>	<u>N/A</u>	%

Final page for worklist # 16830

Luis M. Julson 3-1-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments:

High RPD S97T000214 due to sample inhomogeneities. Perun only at customer request. 3/4/97 Run using STGA-03. 3/4/97

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16830

Analyst: SMF Instrument: TGA0 3 Book# 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			TGA-03	SOLID		
2 SAMPLE	S97T000192 0		TGA-03	SOLID	97000083	T-110
	Analytes Requested: TGA-03					
3 DUP	S97T000192 0		TGA-03	SOLID		
4 SAMPLE	S97T000193 0		TGA-03	SOLID	97000083	T-110
	Analytes Requested: TGA-03					
5 DUP	S97T000193 0		TGA-03	SOLID		
6 SAMPLE	S97T000214 0		TGA-03	SOLID	97000111	T-110
	Analytes Requested: TGA-03					
7 DUP	S97T000214 0		TGA-03	SOLID		

Final page for worklist # 16830

See Attached for Signatures, Results
 Analyst Signature _____ Date _____

SMF 3/4/97
 Analyst Signature _____ Date _____

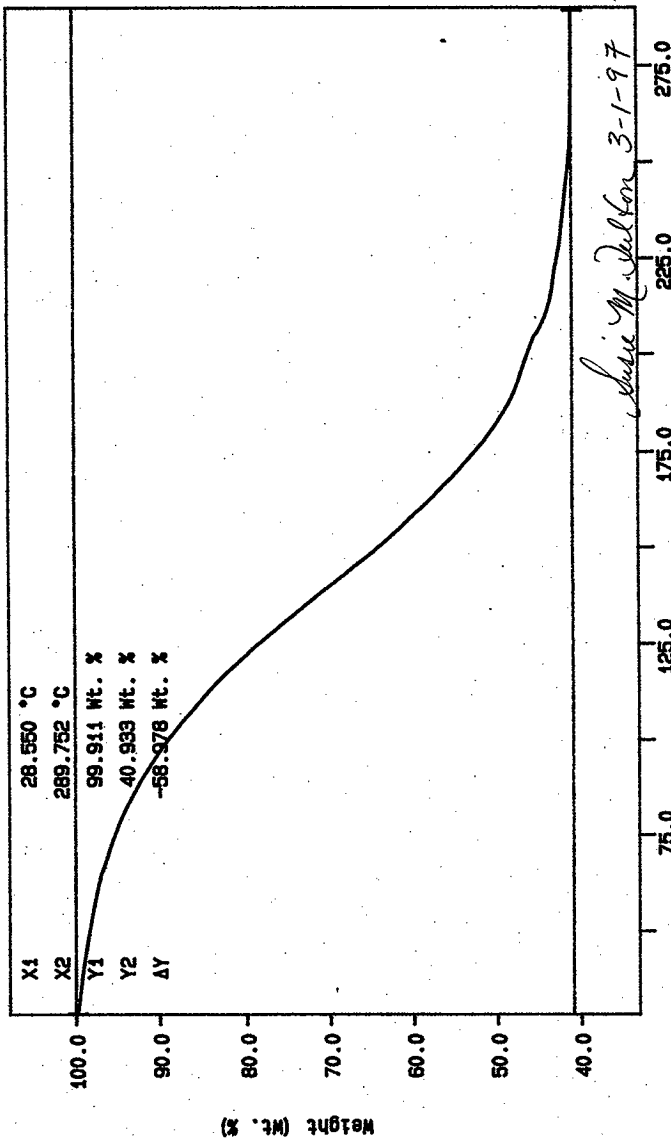
Validated: SMF 3/5/97

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

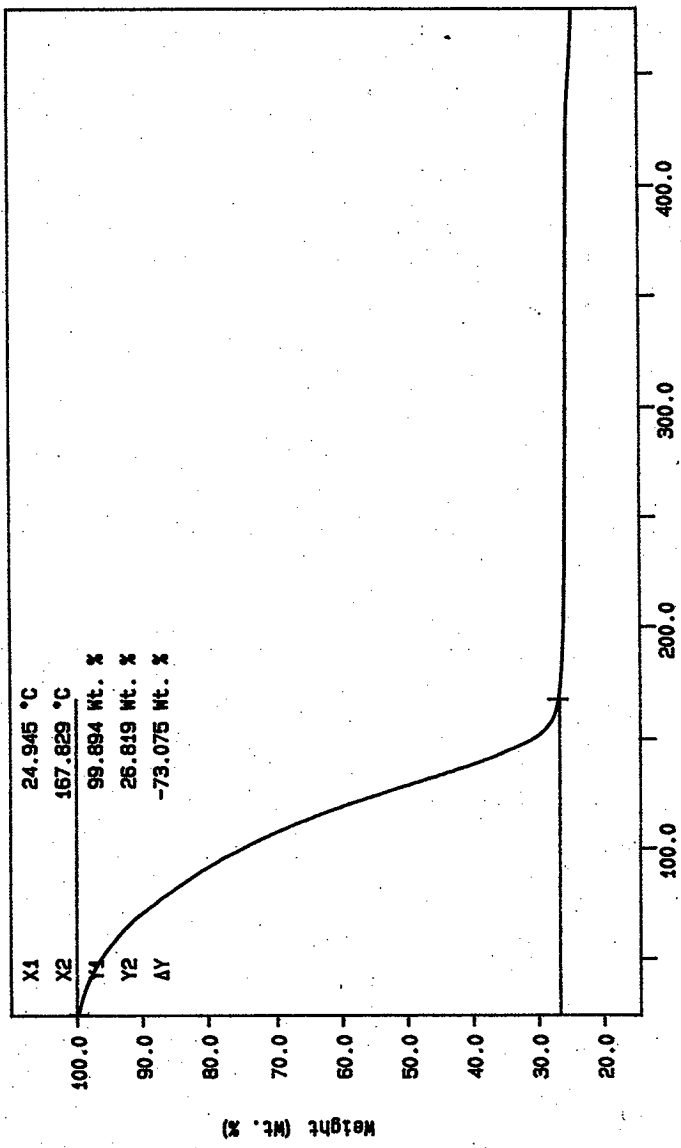
Curve 1: TGA
File Info: TER030101 Sat Mar 1 16:50:57 1997
Sample Weight: 30.661 mg
TGA STD 97NB-A

TEMPERATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 290 TO 296.



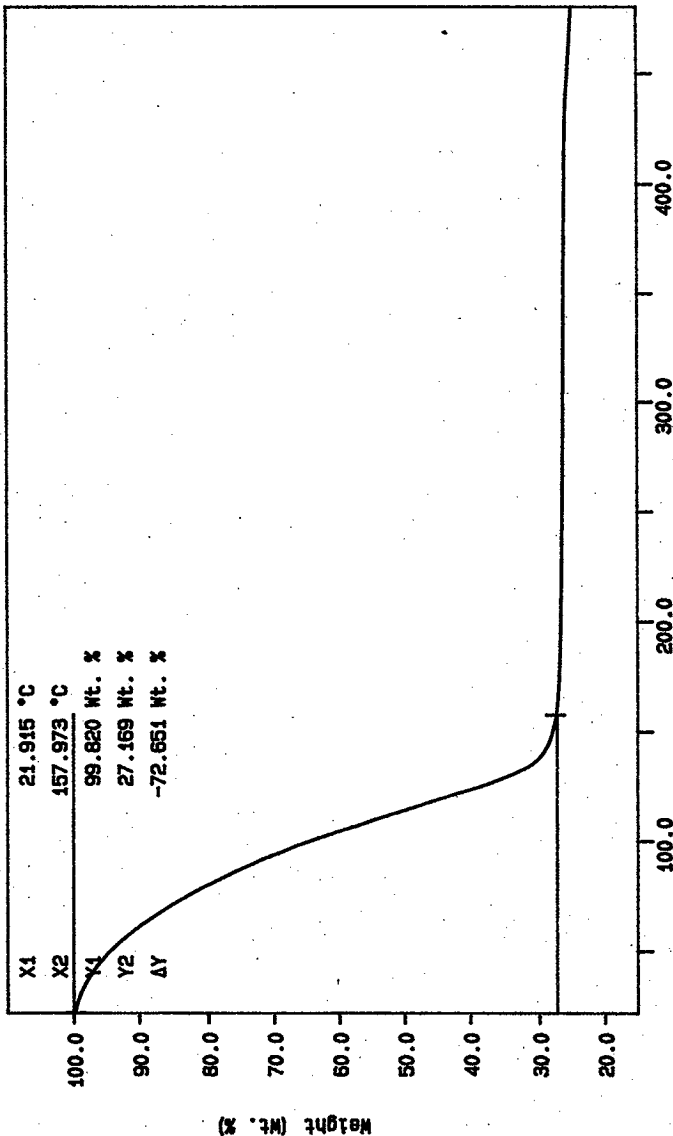
N2 10C/MIN
 TIME: 36.88
 0.0 min RATE: 40.0 C/min
 SM FULTON
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sat Mar 1 16:58:14 1997

Curve 1: TGA
File Info: SAM030101 Sat Mar 1 18:00:07 1997
Sample Weight: 23.508 mg
S97T000192



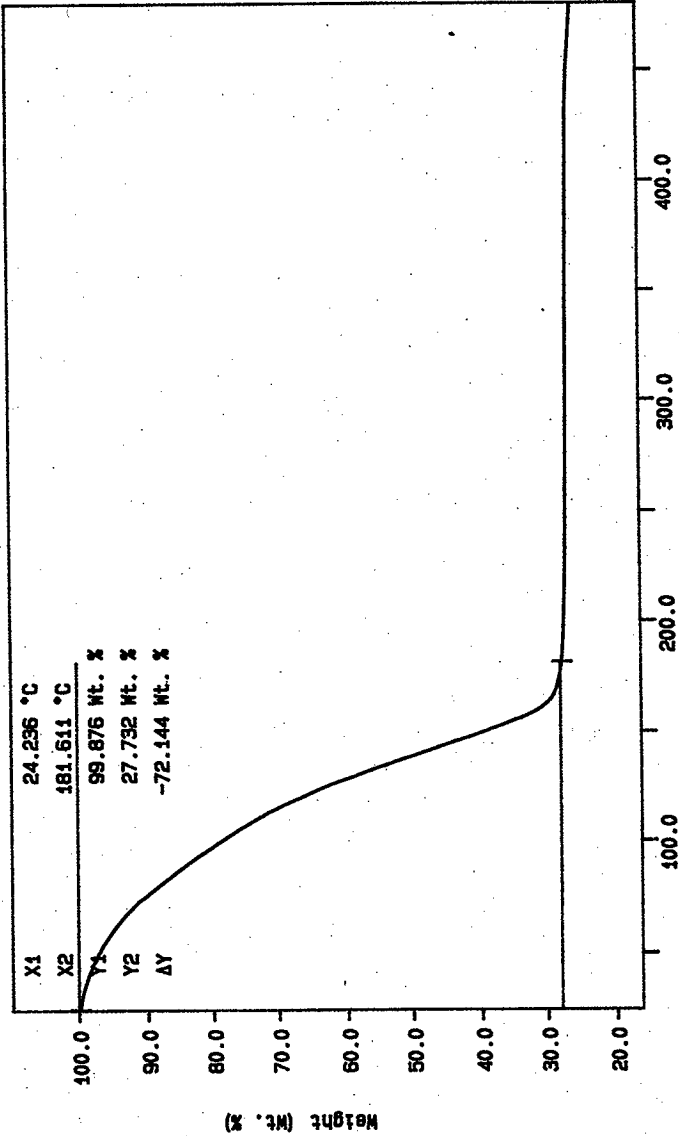
10C/MIN N2
TEMP: 35.8 °C
TIME: 06:08
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 1 18:44:10 1997

Curve 1: TGA
File Info: SAM030102 Sat Mar 1 19:33:03 1997
Sample Weight: 16.353 mg
S97T000192 DUP



10C/MIN N2
TEMP: 38.8 &
TIME: 608.8 &
TURNS: 0.0 MIN RATE: 50.0 G/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Mar 1 21:25:31 1997

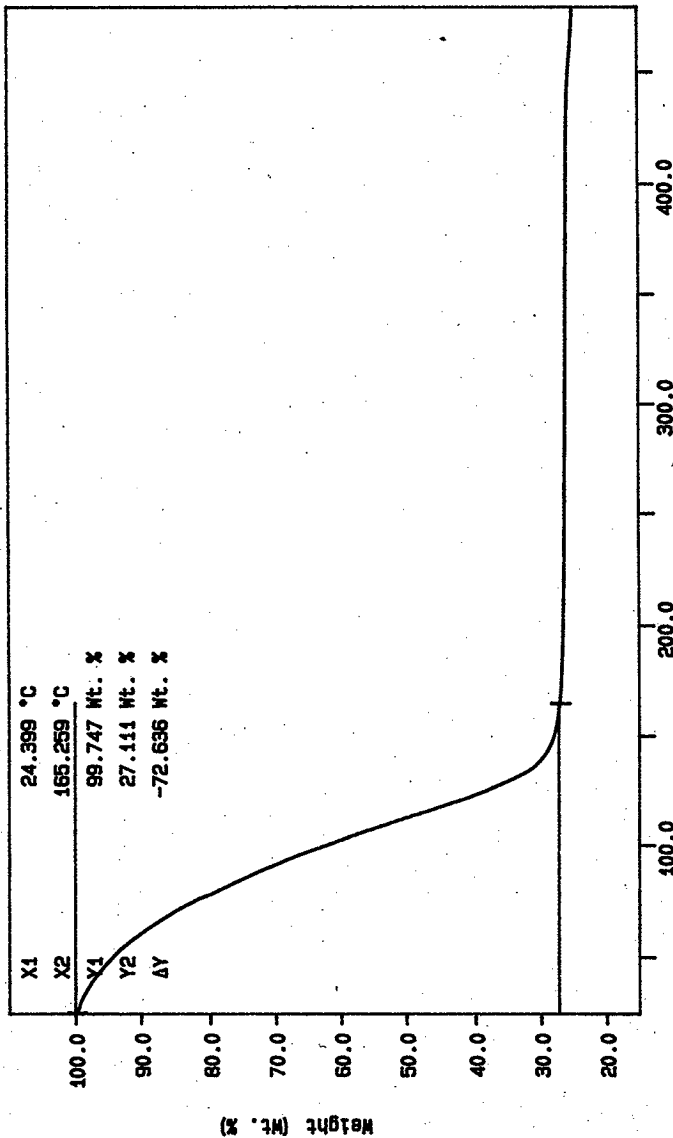
Curve 1: TGA
File Infor: SAM030103 Sat Mar 1 22:36:14 1997
Sample Weight: 32.241 mg
S97T000193



SM FLUJON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 00:15:15 1997

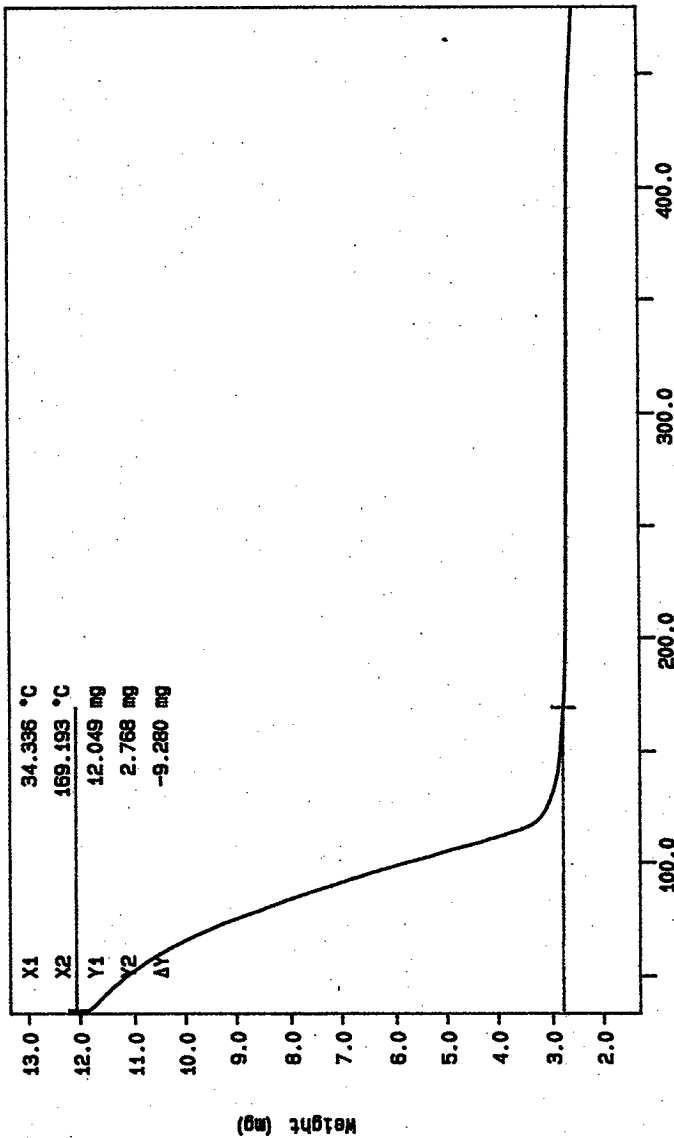
10C/MIN N2
TEMP: 33.8 C
TIME: 68.8 S
0.0 min RATE: 30.0 C/min

Curve 1: T6A
File Info: SAM030104 Sun Mar 2 00:47:29 1997
Sample Weight: 15.997 mg
S97T000193 DUP



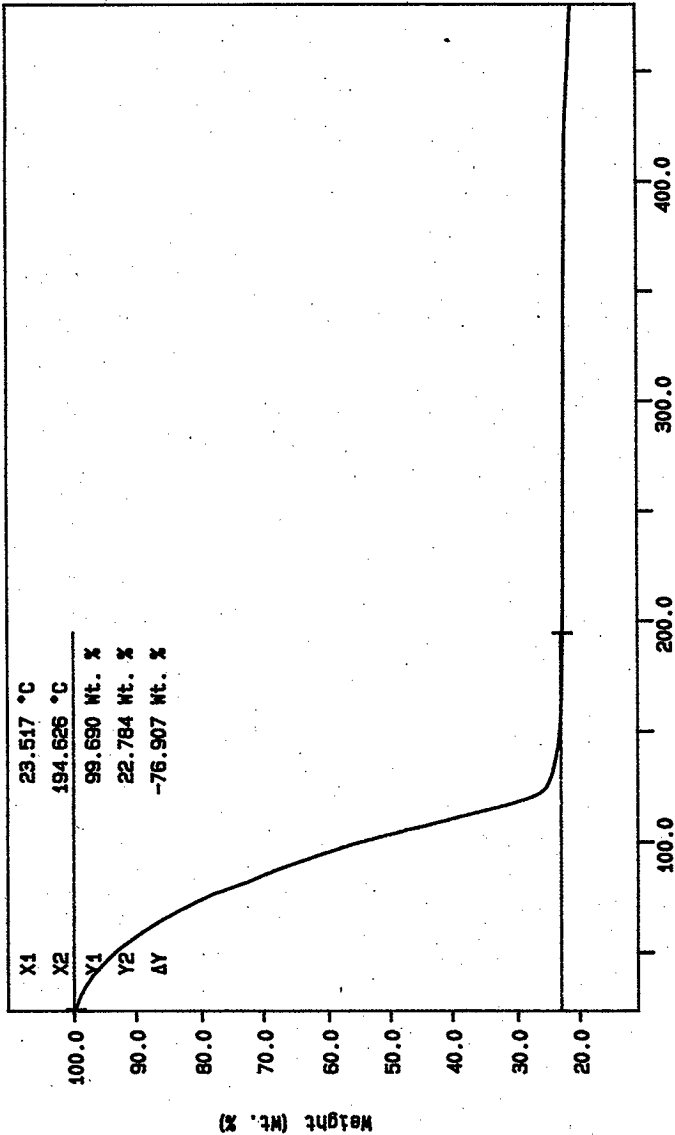
40C/MIN N2
TEMP: 30.0 °C
TIME: 00.8 s
0.0 min RATE: 10.0 C/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 00:51:52 1997

Curve 1: TGA
File Info: SAM030105 Sun Mar 2 01:52:41 1997
Sample Weight: 12.087 mg
S97T000214



10C/MIN N2
TEMP: 350.0 C
TIME: 0.0 min RATE: 40.0 C/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 02:52:03 1997

Curve 1: TGA
File info: SAM030106 Sun Mar 2 03:45:29 1997
Sample Weight: 12.235 mg
S97T00214 DUP



10C/MIN N2
TEMP: 550.0 8
TIME: 0.0 min RATE: 10.0 C/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 04:27:32 1997

LABCORE Data Entry Template for Worklist# 16831

Analyst: KRM Instrument: TGA0 3 Book # 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	SOLID	<u>59.4</u> <u>58.95*</u>	<u>N/A</u>	%
97000111	T-110	2 SAMPLE	S97T000216	0		TGA-03	SOLID	<u>N/A</u> <u>76.98</u>		%
97000111	T-110	3 DUP	S97T000216	0		TGA-03	SOLID	<u>76.98</u> <u>77.40</u>	<u>N/A</u>	%
97000111	T-110	4 SAMPLE	S97T000217	0		TGA-03	SOLID	<u>N/A</u> <u>76.27</u>		%
97000111	T-110	5 DUP	S97T000217	0		TGA-03	SOLID	<u>76.27</u> <u>76.76</u>	<u>N/A</u>	%
97000111	T-110	6 SAMPLE	S97T000218	0		TGA-03	SOLID	<u>N/A</u> <u>76.61</u>		%
97000111	T-110	7 DUP	S97T000218	0		TGA-03	SOLID	<u>76.61</u> <u>76.03</u>	<u>N/A</u>	%

Final page for worklist # 16831

See Attached for Signature
Analyst Signature Date

[Signature] 3/4/97
Analyst Signature Date

Validated: [Signature] 3/5/97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

worklist rpt Version 2.1 05/15/95
02/28/97 18:18

LABCORE Data Entry Template for Worklist# 16831

Analyst: KRM Instrument: TGA0 3 Book # 93 N/A
514-1140-3/2/97 72011B-978-3/4/97
Method: LA-360-112 Rev/Mod D-0

Worklist Comment: T-110 TGA, RUN UNDER N2: RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>58.95</u>	<u>N/A</u>	%
97000111	T-110	2 SAMPLE	S97T000216	0	TGA-01	SOLID	<u>N/A</u>	<u>76.98</u>		%
97000111	T-110	3 DUP	S97T000216	0	TGA-01	SOLID	<u>76.98</u>	<u>77.40</u>	<u>N/A</u>	%
97000111	T-110	4 SAMPLE	S97T000217	0	TGA-01	SOLID	<u>N/A</u>	<u>76.27</u>		%
97000111	T-110	5 DUP	S97T000217	0	TGA-01	SOLID	<u>76.27</u>	<u>76.76</u>	<u>N/A</u>	%
97000111	T-110	6 SAMPLE	S97T000218	0	TGA-01	SOLID	<u>N/A</u>	<u>76.61</u>		%
97000111	T-110	7 DUP	S97T000218	0	TGA-01	SOLID	<u>76.61</u>	<u>76.03</u>	<u>N/A</u>	%

Final page for worklist # 16831


Analyst Signature KRM Date 3-2-97

Analyst Signature _____ Date _____

Data Entry Comments:

Samples run using TGA-03. @ 3/4/97

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 16831 WL Comment T-110 TGA, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-03	SOLID	STD	5.94e01	58.95	99.2424	NEW	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.98	77.40	0.5441	NEW	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.27	76.76	0.6404	NEW	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.61	76.03	0.7600	NEW	03/04/97 1506	rts

Save(F12) End(F3)

WHC QCHISTORY TABLE EDIT SCREEN

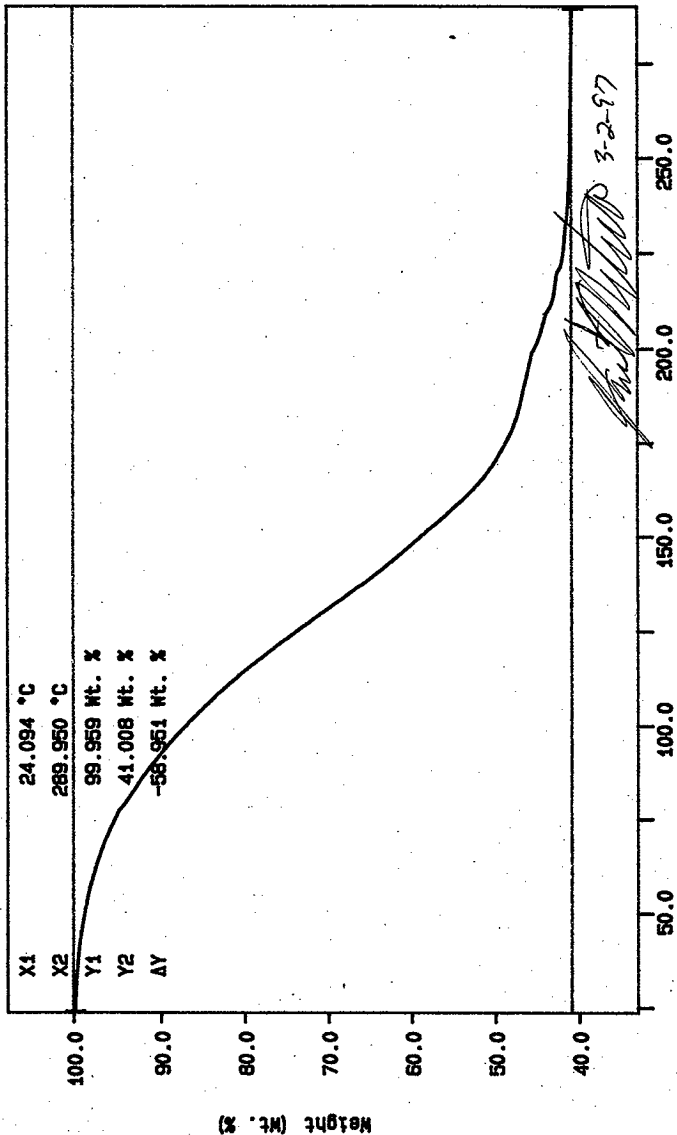
Sample# Assc Sample ID
 Group# Customer
 Worklist# 16831 WL Comment T-110 TGA, RUN UNDER N2. RCJ

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-03	SOLID	STD	5.94e01	58.95*	99.2424	TEXT	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.98	77.40	0.5441	NEW	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.27	76.76	0.6404	NEW	03/04/97 1506	rts
TGA-03	SOLID	DUP	76.61	76.03	0.7600	NEW	03/04/97 1506	rts

Save(F12) End(F3)

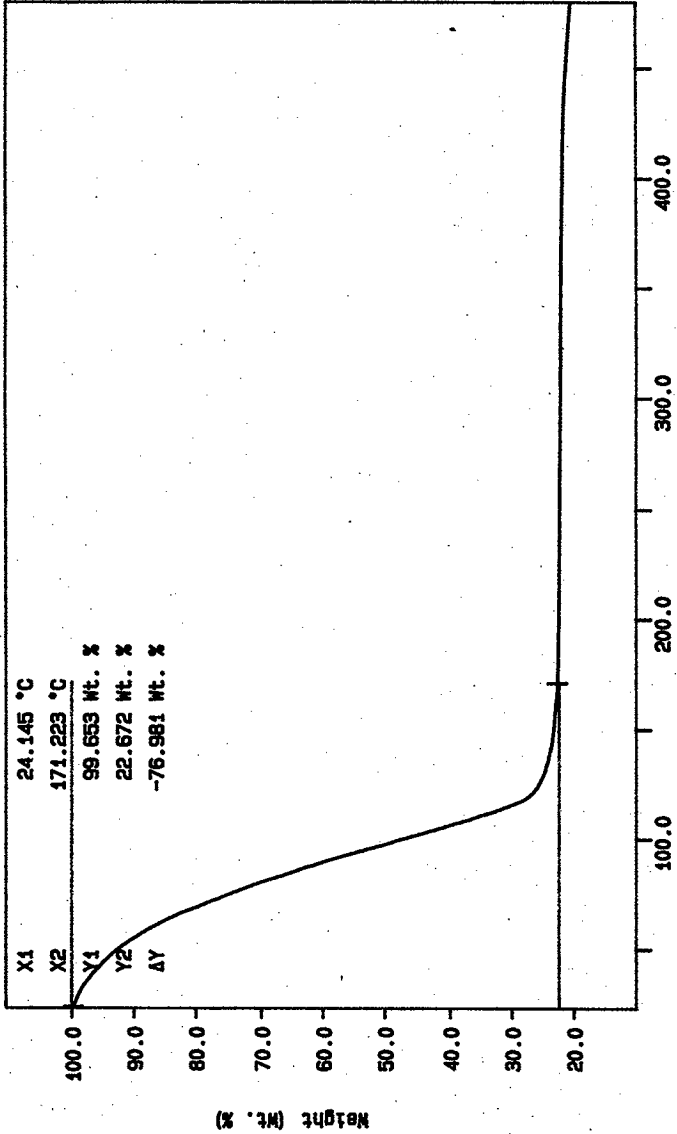
Curve 1: TGA
File Info: TER030201 Sun Mar 2 05:00:09 1997
Sample Weight: 25.691 mg
TGA STD 97N6-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 401 TO 402.



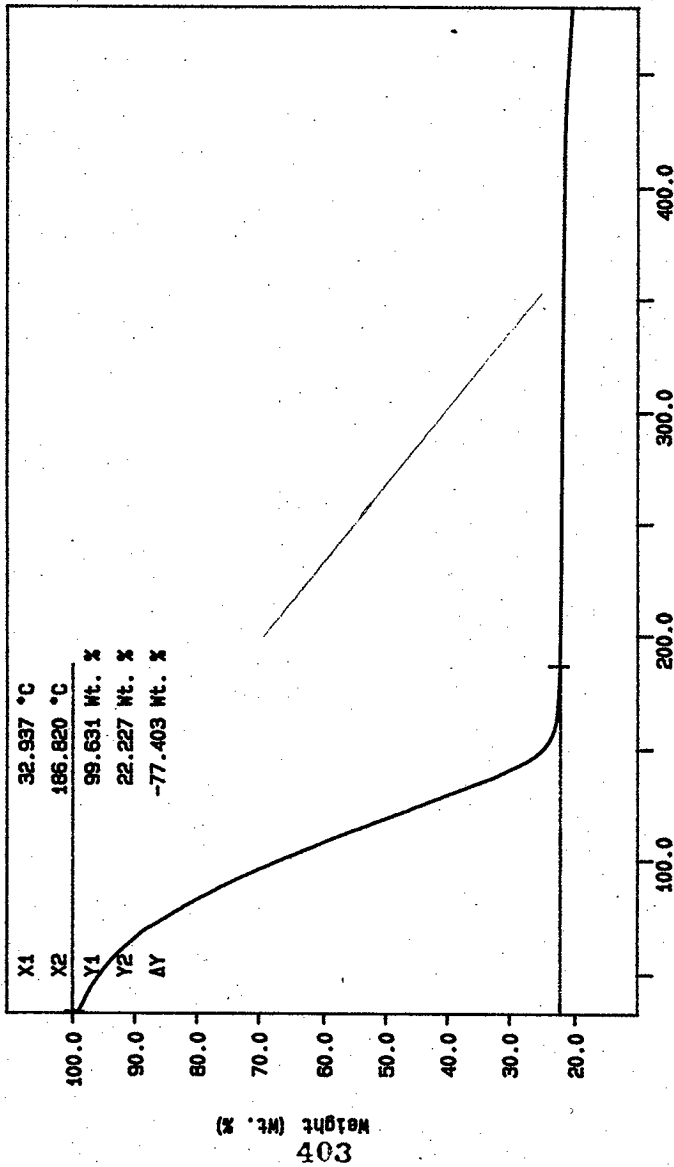
N2 10C/MIN
 TEMP: 35.8 8
 TMR: 300.8 8
 0.0 min RATE: 10.0 C/min
 Temperature (°C)
 JD SPELLMAN
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sun Mar 2 17:14:46 1997

Curve 1: TGA
File Info: SAM030205 Sun Mar 2 17:41:46 1997
Sample Weight: 15.168 mg
S97T000216



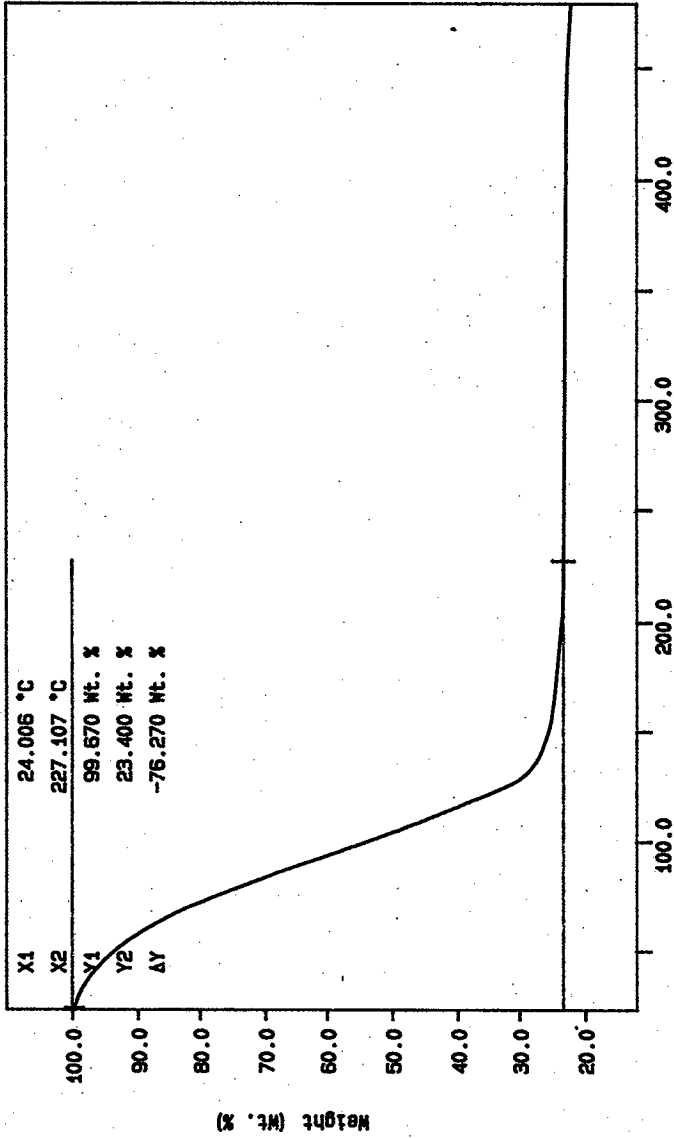
100/MIN N2
TIME 000.0 g
TIME 0.0 min RATE: 10.0 C/min
KB MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 17:51:41 1997

Curve 1: TGA
File info: SAM030206 Sun Mar 2 16: 46: 27 1997
Sample Weight: 25.149 mg
S97T000216 DUP



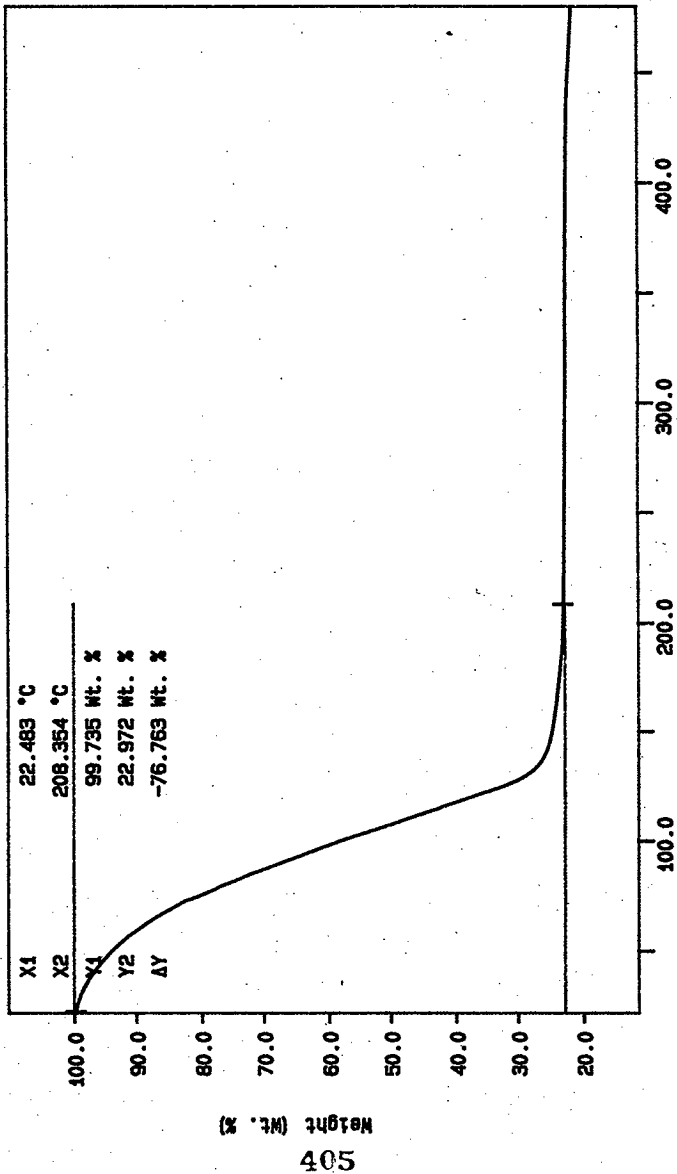
10C/MIN N2
TEMP: 30.0 S TIME: 0.0 min RATE: 10.0 C/min
KR MONTEITH
PERKIN-ELMER
7 Ser188 Thermal Analysis System
Sun Mar 2 19:22:43 1997

Curve 1: TGA
File info: SAK030207 Sun Mar 2 20: 15: 59 1997
Sample Weight: 16.478 mg
S97T000217



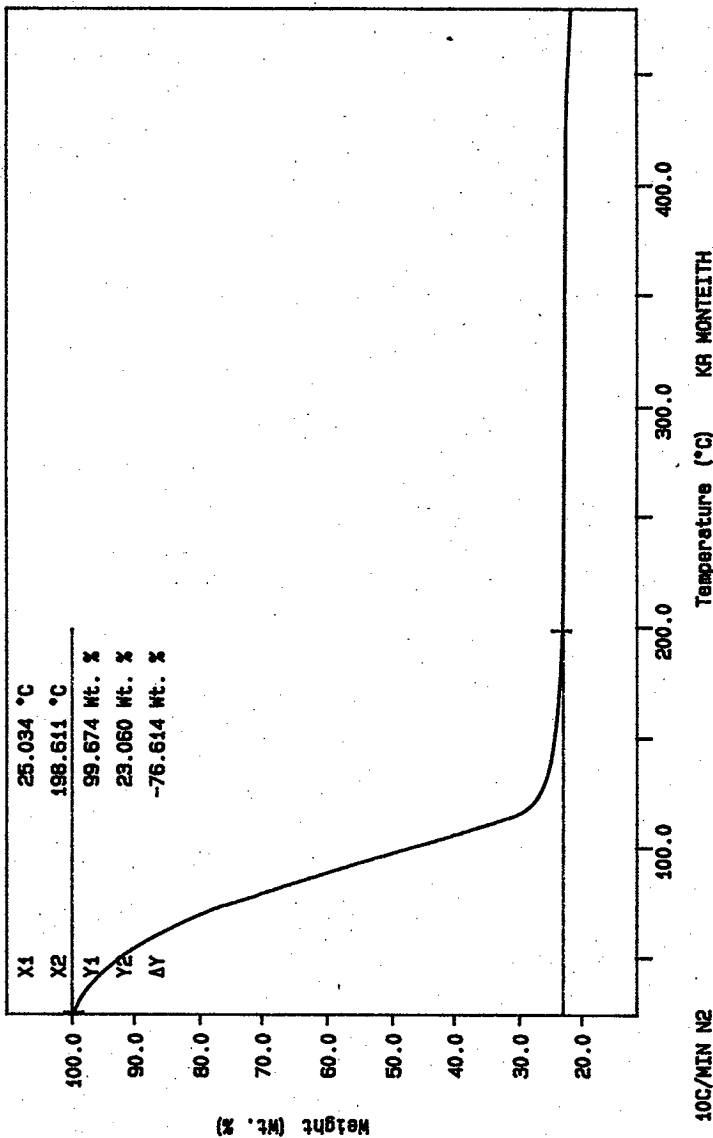
100/MIN N2
TIME: 00:08
TIME: 00:08
10.0 min RATE: 10.0 C/min
Temperature (°C)
KB MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 23: 23: 53 1997

Curve 1: TGA
 File info: SAM030208 Sun Mar 2 22:12:59 1997
 Sample Weight: 18.389 mg
 S97T000217 DUP



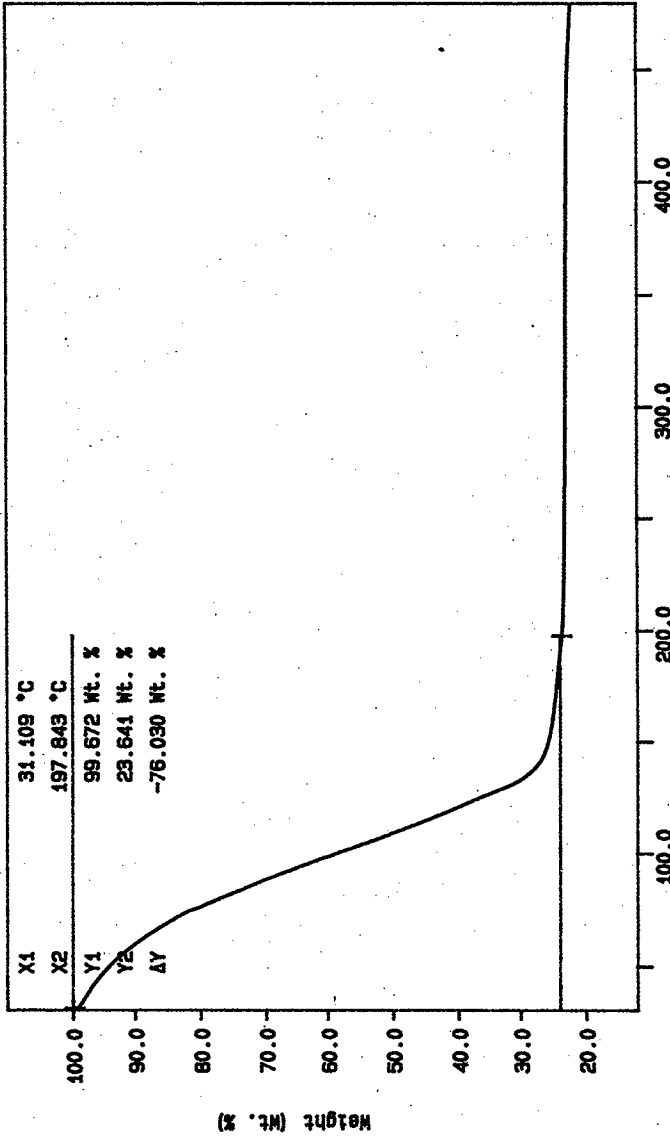
100/MIN N2
 50.0 g
 500.0 g
 TIME: 0.0 min RATE: 10.0 C/min
 KR MONTEITH
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Sun Mar 2 23:36 1997

Curve 1: TGA
 File Info: SAM03029 Mon Mar 3 00:16:25 1997
 Sample Weight: 13.047 mg
 S977000218



10C/MIN N2
 TGA
 0.0 min RATE: 10.0 C/min
 TIME: 00:08
 KB MONTEITH
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Mar 3 00:36:35 1997

Curve 1: T6A
File Infor: SAM030210 Mon Mar 3 01: 24: 18 1997
Sample Weight: 19.808 mg
S977000218 DUP



100./MIN N2
TEMP: 55.8 8
TIME: 05.8 8
0.0 min RATES: 10.0 c/min
Temperature (°C)
KR MONTEITH
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 07: 15: 59 1997

LABCORE Data Entry Template for Worklist# 16832

Analyst: JDS Instrument: TGA0 3 Book # 9778A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-03	SOLID	<u>59.4</u> <u>58.63</u>	<u>N/A</u>	%
97000111	T-110	2 SAMPLE	S97T000219	0		TGA-03	SOLID	<u>N/A</u> <u>76.26</u>		%
97000111	T-110	3 DUP	S97T000219	0		TGA-03	SOLID	<u>76.26</u> <u>74.80</u>	<u>N/A</u>	%
97000111	T-110	4 SAMPLE	S97T000220	0		TGA-03	SOLID	<u>N/A</u> <u>77.15</u>		%
97000111	T-110	5 DUP	S97T000220	0		TGA-03	SOLID	<u>77.15</u> <u>76.60</u>	<u>N/A</u>	%

Final page for worklist # 16832

See Attached for Signature
Analyst Signature _____ Date _____

St. Black 3/4/97
Analyst Signature _____ Date _____

Validated: Shachin 3/5/97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16832

Analyst: Jds Instrument: TGA0 3 Book # 12NUR ~~888~~ 3/4/97
514-114 3/4/97
Method: LA-560-112 Rev/Mod D0 97NBA

Worklist Comment: T-110 TGA, RUN UNDER N2: RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	<u>59.4</u>	<u>58.63</u>	<u>N/A</u> %
97000111	T-110	2 SAMPLE	S97T000219	0		TGA-01	SOLID	<u>N/A</u>	<u>76.26</u>	%
97000111	T-110	3 DUP	S97T000219	0		TGA-01	SOLID	<u>76.26</u>	<u>74.80</u>	<u>N/A</u> %
97000111	T-110	4 SAMPLE	S97T000220	0		TGA-01	SOLID	<u>N/A</u>	<u>77.15</u>	%
97000111	T-110	5 DUP	S97T000220	0		TGA-01	SOLID	<u>77.15</u>	<u>76.60</u>	<u>N/A</u> %

Final page for worklist # 16832

Jds 3-2/97
Analyst Signature Date

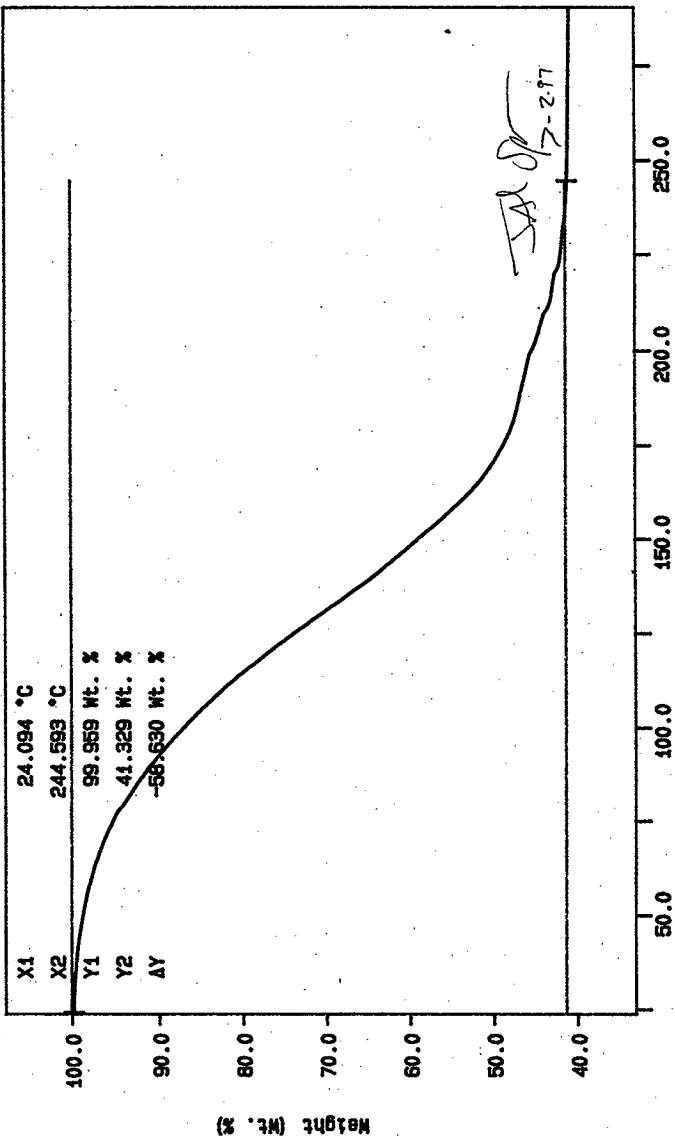
[Signature] 3/4/97
Analyst Signature Date

Data Entry Comments:
Run using TGA-03. 3/4/97

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TERO30201 Sun Mar 2 05:00:09 1997
Sample Weight: 25.691 mg
TGA STD 97NB-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 410 TO 414.



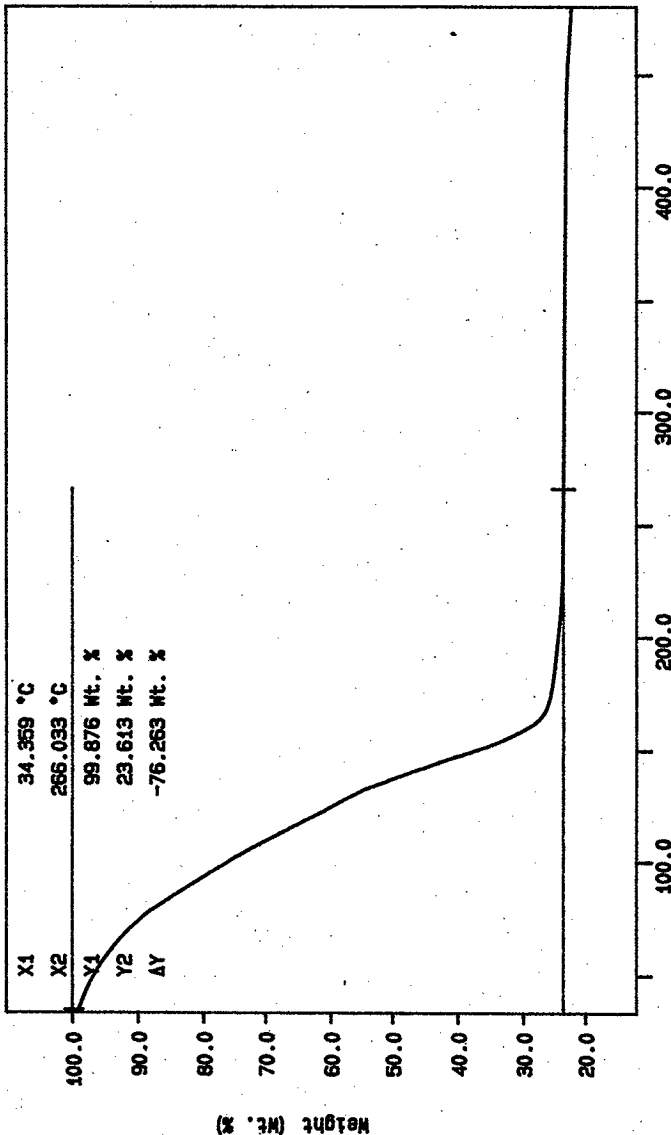
Weight (wt. %)
410

N2 100/MLIN
TEMP 35.8 C
TEMP 306.8 C
TZRMIN 0.0 min RATEL 10.0 C/min
Temperature (°C)
250.0
200.0
150.0
100.0
50.0

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 05:01:24 1997

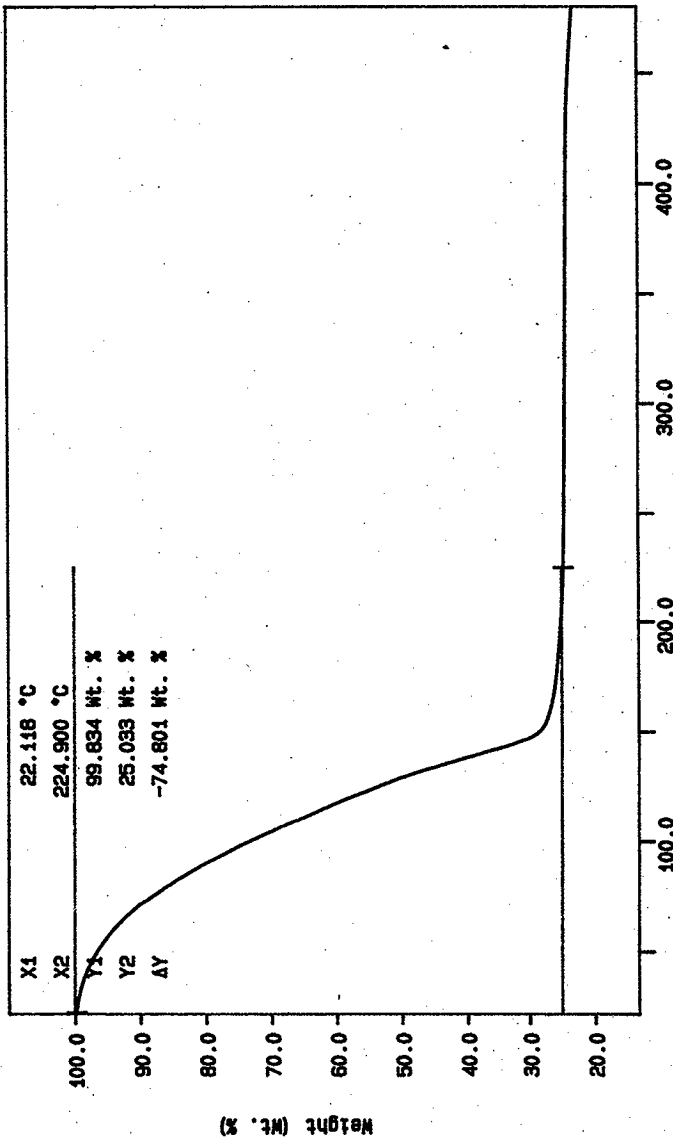
J. Spellman
7-2-97

Curve 1: TGA
File Info: SAM030201 Sun Mar 2 06:03:00 1997
Sample Weight: 31.625 mg
S977000219



10C/MIN N2
THERM 688.8 8 THERM 0.0 min RATE: 10.0 C/min
JD SPELTMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 06:13 1997

Curve 1: TGA
File info: SAM030202 Sun Mar 2 09: 44: 46 1997
Sample Weight: 33.169 mg
897T000219DUP



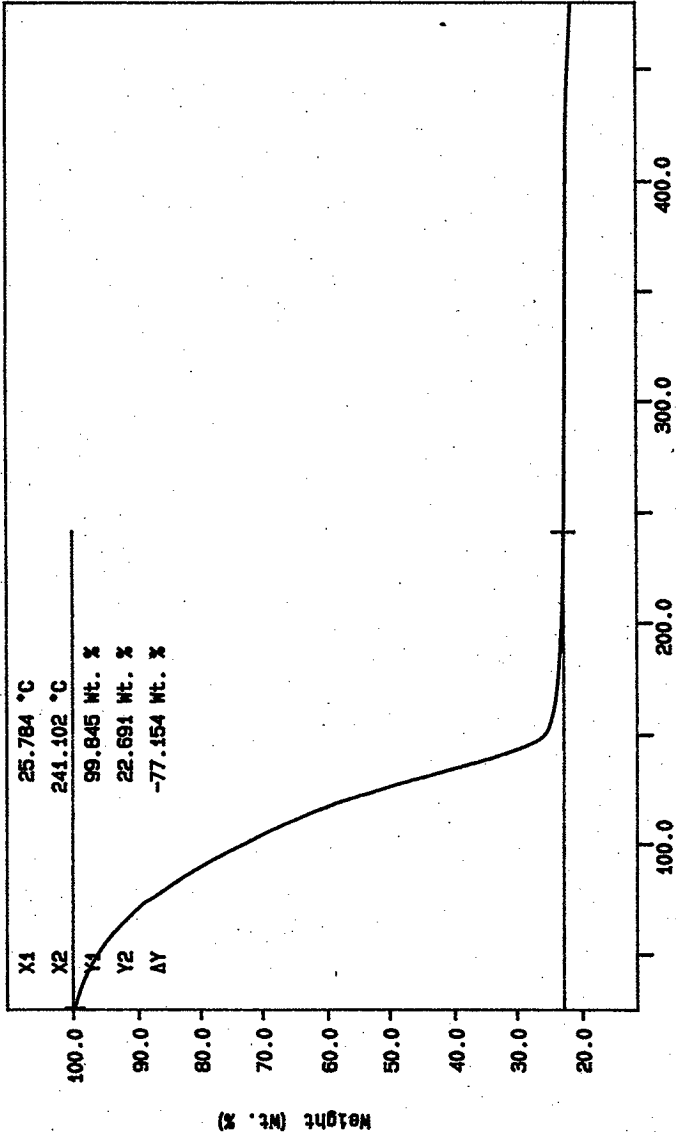
100/MIN N2
TEMP 55.8 8
TIME 55.8 8

0.0 MIN RATE: 10.0 C/min

Temperature (°C)

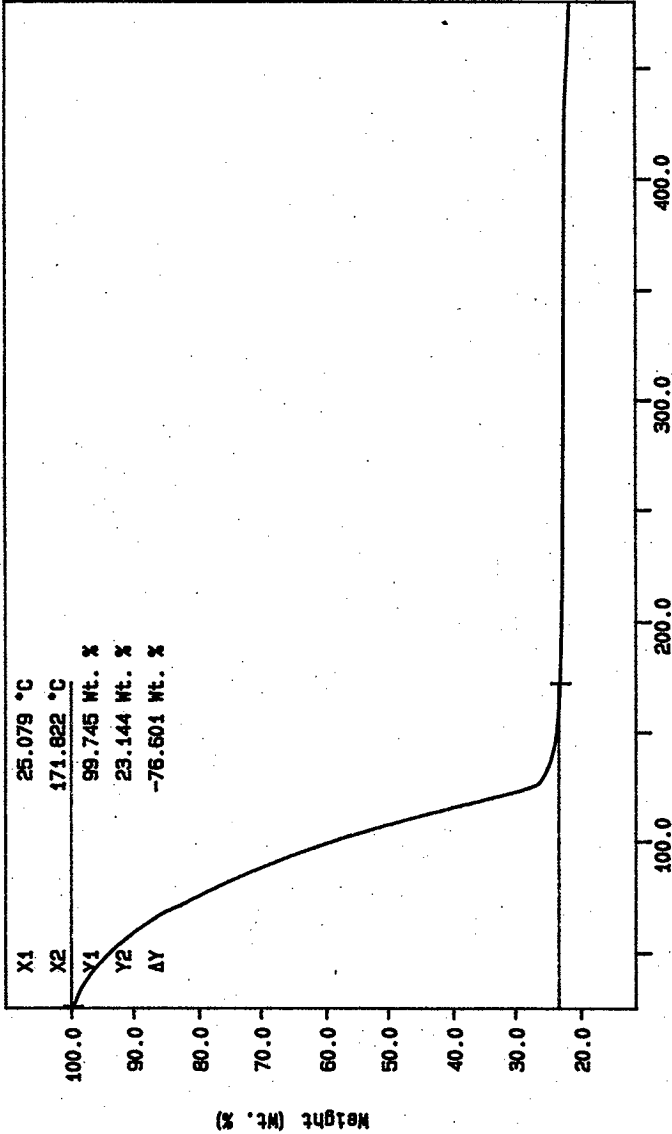
JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 13: 32: 28 1997

Curve 1: TGA
File info: SAM030203 Sun Mar 2 14: 22: 31 1997
Sample Weight: 26.076 mg
SS7T000220



10C/MIN N2
TEMP 55.0 8
TIME 55.0 8
0.0 MIN RATE 10.0 C/MIN
JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
SUN Mar 2 15: 01: 01 1997

Curve 1: TGA
File Info: SAM030204 Sun Mar 2 15:52:31 1997
Sample Weight: 15.894 mg
S97T00220DUP



10C/MIN N2
TEMP 550.8
TIME 8
0.0 min RATE: 10.0 C/min
Temperature (°C)
400.0
300.0
200.0
100.0
20.0

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Mar 2 16:56:48 1997

LABCORE Data Entry Template for Worklist# 16833

Analyst: RWK Instrument: TGA0 3 Book # 97N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-03	SOLID	<u>59.4</u>	<u>58.72</u>	<u>N/A</u>	<u>%</u>
97000111	T-110	2 SAMPLE	S97T000221	0	TGA-03	SOLID	<u>N/A</u>	<u>71.95</u>	<u> </u>	<u>%</u>
97000111	T-110	3 DUP	S97T000221	0	TGA-03	SOLID	<u>71.95</u>	<u>71.32</u>	<u>N/A</u>	<u>%</u>
97000111	T-110	4 SAMPLE	S97T000222	0	TGA-03	SOLID	<u>N/A</u>	<u>72.80</u>	<u> </u>	<u>%</u>
97000111	T-110	5 DUP	S97T000222	0	TGA-03	SOLID	<u>72.80</u>	<u>74.87</u>	<u>N/A</u>	<u>%</u>

Final page for worklist # 16833

Attached
See Analyst for Signature
Analyst Signature Date

Ray Vennart 3-4-97
Analyst Signature Date

Validated: *Rachelor 3/5/97*

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 16833

Analyst: PK Instrument: TGA0 3 Book # 9708-A

Method: LA-560-112 Rev/Mod D-0
514-114 ~~022~~ 3/1/97

Worklist Comment: T-110 TGA, RUN UNDER N2. 'RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u> 28.45	<u>58.72</u>	N/A	%
97000111	T-110	2 SAMPLE	S97T000221	0	TGA-01	SOLID	<u>N/A</u>	<u>71.95</u>		%
97000111	T-110	3 DUP	S97T000221	0	TGA-01	SOLID	<u>71.95</u>	<u>71.32</u>	N/A	%
97000111	T-110	4 SAMPLE	S97T000222	0	TGA-01	SOLID	<u>N/A</u>	<u>72.80</u>		%
97000111	T-110	5 DUP	S97T000222	0	TGA-01	SOLID	<u>72.80</u>	<u>74.87</u>	N/A	%

Final page for worklist # 16833

PK 3/3/97
Analyst Signature Date
Suzanne M. Dulton 3-4-97

Analyst Signature Date

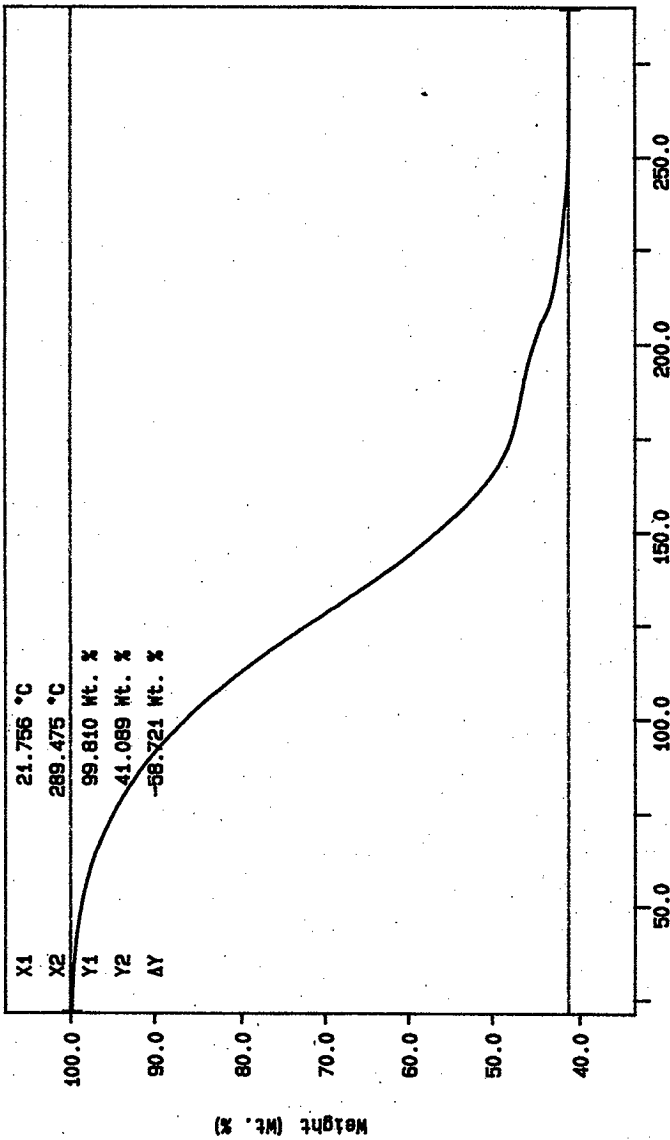
Data Entry Comments:

Ran samples using ~~DL-D-TGA-03~~

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Curve 1: TGA
File info: TER030301 Mon Mar 3 07:57:16 1997
Sample Weight: 20.733 mg
TGA STD 97N8-A

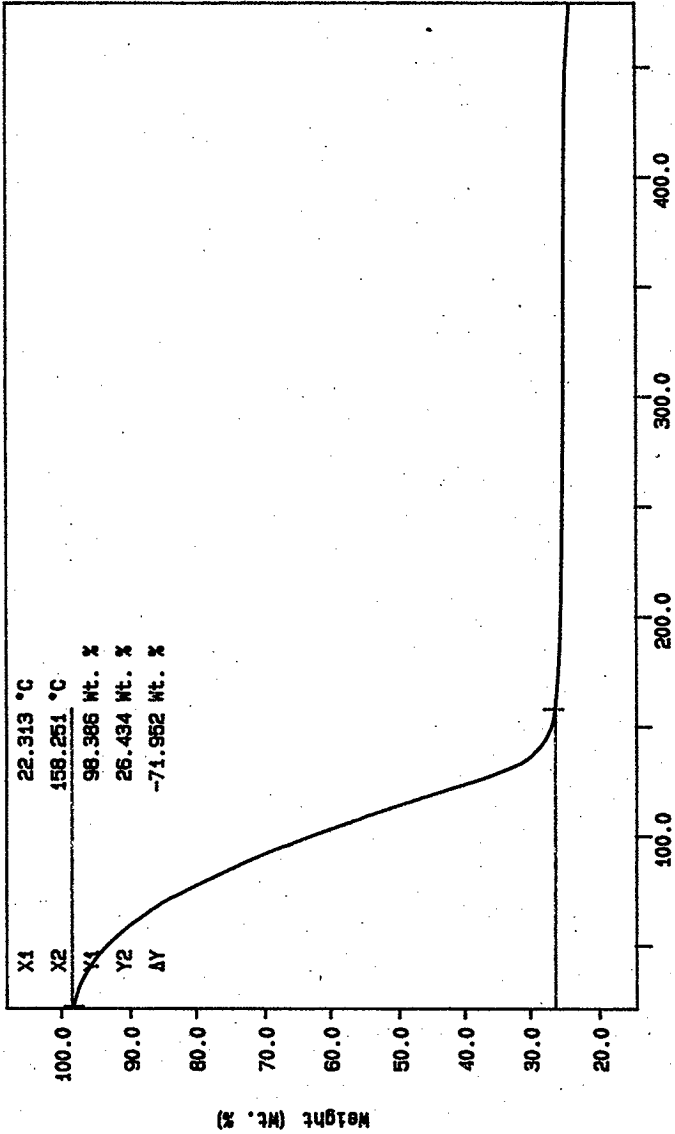
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 417 TO 421.



N2 100/MIN
 TEMPE 350.0 8
 TIME: 55.0 8
 0.0 min RATE: 10.0 C/min
 RM KING
 PERKIN-ELMER
 7 Series Thermal Analysis System
 Mon Mar 3 08:18:24 1997

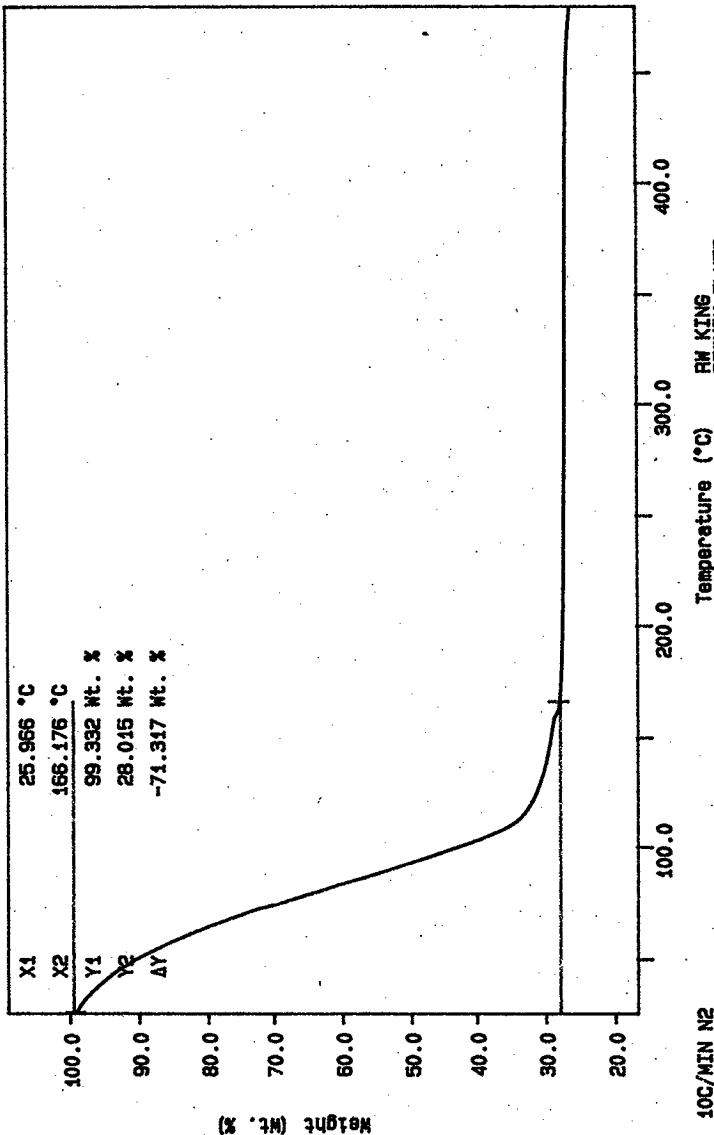
Frachet 5/12/97

Curve 1: T6A
File Info: SAK030301 Mon Mar 3 09:21:23 1997
Sample Weight: 17.525 mg
S97T000221



10C/MIN N2
TEMP: 58.8 8
TIME: 0.0 min RATE: 10.0 C/min
FW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 16:52:25 1997

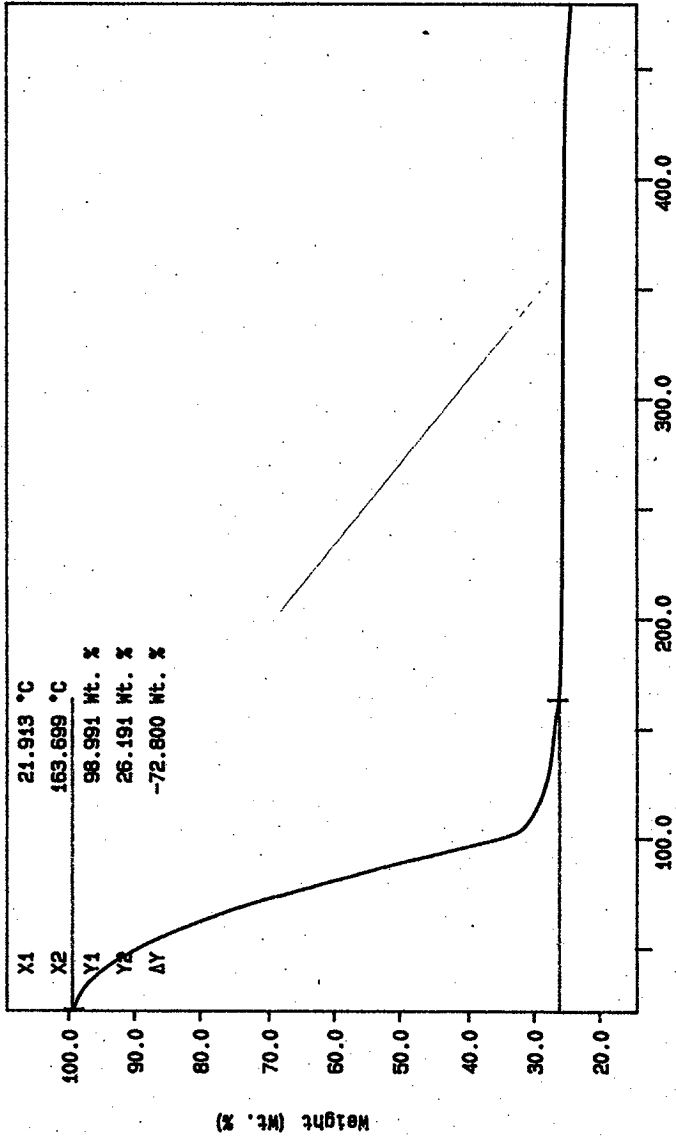
Curve 1: TGA
File Info: SAM030302 Mon Mar 3 10:33:17 1997
Sample Weight: 10.067 mg
S97T000221 DUP



RM KING
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 17:00:26 1997

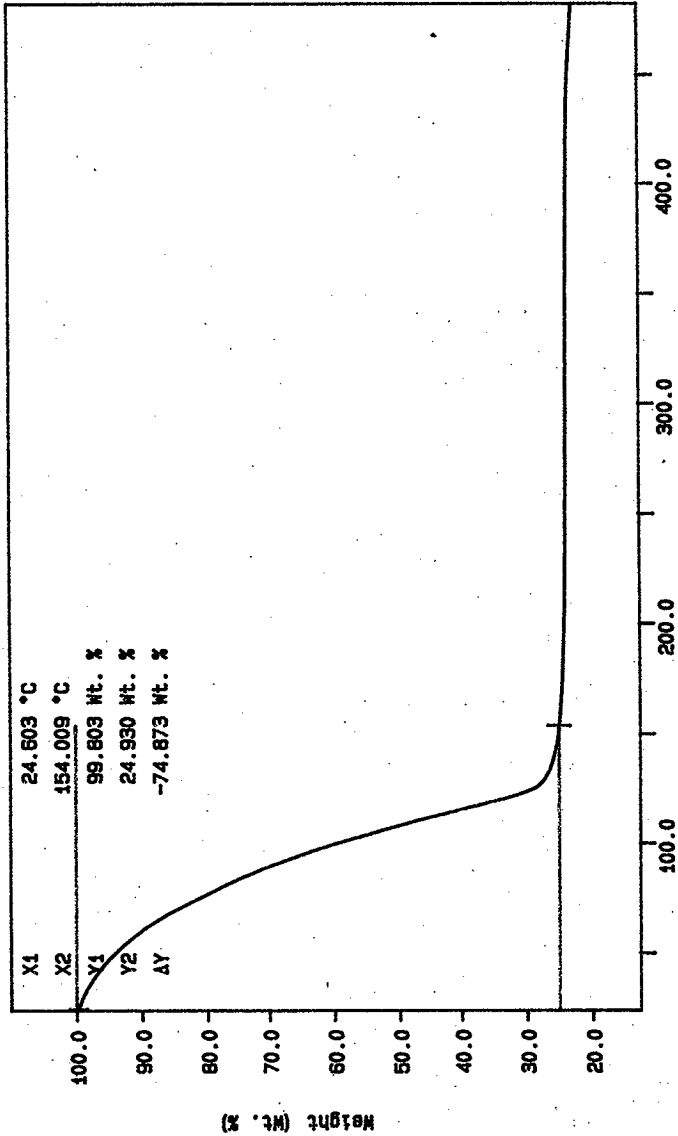
100/MIN N2
TEMP: 35.8 °C
TIME: 00:08
0.0 min RATE: 10.0 C/min

Curve 1: TGA
File Info: SAM030303 Mon Mar 3 16: 00: 53 1997
Sample Weight: 9.016 mg
S977000222



10C/MIN N2
TIME: 00:08
TUNES: 0.0 min RATE: 10.0 g/min
RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 16: 30: 56 1997

Curve 1: TGA
File Info: SAM030304 Mon Mar 3 20:08:23 1997
Sample Weight: 13.540 mg
S97T000222 DUP



10C/MIN N2
TEMP: 33.8 C
TIME: 00.8 S
0.0 min RATE: 10.0 c/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Mon Mar 3 21:40:01 1997

LABCORE Data Entry Template for Worklist# 17028

Analyst: Rjm Instrument: TGA0 1 Book # 97N8A

Method: LA-560-112 Rev/Mod C-0

Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	<u>59.4</u>	<u>59.17</u>	<u>N/A</u> %
97000083	T-110	2 SAMPLE	S97T000168	0		TGA-01	SOLID	<u>N/A</u>	<u>74.89</u>	%
97000083	T-110	3 DUP	S97T000168	0		TGA-01	SOLID	<u>74.89</u>	<u>75.12</u>	<u>N/A</u> %
97000083	T-110	4 SAMPLE	S97T000170	0		TGA-01	SOLID	<u>N/A</u>	<u>75.28</u>	%
97000083	T-110	5 DUP	S97T000170	0		TGA-01	SOLID	<u>75.28</u>	<u>75.57</u>	<u>N/A</u> %

Final page for worklist # 17028

Rjm 3/15/97
Analyst Signature Date

Rjm 3-18-97
Analyst Signature Date

Validated 3/20/97 Rjm

Checked 3B
3-17-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 17028 WL Comment T-110, TGA-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	59.17	99.6128	NEW	03/18/97 1813	rcj
TGA-01	SOLID	DUP	74.89	75.12	0.3066	NEW	03/18/97 1813	rcj
TGA-01	SOLID	DUP	75.28	75.57	0.3845	NEW	03/18/97 1813	rcj

.Save (F12) End (F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 17028 WL Comment T-110, TGA-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	59.17*	99.6128	TEXT	03/18/97 1813	rcj
TGA-01	SOLID	DUP	74.89	75.12	0.3066	NEW	03/18/97 1813	rcj
TGA-01	SOLID	DUP	75.28	75.57	0.3845	NEW	03/18/97 1813	rcj

Save (F12) End (F3)

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 485 TO 489.

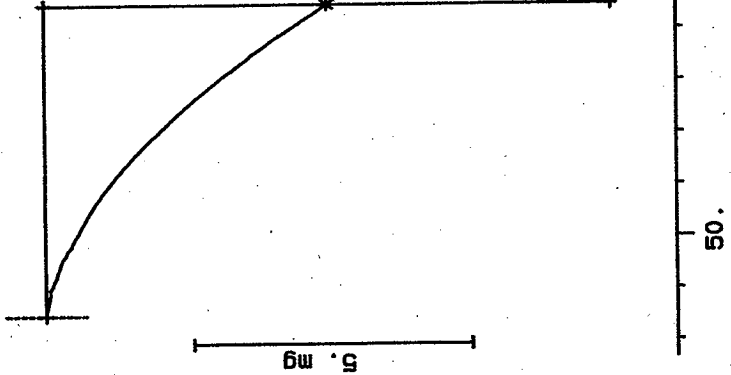
TGA STD 97NB-A N2
17.159 mg

Rate: 10.0 °C/min

F11: 00012.001 TG METTLER 14-Mar-97
Ident: 0.0 222-S Laboratory

Phuclown 3/15/97

Step Analysis
Height--10.15 mg
-59.17 %
Resic. 7.01 mg
40.83 %
Dpeak 90.8 °C

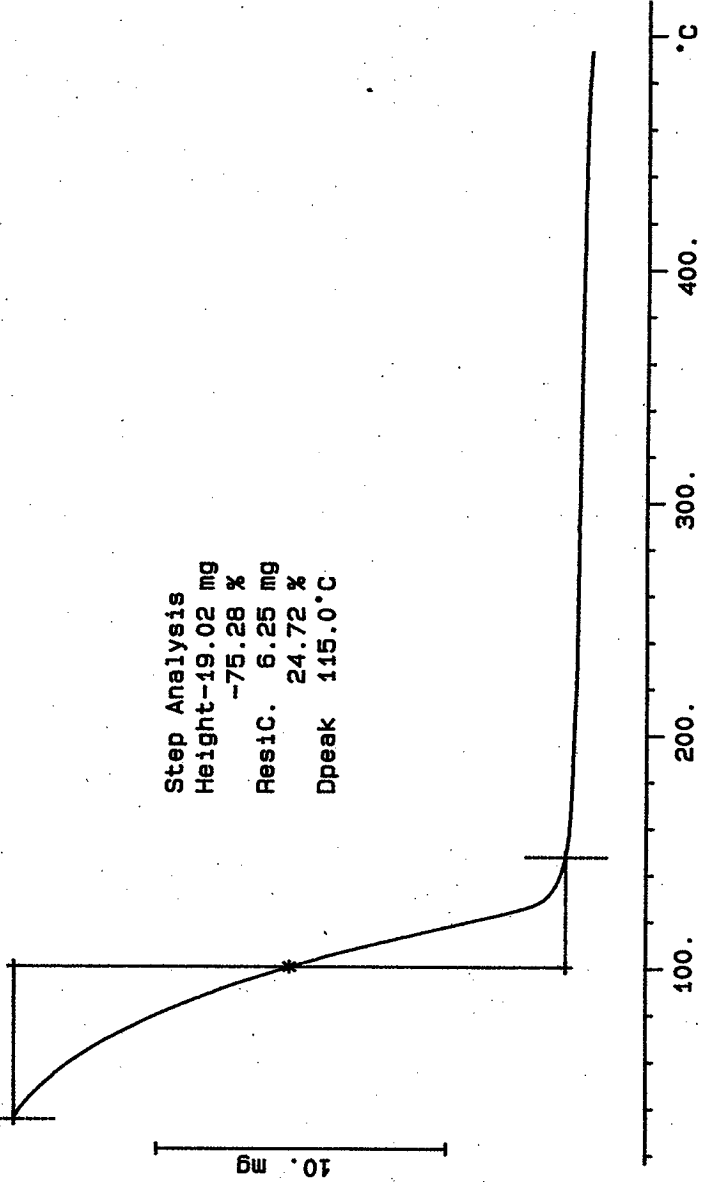


S97T000170 SAM N2
25.273 mg

File: 00026.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory

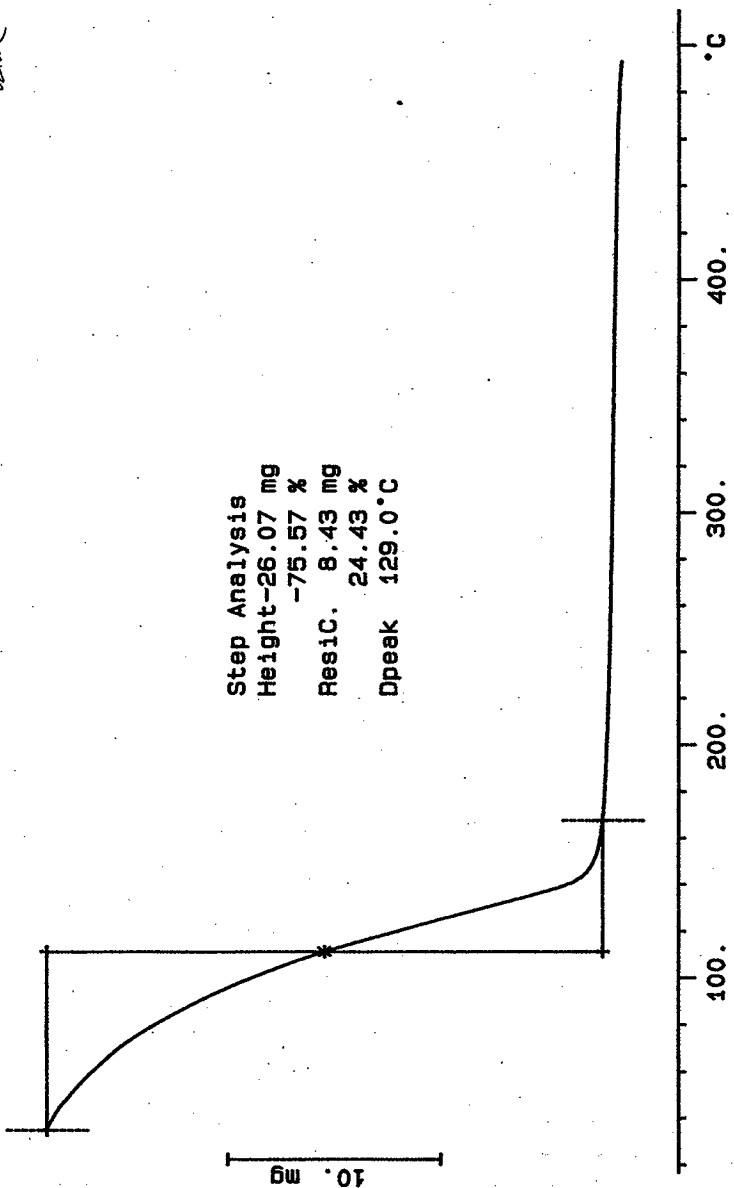
Rate: 10.0 °C/min

Step Analysis
Height-19.02 mg
-75.28 %
Resid. 6.25 mg
24.72 %
Dpeak 115.0 °C



S97T000170 DUP N2
34.503 mg
Rate: 10.0 °C/min
TG METTLER 15-Mar-97
222-S Laboratory
Ident: 0.0
Blue

Step Analysis
Height-26.07 mg
-75.57 %
Resid. 8.43 mg
24.43 %
Dpeak 129.0 °C



LABCORE Data Entry Template for Worklist# 17029

Analyst: SME Instrument: TGA0 1 Book # 7730-SMF 3-17-97
9708-A
Method: LA-560-112 Rev/Mod C-0
Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S	TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	STD				TGA-01	SOLID	<u>59.4</u>	<u>59.71</u>	<u>N/A</u>	%
97000083	T-110	2	SAMPLE	S97T000174	0		TGA-01	SOLID	<u>N/A</u>	<u>76.26</u>		%
97000083	T-110	3	DUP	S97T000174	0		TGA-01	SOLID	<u>76.26</u>	<u>75.78</u>	<u>N/A</u>	%
97000083	T-110	4	SAMPLE	S97T000175	0		TGA-01	SOLID	<u>N/A</u>	<u>65.37</u>		%
97000083	T-110	5	DUP	S97T000175	0		TGA-01	SOLID	<u>65.37</u>	<u>75.33</u>	<u>N/A</u>	%

Final page for worklist # 17029

Susan M. Dutton 3-17-97
Analyst Signature Date

[Signature] 3-18-97
Analyst Signature Date

Validated 3/20/97 [Signature]

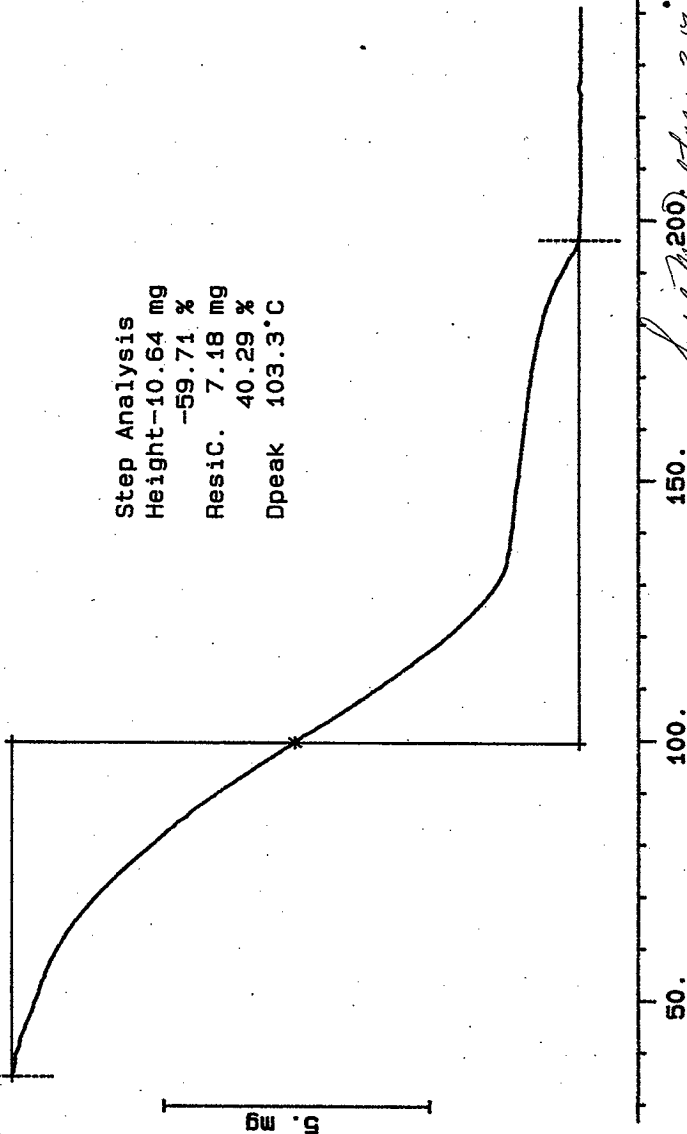
Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 421 TO 425

TGA STD 97N8-A File: 00080.001 TG METTLER 47-Mar-97
 17.814 mg Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory

Step Analysis
 Height-10.64 mg
 -59.71 %
 Resic. 7.18 mg
 40.29 %
 Dpeak 103.3 °C



James M. Sutton
 200
 3-17-97

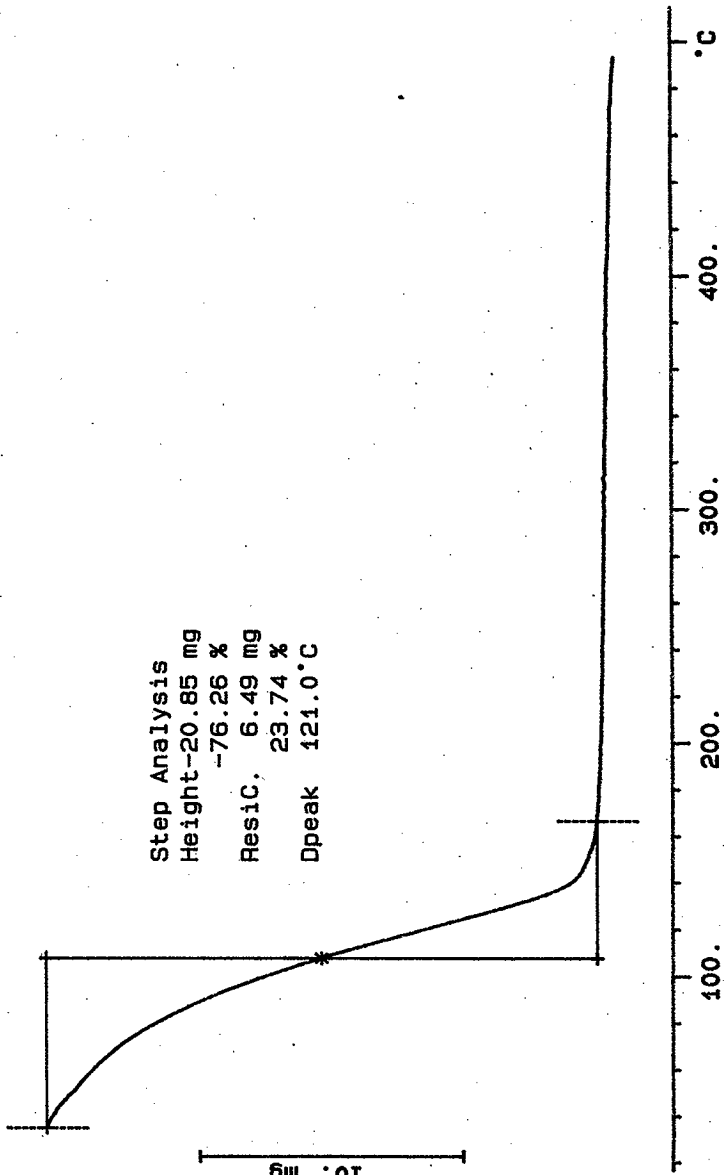
S97T000174 N2
27.341 mg

Rate: 10.0 °C/min

File: 00081.001 TG METTLER 17-Mar-97
Ident: 0.0 222-S Laboratory

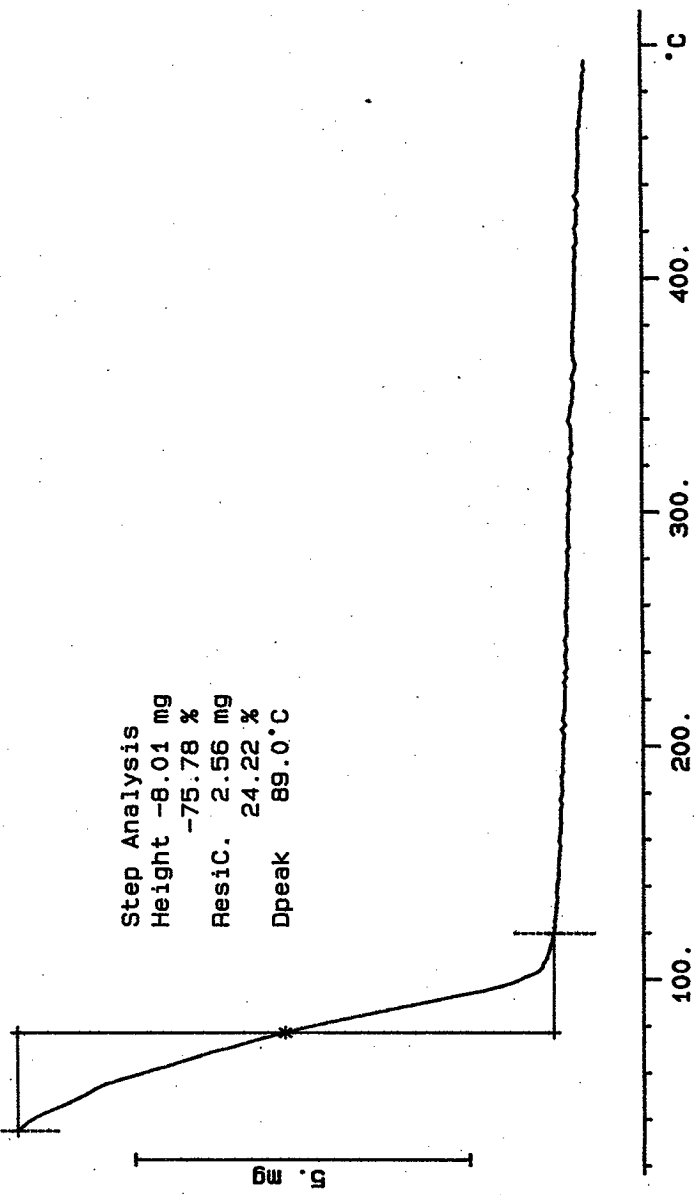
Step Analysis
Height-20.85 mg
-76.26 %
Resic, 6.49 mg
23.74 %
Dpeak 121.0 °C

10. mg



S97T000174 DUP N2
10.565 mg
Rate: 10.0 °C/min
File: 00082.001 TG METTLER 17-Mar-97
Ident: 0.0 222-S Laboratory

Step Analysis
Height -8.01 mg
-75.78 %
Resid. 2.56 mg
24.22 %
Dpeak 89.0 °C



S97T000175 N2

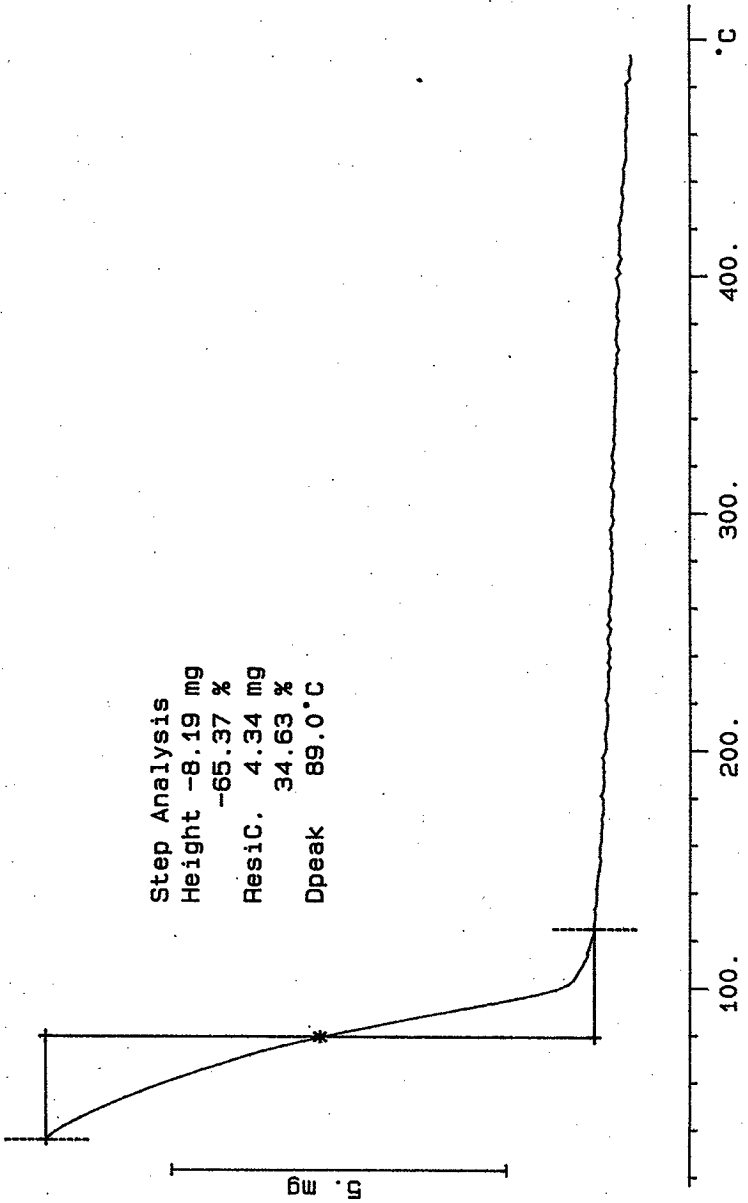
12.524 mg

Rate: 10.0 °C/min

File: 00083.001 TG METTLER 17-Mar-97

Ident: 0.0 222-S Laboratory

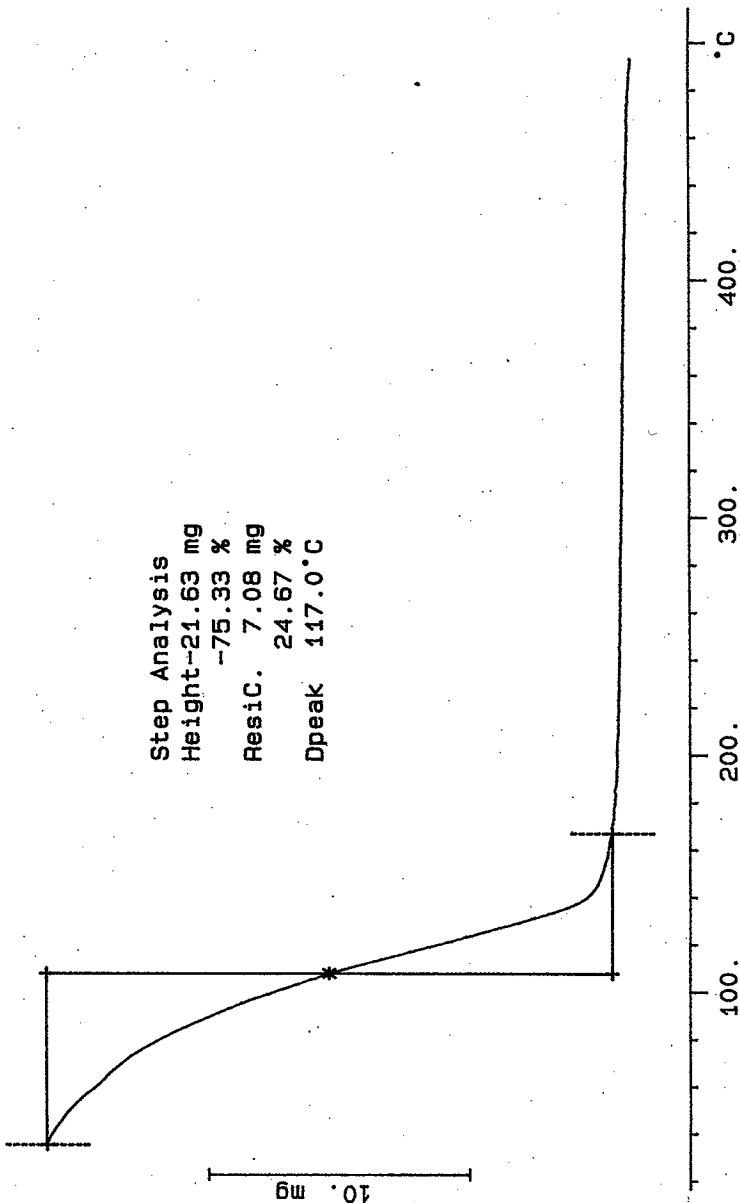
Step Analysis
Height -8.19 mg
-65.37 %
Res1C. 4.34 mg
34.63 %
Dpeak 89.0 °C



S97T000175 DUP N2
28.709 mg

File: 00084.001 TG METTLER 17-Mar-97
Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory

Step Analysis
Height-21.63 mg
-75.33 %
ResiC. 7.08 mg
24.67 %
Dpeak 117.0°C



LABCORE Data Entry Template for Worklist# 17030

Analyst: ADD

Instrument: TGA0 1

Book # ~~9918A~~ ^{RS} 92N8A
3-18-97

Method: LA-560-112 Rev/Mod CO

Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R	A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	<u>59.4</u>	<u>58.69</u>	N/A	%
97000111	T-110	2 SAMPLE	S97T000261	0		TGA-01	SOLID	N/A	<u>75.84</u>		%
97000111	T-110	3 DUP	S97T000261	0		TGA-01	SOLID	<u>75.84</u>	<u>75.60</u>	N/A	%
97000111	T-110	4 SAMPLE	S97T000262	0		TGA-01	SOLID	N/A	<u>77.10</u>		%
97000111	T-110	5 DUP	S97T000262	0		TGA-01	SOLID	<u>77.10</u>	<u>76.36</u>	N/A	%

Final page for worklist # 17030

Anthony Parviti 3-18-97
Analyst Signature Date

RL Jones 3-18-97
Analyst Signature Date

Validated 3/20/97 Machol

Faded 3B
3-17-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

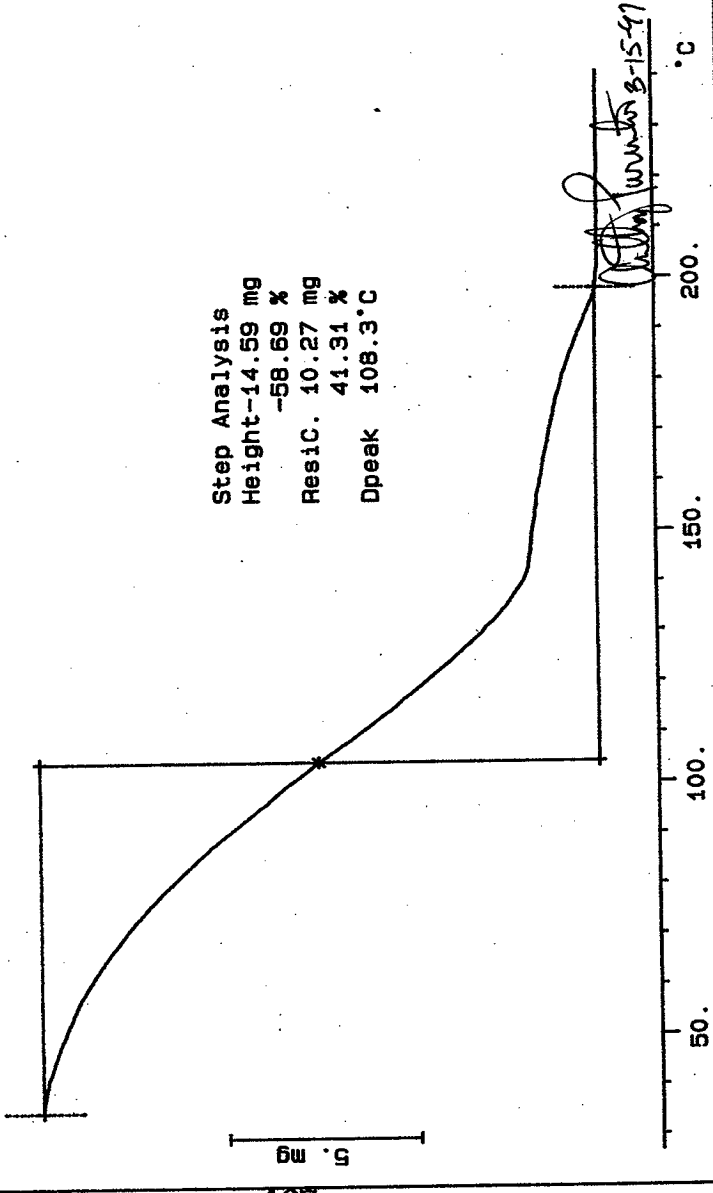
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 437 TO 441.

TER97N8-A N3
24.855 mg

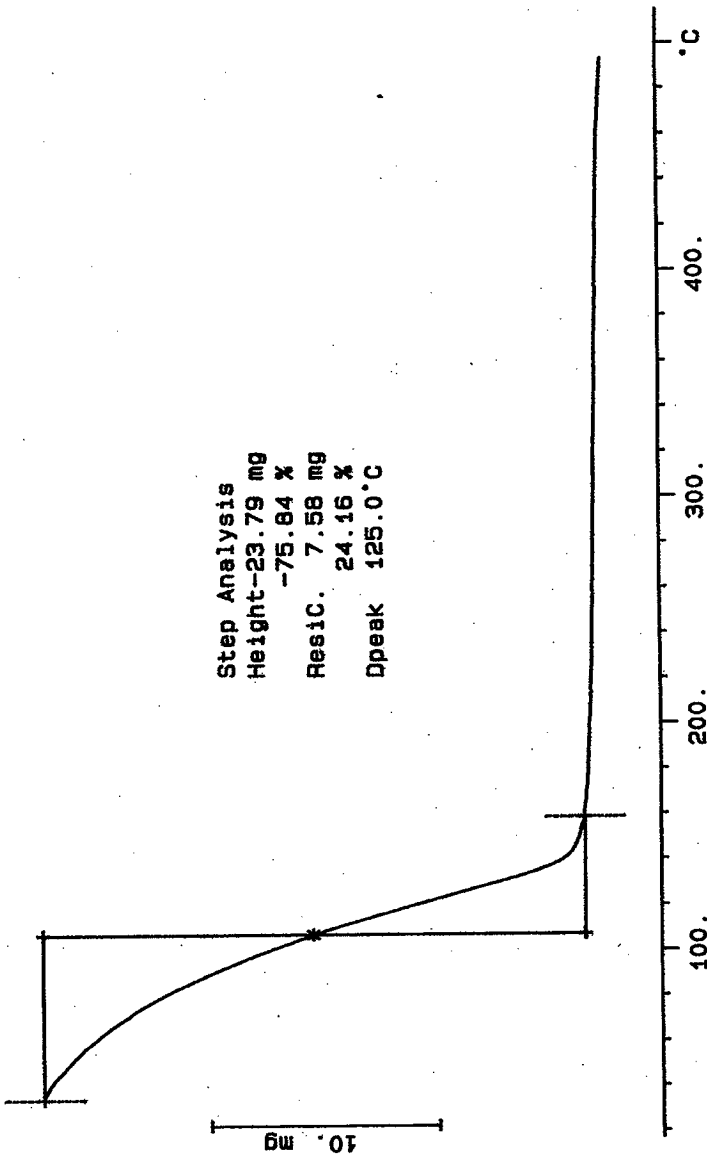
File: 00090.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height-14.59 mg
-58.69 %
Resid. 10.27 mg
41.31 %
Dpeak 108.3 °C

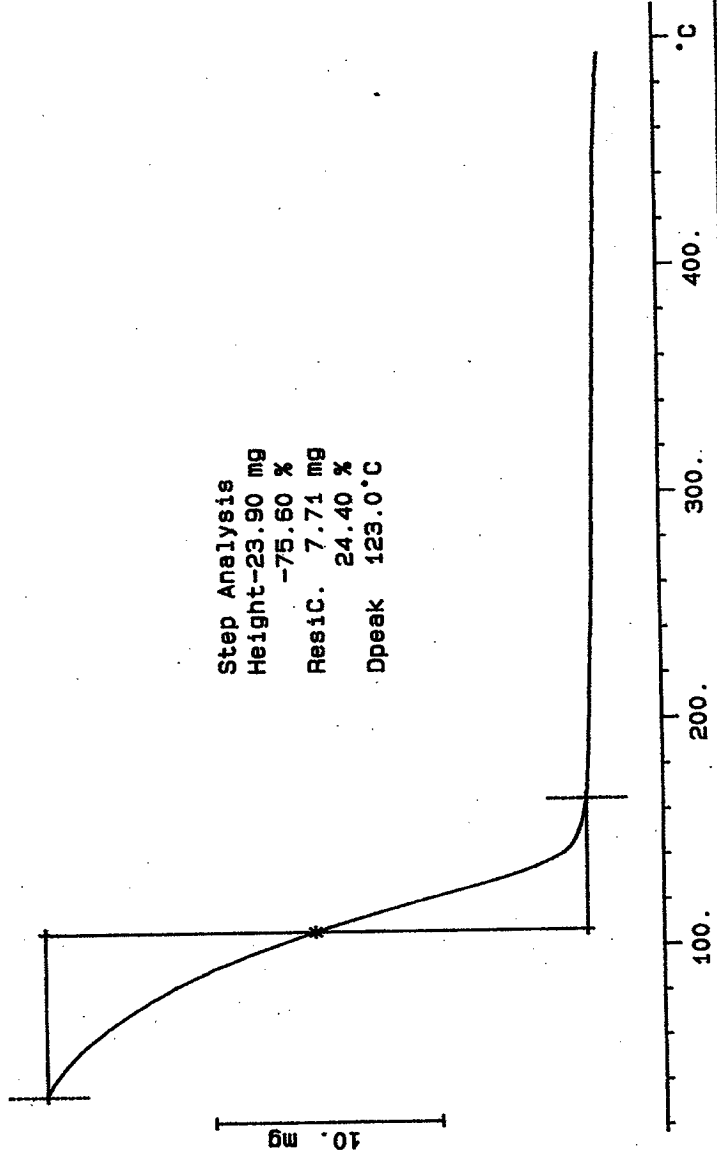


S97T000261 SAM, N2
31.368 mg
Rate: 10.0 °C/min
File: 00031.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory



Step Analysis
Height-23.79 mg
-75.84 %
Res1C. 7.58 mg
24.16 %
Dpeak 125.0 °C

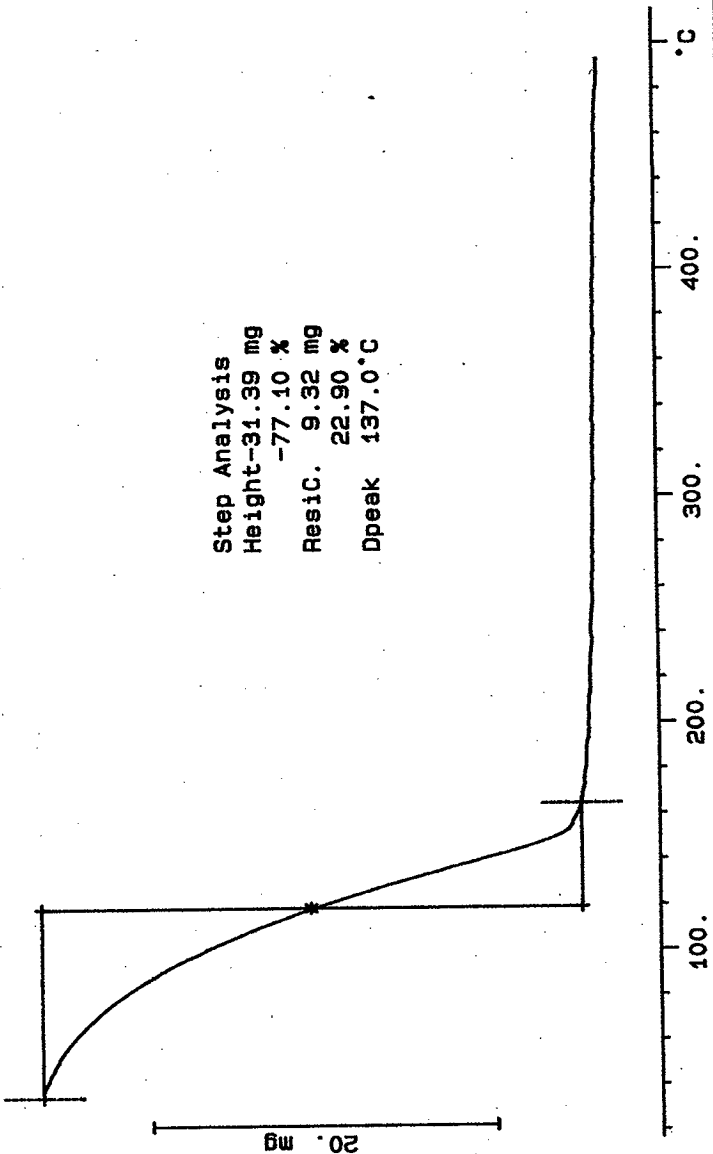
S97T000261 DUP N2
31.610 mg
Rate: 10.0 °C/min
File: 00032.001 TG METTLER 15-Mar-97
Ident: 0.0 222-8 Laboratory



File: 00033.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory

S97T000262 SAM N2
40.711 mg Rate: 10.0 °C/min

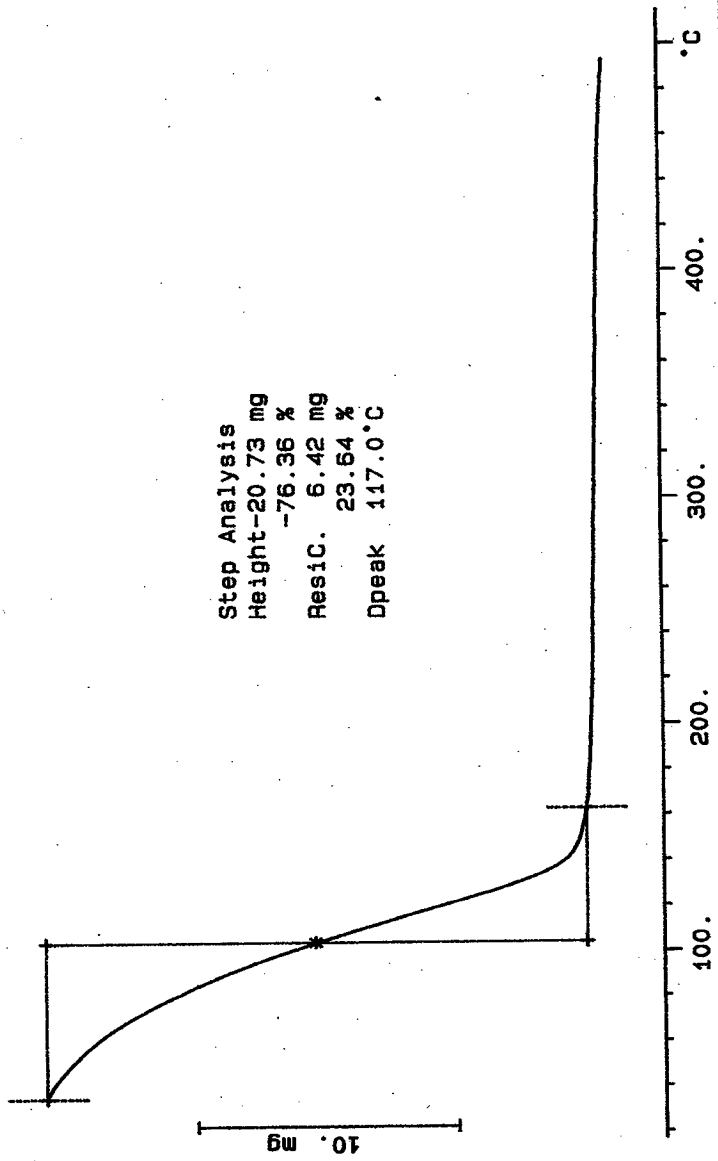
Step Analysis
Height 31.39 mg
-77.10 %
Resid. 9.32 mg
22.90 %
Dpeak 137.0 °C



File: 00034.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory

S97T000262 DUP N2
27.150 mg Rate: 10.0 °C/min

Step Analysis
Height-20.73 mg
-76.36 %
Res1C. 6.42 mg
23.64 %
Dpeak 117.0 °C



LBCORE Data Entry Template for Worklist# 17031

Analyst: AMP Instrument: TGA0 1 Book # 79108A ²³ 3-18-97
97108A

Method: LA-560-112 Rev/Mod 0-0

Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>58.73*</u>	<u>N/A</u>	%
97000111	T-110	2 SAMPLE	S97T000263	0	TGA-01	SOLID	<u>N/A</u>	<u>72.59</u>		%
97000111	T-110	3 DUP	S97T000263	0	TGA-01	SOLID	<u>72.59</u>	<u>73.22</u>	<u>N/A</u>	%
97000111	T-110	4 SAMPLE	S97T000264	0	TGA-01	SOLID	<u>N/A</u>	<u>74.23</u>		%
97000111	T-110	5 DUP	S97T000264	0	TGA-01	SOLID	<u>74.23</u>	<u>74.27</u>	<u>N/A</u>	%

Final page for worklist # 17031

Alfonso Purota 3-15-97
Analyst Signature Date

[Signature] 3-18-97
Analyst Signature Date

Validated 3/20/97 [Signature]

Faced 3B
3-17-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 17031 WL Comment T-110, TGA-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	58.73	98.8721	NEW	03/18/97 1808	rcj
TGA-01	SOLID	DUP	72.59	73.22	0.8641	NEW	03/18/97 1808	rcj
TGA-01	SOLID	DUP	74.23	74.27	5.3872e-002	NEW	03/18/97 1808	rcj

Save (F12) End (F3)

WHC QCHISTORY TABLE EDIT SCREEN

Sample# Assc Sample ID
 Group# Customer
 Worklist# 17031 WL Comment T-110, TGA-01 skm

Test	Matrx	Type	Actual	Found	Yield	STAT	AnalDate	User
TGA-01	SOLID	STD	5.94e01	58.73*	98.8721	TEXT	03/18/97 1808	rcj
TGA-01	SOLID	DUP	72.59	73.22	0.8641	NEW	03/18/97 1808	rcj
TGA-01	SOLID	DUP	74.23	74.27	5.3872e-002	NEW	03/18/97 1808	rcj

Save (F12) End (F3)

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 445 TO 449.

TER97N8-A N3

24.855 mg

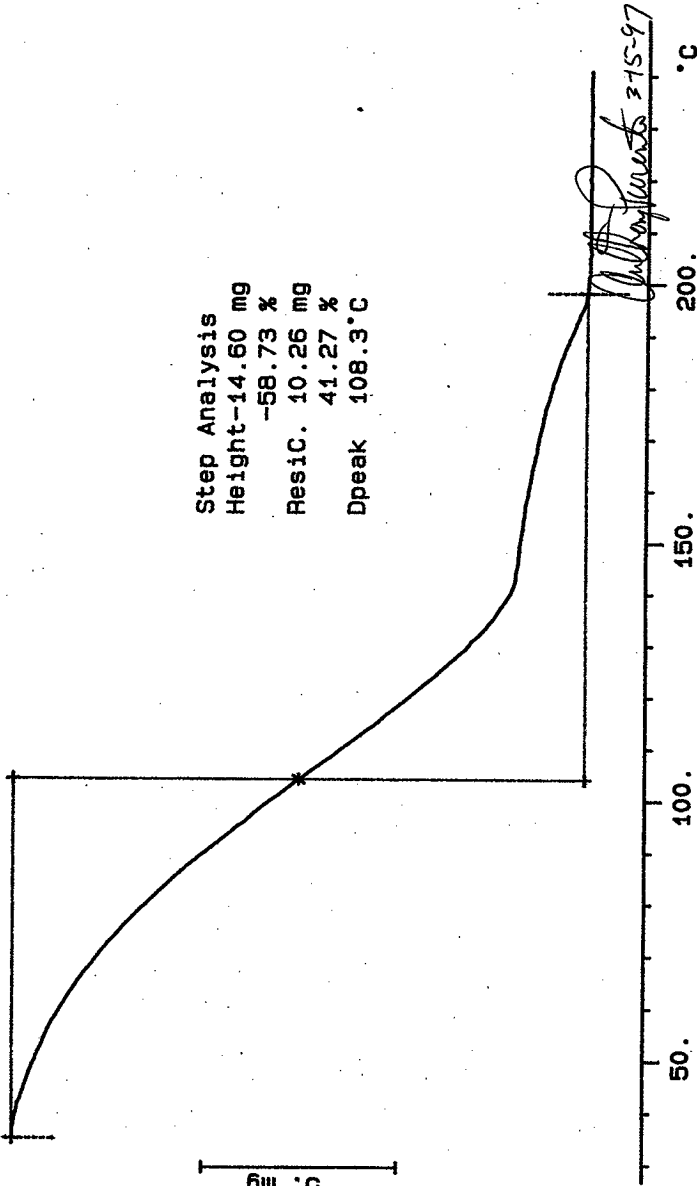
File: 00030.001 TG METTLER 15-Mar-97

Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

5 mg

Step Analysis
Height-14.60 mg
-58.73 %
Resid. 10.26 mg
41.27 %
Dpeak 108.3°C



S97T000263 SAM N2
26.556 mg
Rate: 10.0 °C/min
File: 00035.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory

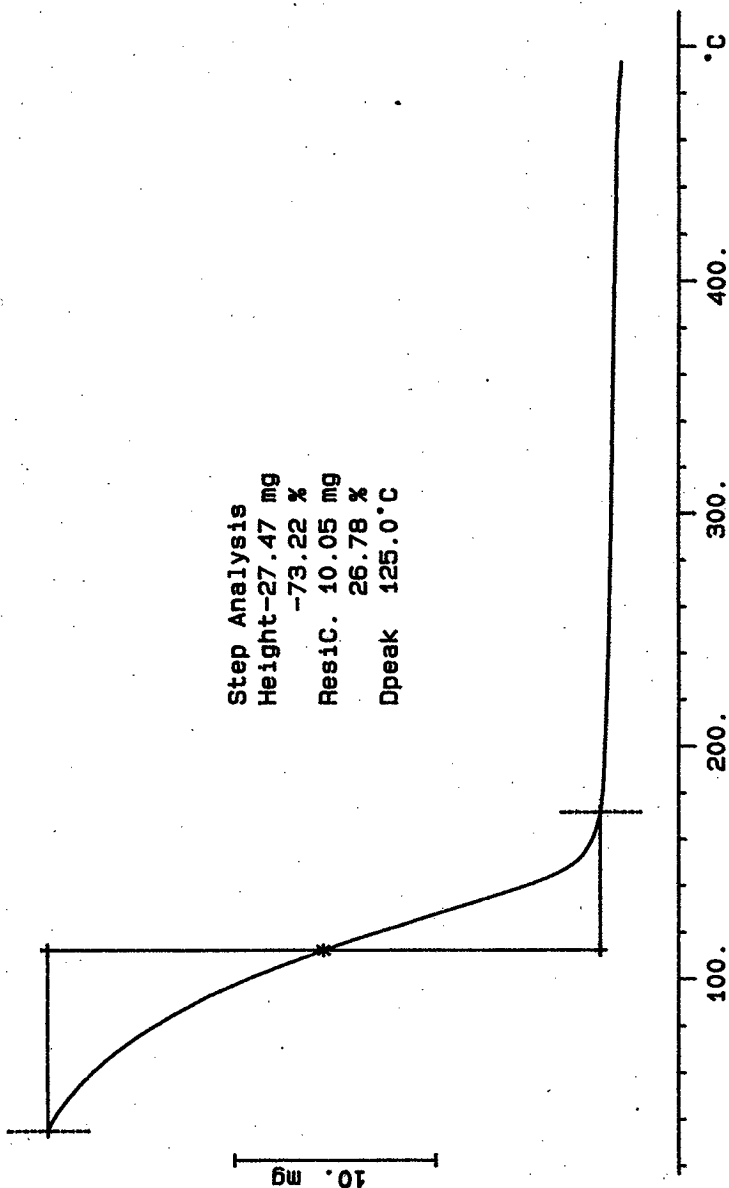
Step Analysis
Height-19.28 mg
-72.59 %
Resid. 7.28 mg
27.41 %
Dpeak 115.0°C

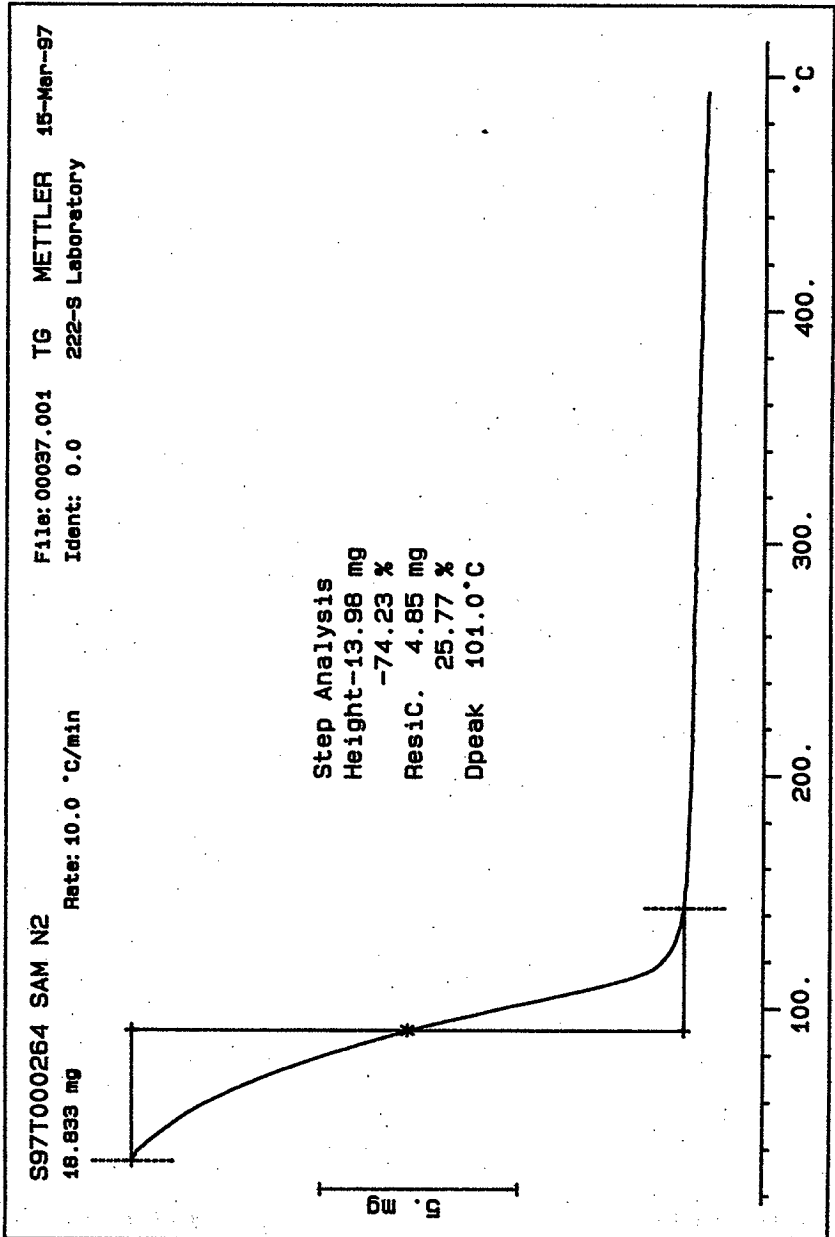
10. mg

100. 200. 300. 400. °C

S97T000263 DUP N2
37.520 mg
Rate: 10.0 °C/min
TG METTLER 15-Mar-97
222-S Laboratory
File: 00036.001
Ident: 0.0

Step Analysis
Height -27.47 mg
-73.22 %
ResidC. 10.05 mg
26.78 %
Dpeak 125.0 °C



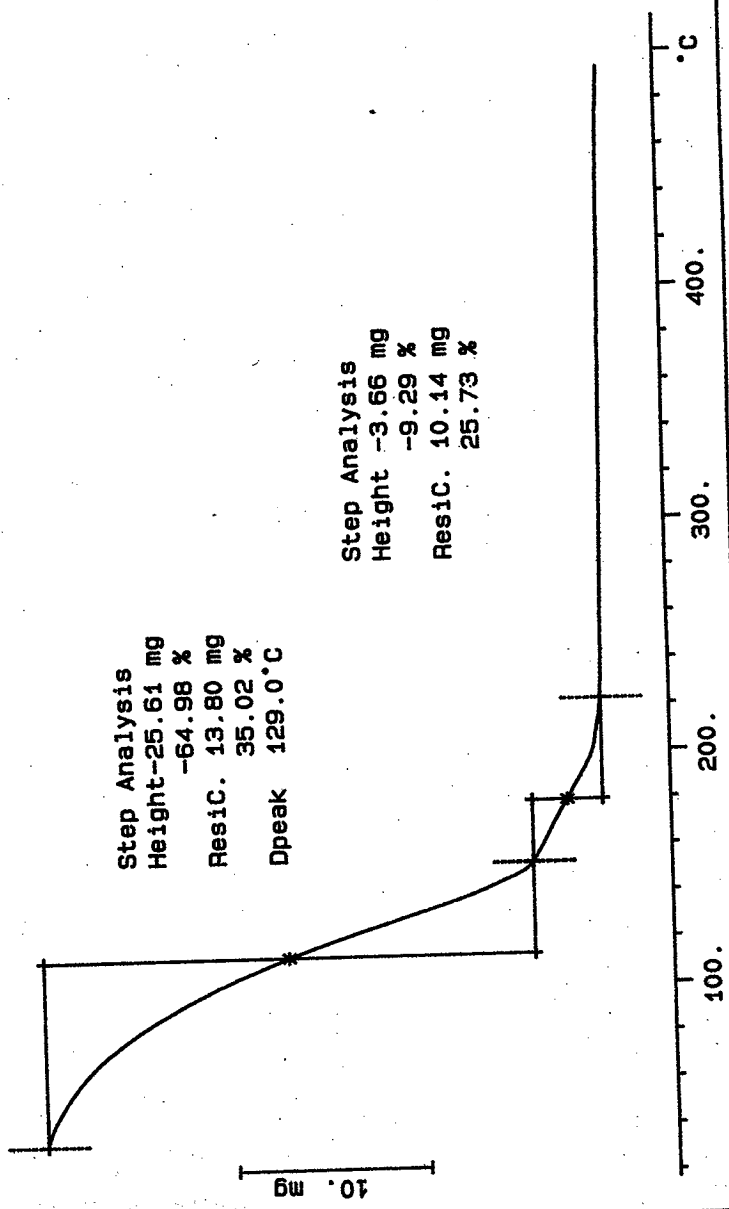


File: 00098.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory

S97T000264 DUP N2
39.415 mg Rate: 10.0 °C/min

Step Analysis
Height-25.61 mg
-64.98 %
Resid. 13.80 mg
35.02 %
Dpeak 129.0 °C

Step Analysis
Height -3.66 mg
-9.29 %
Resid. 10.14 mg
25.73 %



LABCORE Data Entry Template for Worklist# 17032

Analyst: RLM Instrument: TGA0 1 Book # 97N8A

Method: LA-560-112 Rev/Mod CO

Worklist Comment: T-110, TGA-01 skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD				TGA-01	SOLID	<u>59.4</u>	<u>59.34</u>	<u>N/A</u> %
97000111	T-110	2 SAMPLE	S97T000265	0		TGA-01	SOLID	<u>N/A</u>	<u>74.15</u>	<u> </u> %
97000111	T-110	3 DUP	S97T000265	0		TGA-01	SOLID	<u>74.15</u>	<u>74.01</u>	<u>N/A</u> %
97000111	T-110	4 SAMPLE	S97T000266	0		TGA-01	SOLID	<u>N/A</u>	<u>74.77</u>	<u> </u> %
97000111	T-110	5 DUP	S97T000266	0		TGA-01	SOLID	<u>74.77</u>	<u>74.82</u>	<u>N/A</u> %

Final page for worklist # 17032

RLM 3/16/97
Analyst Signature Date

RLM 3-18-97
Analyst Signature Date

Validated 3/20/97 RLM

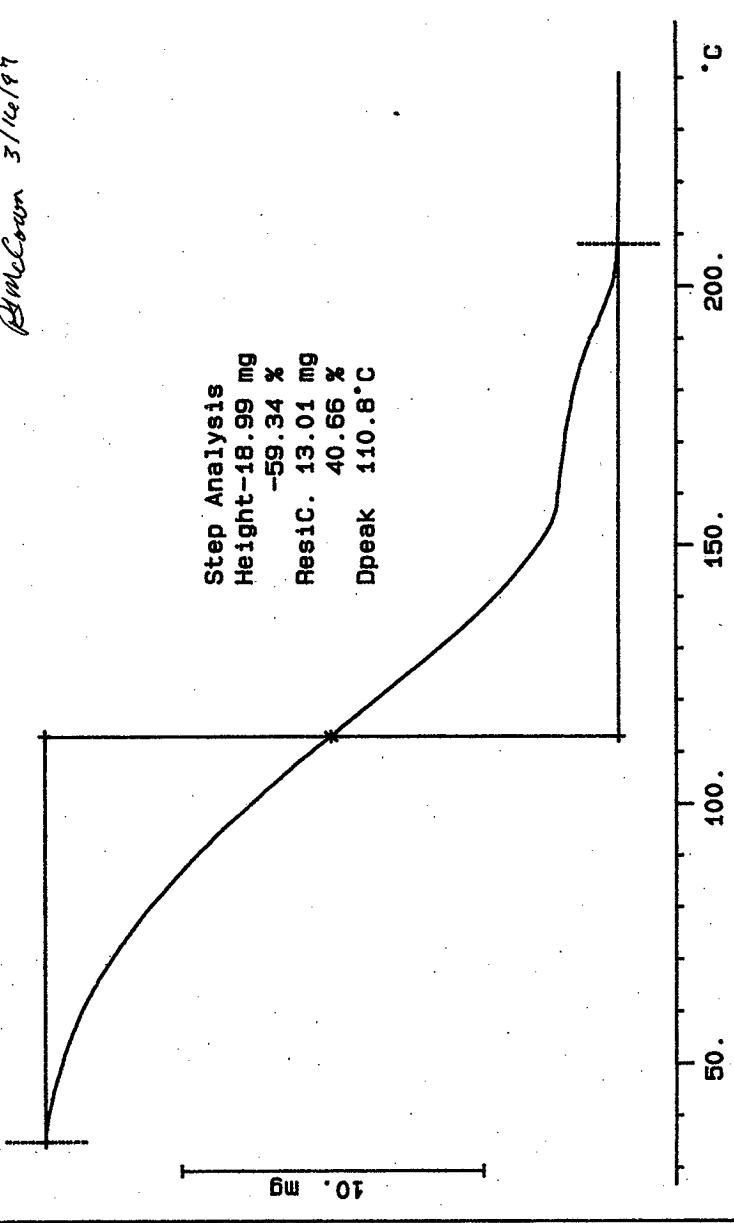
*Final BB
3-17-97*

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

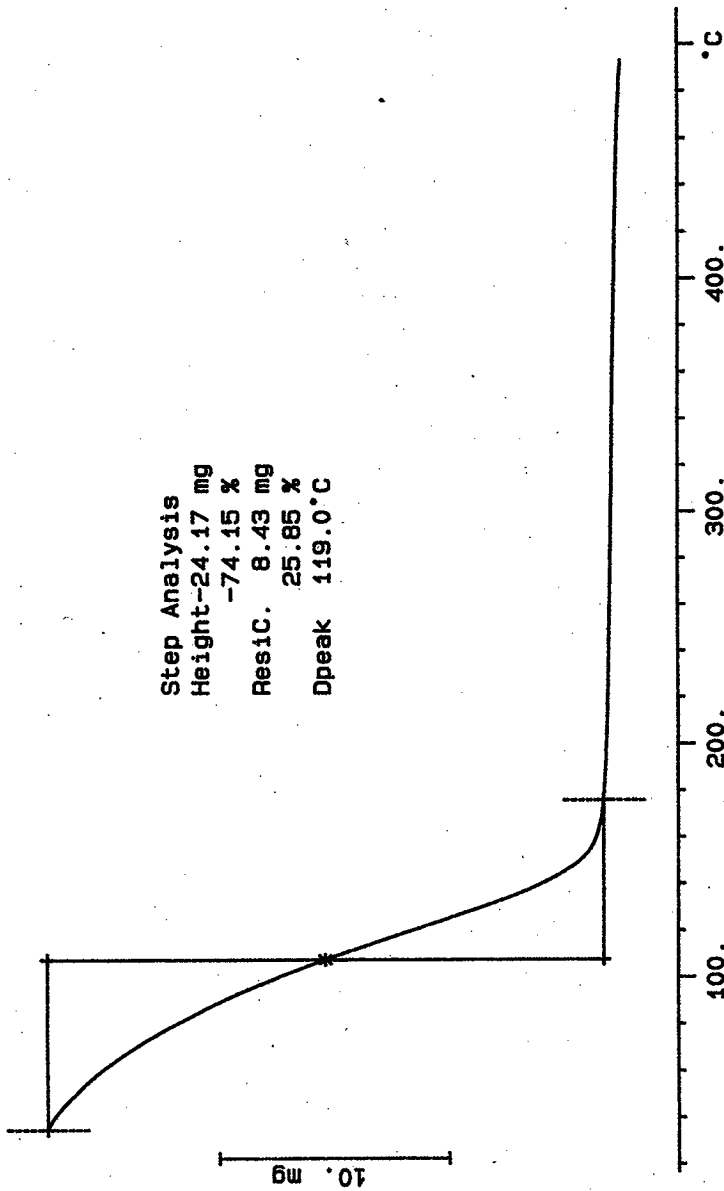
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 451 TO 452

TGA STD 97NB-A N2
32.007 mg
Rate: 10.0 °C/min
File: 00040.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory
McClown 3/16/97



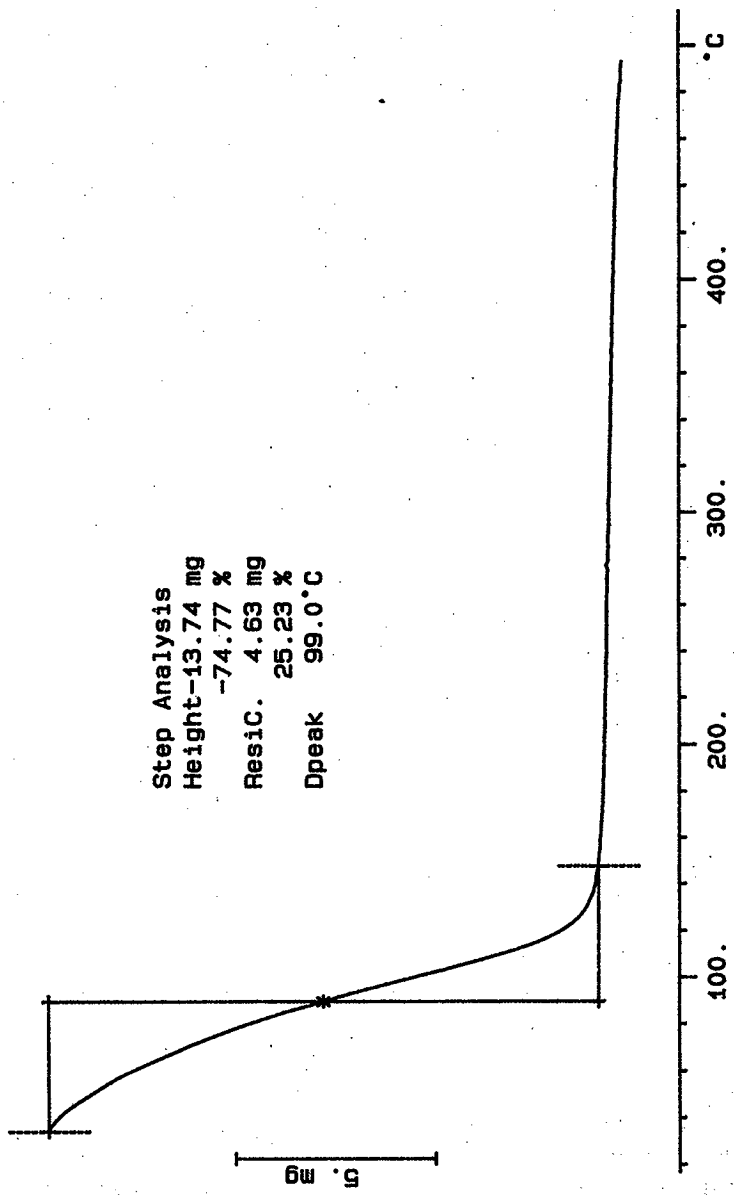
S97T000265 SAM N2
32.597 mg
Rate: 10.0 °C/min
File: 00042.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory *RM*

Step Analysis
Height-24.17 mg
-74.15 %
Resid. 8.43 mg
25.85 %
Dpeak 119.0 °C



S97T000266 SAM N2
18.371 mg
Rate: 10.0 °C/min
File: 00046.001 TG METTLER 15-Mar-97
Ident: 0.0 222-S Laboratory *RAC*

Step Analysis
Height-13.74 mg
-74.77 %
Resid. 4.63 mg
25.23 %
Dpeak 99.0 °C



LABCORE Data Entry Template for Worklist# 17116

Analyst: ADD Instrument: TGA0 1 Book # 97N8-A

Method: LA-560-112 Rev/Mod C-0

Worklist Comment: T-110 TGA, RUN UNDER N2. RCJ

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.4</u>	<u>59.19</u>	<u>N/A</u>	<u>%</u>
97000111	T-110	2 SAMPLE	S97T000214 0		TGA-01	SOLID	<u>N/A</u>	<u>77.27</u>		<u>%</u>
97000111	T-110	3 DUP	S97T000214 0		TGA-01	SOLID	<u>77.27</u>	<u>77.18</u>	<u>N/A</u>	<u>%</u>

Final page for worklist # 17116

[Signature] 3-20-97
Analyst Signature Date

[Signature] 3-25-97
Analyst Signature Date

Validated 3/25/97 [Signature]

Data Entry Comments:

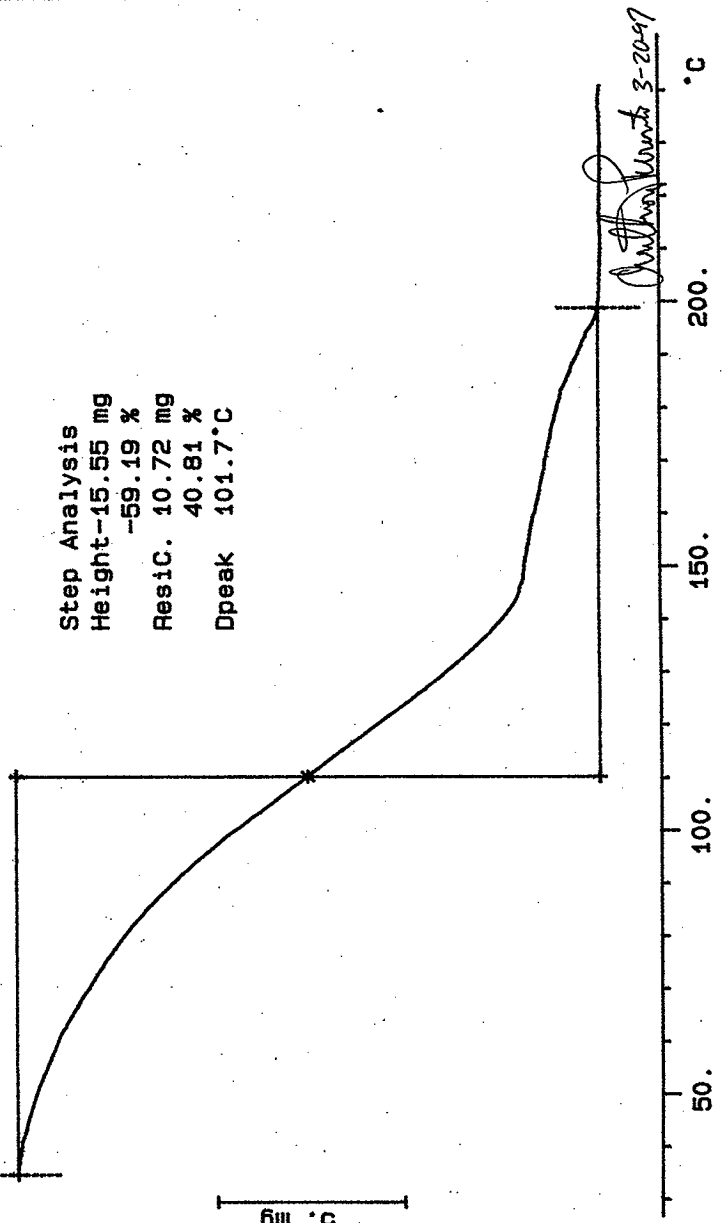
Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 457 TO 459.

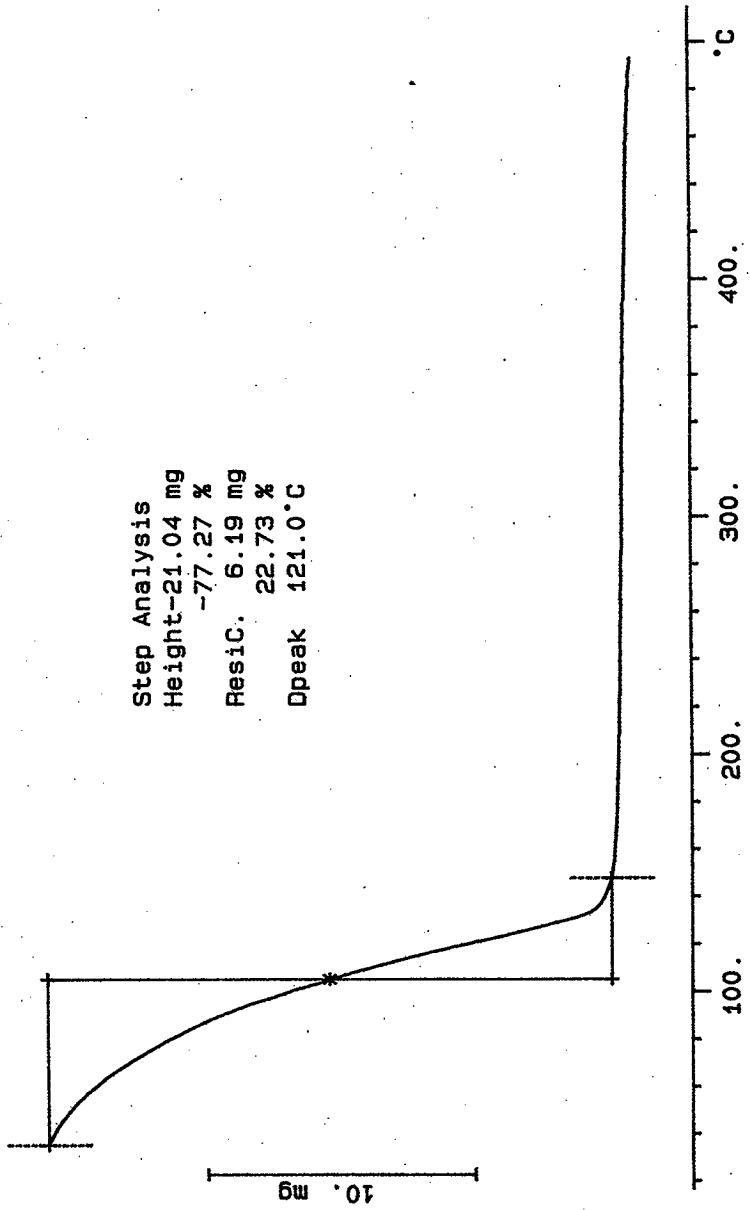
TGA STD 97NB-A N2
26.270 mg
Rate: 10.0 °C/min
File: 00014.001 TG METTLER 20-Mar-97
Ident: 0.0 222-S Laboratory

Step Analysis
Height-15.55 mg
-59.19 %
Resid. 10.72 mg
40.81 %
Dpeak 101.7 °C

5. mg



S97T000214 SAM N2
27.232 mg
Rate: 10.0 °C/min
File: 00015.001 TG METTLER 20-Mar-97
Ident: 0.0 222-S Laboratory



S97T000214 DUP N2
30.600 mg

Rate: 10.0 °C/min

File: 00016.001 TG METTLER 20-Mar-97
Ident: 0.0 222-S Laboratory

Step Analysis
Height-23.62 mg
-77.18 %
Resic. 6.98 mg
22.82 %
Dpeak 127.0 °C

10. mg

°C

400.

300.

200.

100.

LABCORE Completed Worklist Report for Worklist# 16721

Analyst: adp Instrument: BA001 Book# 133A/11e-A

Method: LA-510-112 Rev/Mod D-1

Worklist Comment: SPG-01 FOR T-110 (ZNCL2 CAL PIPETT) RTS

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		SPG-01	LIQUID	1.39755	1.400	100.175 %	Recovery
2 SAMPLE	S97T000119	0	SPG-01	LIQUID	N/A	0.989	1.00e-003	Sp.G.
3 DUF	S97T000119	0	SPG-01	LIQUID	0.989	0.990	0.101	RPD

Final page for worklist# 16721

See attached
Analyst Signature _____ Date _____

See attached
Analyst Signature _____ Date _____

validated into labcore by John McClellan 03/20/97
Reviewer Signature _____ Date _____

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 16721


Analyst: ADP Instrument: BA001 _____ Book # 133N16-A


Method: LA-510-112 Rev/Mod D-1

Worklist Comment: SPG-01 FOR T-110 (ZNCL2 CAL PIPETT) RTS

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.39755</u>	<u>1.400</u>	<u>N/A</u>	Sp.G.
97000083	T-110	2 SAMPLE	S97T000119	0	SPG-01	LIQUID	<u>N/A</u>	<u>0.989</u>		Sp.G.
97000083	T-110	3 DUP	S97T000119	0	SPG-01	LIQUID	<u>0.989</u>	<u>0.990</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 16721

 3-8-97
Analyst Signature Date

 3-8-97
Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number,
R = Replicate Number, A = Aliquot Code.

SPECIFIC GRAVITY: LA-510-112 (C-3)

INSTRUMENT CODE

ANALYSIS TIME

ANALYSIS DATE

ANALYST INITIALS

WORKLIST #

0230

0230

3-8-97

AN

16721

SAMPLE STANDARD DUPLICATE

SAMPLE # = _____ STD # = _____

TARE WEIGHT (g) _____

GROSS WEIGHT (g) _____

VOL. of SOLUTION (mL) _____

REPLICATE

SAMPLE STANDARD DUPLICATE

SAMPLE # = _____ STD # = 133N16-A

TARE WEIGHT (g) 1.8242

GROSS WEIGHT (g) 1.9734

VOL. of SOLUTION (mL) 1.0012

REPLICATE

AP

SAMPLE STANDARD DUPLICATE

SAMPLE # = _____ STD # = _____

TARE WEIGHT (g) _____

GROSS WEIGHT (g) _____

VOL. of SOLUTION (mL) _____

REPLICATE

SAMPLE STANDARD DUPLICATE

SAMPLE # = _____ STD # = 133N16-A

TARE WEIGHT (g) 1.9138

GROSS WEIGHT (g) 2.0193

VOL. of SOLUTION (mL) 0.07514

REPLICATE

SAMPLE STANDARD DUPLICATE

SAMPLE # = _____ STD # = _____

TARE WEIGHT (g) _____

GROSS WEIGHT (g) _____

VOL. of SOLUTION (mL) _____

REPLICATE

SAMPLE STANDARD DUPLICATE

SAMPLE # = 462 SAMPLE # = S97T000119 STD # =

TARE WEIGHT (g) 1.9186

GROSS WEIGHT (g) 1.9323

VOL. of SOLUTION (mL) 0.07514

REPLICATE

SAMPLE STANDARD DUPLICATE

SAMPLE # = _____ STD # = _____

TARE WEIGHT (g) _____

GROSS WEIGHT (g) _____

VOL. of SOLUTION (mL) _____

REPLICATE

SAMPLE STANDARD DUPLICATE

SAMPLE # = S97T000119 STD # =

TARE WEIGHT (g) 1.98648

GROSS WEIGHT (g) 1.9392

VOL. of SOLUTION (mL) 0.07514

REPLICATE

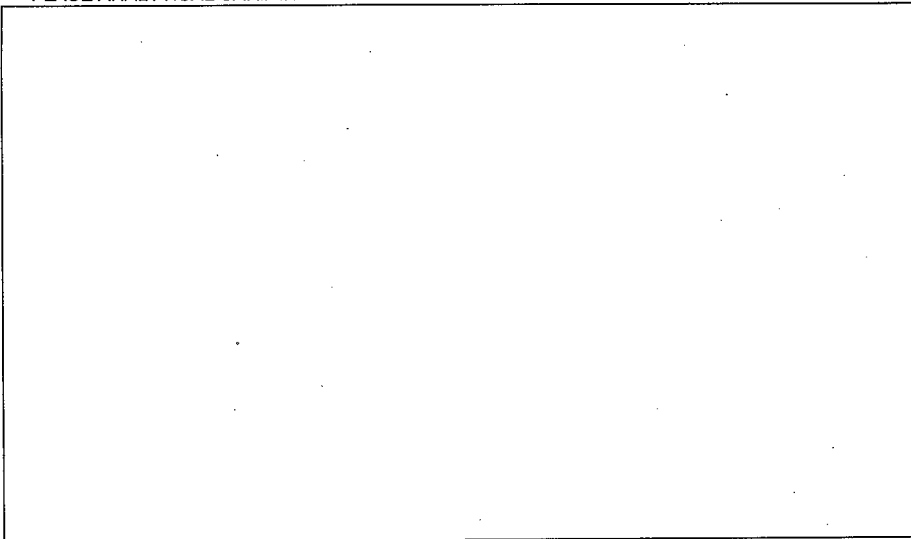
PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	2.0193	1.9497
Work List	Tare Weight (W1)	1.9138	1.8448
16721	Weight of Solution (W2-W1)	0.1055	0.1049
Test Code	Volume of Solution μ L	75.1400	75.1400
SPG-01	Specific Gravity	1.4040	1.3961
Matrix	Specific Gravity (Average)	1.4001	
LIQUID			
Sample #			
133N16A			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
ADP			
Date			
03/08/97	v RESULT v		
Time	Specific Gravity Average =	1.400	
02:30 AM			

Data Entry by: <i>L. Jones</i>	Date: 03/08/97
Approved by: <i>John McCluskey</i>	Date: 03/19/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

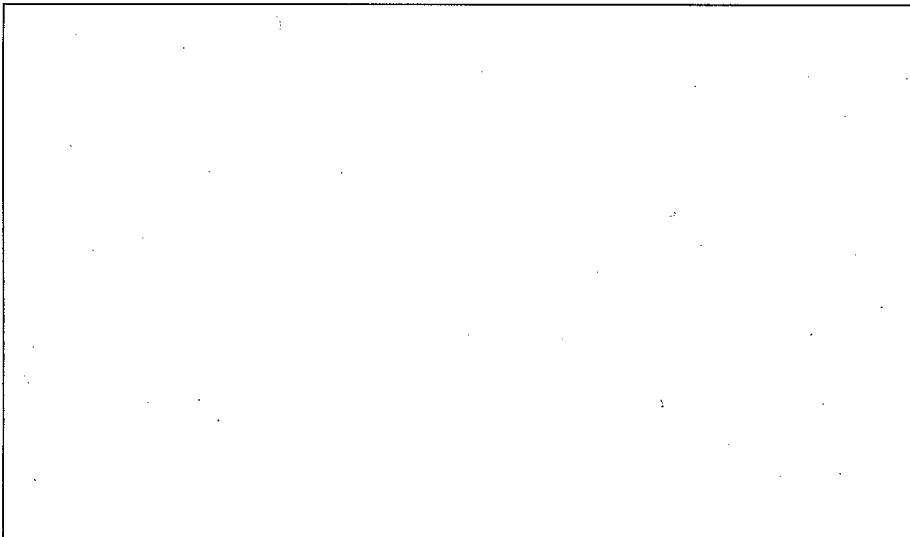


SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.9923	
Work List	Tare Weight (W1)	1.9180	
16721	Weight of Solution (W2-W1)	0.0743	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	0.9888	NA
Matrix			
LIQUID			
Sample#			
S97T000119			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
ADP			
Date			
03/08/97	v RESULT v		
Time	Specific Gravity =	0.989	
02:30 AM			

Data Entry by:	<i>[Signature]</i>	Date:	03/08/97
Approved by:	<i>[Signature]</i>	Date:	03/19/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER



SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	1.9392	
Work List	Tare Weight (W1)	1.8648	
16721	Weight of Solution (W2-W1)	0.0744	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	0.9902	NA
Matrix			
LIQUID			
Sample #			
S97T000119DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
ADP	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L}/\text{mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/08/97	v RESULT v		
Time	Specific Gravity =	0.990	
02:30 AM			

Data Entry by: <i>[Signature]</i>	Date: 03/08/97
Approved by: <i>[Signature]</i>	Date: 03/11/97

LABCORE Completed Worklist Report for Worklist# 16749

Analyst: adp Instrument: BA001 Book# 133A116A

Method: LA-510-112 Rev/Mod D-1

Worklist Comment: T-110, SPG-01, Use Calibrated pipette. skm

Seq	Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	STD		0	SPG-01	LIQUID	1.39755	1.397	99.961 %	Recovery
2	SAMPLE	S97T000204	0	SPG-01	LIQUID	N/A	1.113	1.00e-003	Sp.G.
3	DUP	S97T000204	0	SPG-01	LIQUID	1.113	1.107	0.541	RPD

Final page for worklist# 16749

See attached
Analyst Signature _____ Date _____

See attached
Analyst Signature _____ Date _____

validated into Labcore by John McChisney 03/20/97
Reviewer Signature _____ Date _____

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 16749

Analyst: ADP Instrument: BA001 Book # 133N16-A

Method: LA-510-112 Rev/Mod D-1

Worklist Comment: T-110, SPG-01, Use Calibrated pipette. skm

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			SPG-01	LIQUID	<u>1.37755</u>	<u>1.397</u>	<u>N/A</u>	Sp.G.
97000083	T-110	2 SAMPLE	S97T000204	0	SPG-01	LIQUID	<u>N/A</u>	<u>1.113</u>		Sp.G.
97000083	T-110	3 DUP	S97T000204	0	SPG-01	LIQUID	<u>1.113</u>	<u>1.107</u>	<u>N/A</u>	Sp.G.

Final page for worklist # 16749

ADP
Analyst Signature Date 3-8-97

ADP
Analyst Signature Date 3-8-97

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

BEST AVAILABLE COPY

HNF-SD-WM-DP-238, REV. 0

INSTRUMENT CODE

ANALYSIS TIME

02:00

ANALYSIS DATE

3-8-97

SPECIFIC GRAVITY: LA-510-112 (C-3)

ANALYST INITIALS

ADR

WORKLIST #

16749

STD # = 133N16-A

SAMPLE STANDARD DUPLICATE

SAMPLE # =

REPLICATE
1.8235
1.8234
1.9284
1.07514

TARE WEIGHT (g) 1.8235
GROSS WEIGHT (g) 1.9284
VOL. of SOLUTION (mL) 1.07514

SAMPLE STANDARD DUPLICATE

SAMPLE # = S97T060204 STD # =

REPLICATE
1.8892
1.9728
1.07514

TARE WEIGHT (g) 1.8892
GROSS WEIGHT (g) 1.9728
VOL. of SOLUTION (mL) 1.07514

SAMPLE STANDARD DUPLICATE

SAMPLE # = S97T060204 STD # =

REPLICATE
1.8665
1.9497
1.07514

TARE WEIGHT (g) 1.8665
GROSS WEIGHT (g) 1.9497
VOL. of SOLUTION (mL) 1.07514

SAMPLE STANDARD DUPLICATE

SAMPLE # = STD # =

REPLICATE

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

SAMPLE STANDARD DUPLICATE

SAMPLE # = STD # =

REPLICATE

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

SAMPLE STANDARD DUPLICATE

SAMPLE # = STD # =

REPLICATE

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

SAMPLE STANDARD DUPLICATE

SAMPLE # = STD # =

REPLICATE

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

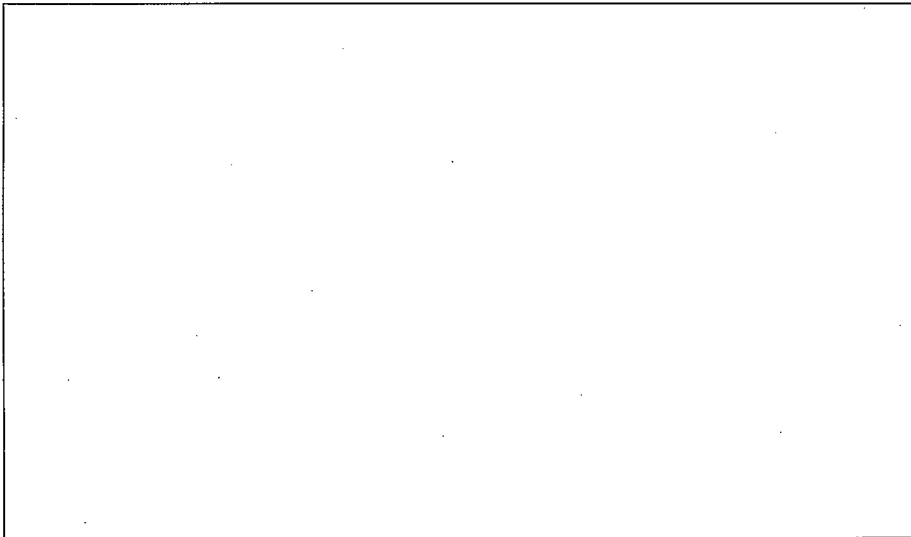
SAMPLE STANDARD DUPLICATE

SAMPLE # = STD # =

REPLICATE

TARE WEIGHT (g)
GROSS WEIGHT (g)
VOL. of SOLUTION (mL)

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

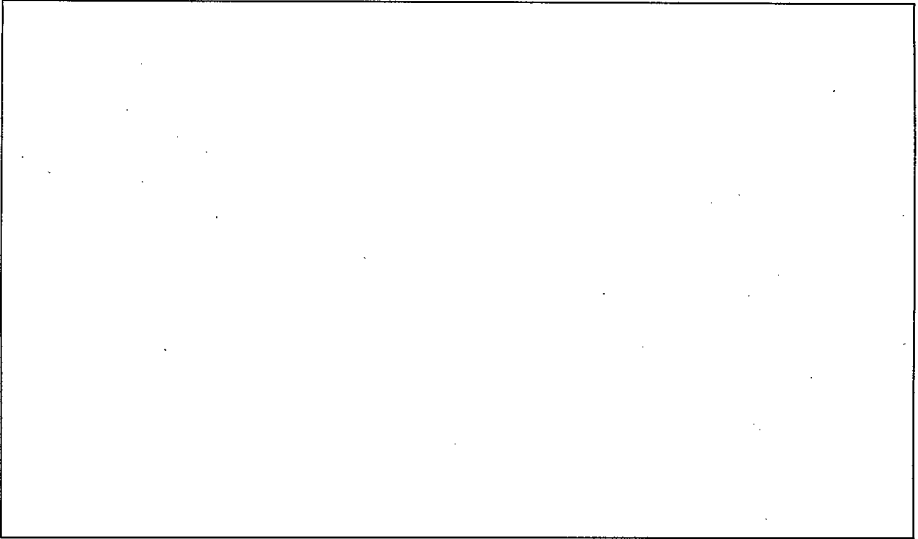


SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		STANDARD	STANDARD
STANDARD	Gross Weight (W2)	1.9284	1.9284
WorkList	Tare Weight (W1)	1.8235	1.8234
16749	Weight of Solution (W2-W1)	0.1049	0.105
Test Code	Volume of Solution μ L	75.1400	75.1400
SPG-01	Specific Gravity	1.3961	1.3974
Matrix	Specific Gravity (Average)	1.3967	
LIQUID			
Sample#			
133N16A			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
ADP	Specific Gravity = $[(W2-W1) * 1000 \mu\text{L/mL}] / [\text{Vol. of Solution } \mu\text{L} * 1.000 \text{ g/mL}]$		
Date			
03/08/97	v RESULT v		
Time	Specific Gravity Average =	1.397	
02:00 AM			

Data Entry by: <i>John Jones</i>	Date: 03/08/97
Approved by: <i>John Mc Clelland</i>	Date: 03/19/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER



SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		SAMPLE	REPLICATE
SAMPLE	Gross Weight (W2)	1.9728	
WorkList	Tare Weight (W1)	1.8892	
16749	Weight of Solution (W2-W1)	0.0836	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	1.1126	NA
Matrix			
LIQUID			
Sample #			
S97T000204			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst			
ADP	Specific Gravity = [(W2-W1) * 1000 μ L/mL] / [Vol. of Solution μ L * 1.000 g/mL]		
Date			
03/08/97	v RESULT v		
Time	Specific Gravity =	1.113	
02:00 AM			

Data Entry by: <i>[Signature]</i>	Date: 03/08/97
Approved by: <i>[Signature]</i>	Date: 03/19/97

PLACE ANALYTICAL CARD IN BOX BELOW OR ATTACH TRAVELER

SPECIFIC GRAVITY : LA-510-112 (C-3)

Type		DUPLICATE	REPLICATE
DUPLICATE	Gross Weight (W2)	1.9497	
Work List	Tare Weight (W1)	1.8665	
16749	Weight of Solution (W2-W1)	0.0832	0
Test Code	Volume of Solution μ L	75.1400	
SPG-01	Specific Gravity	1.1073	NA
Matrix			
LIQUID			
Sample #			
S97T000204DUP			
Instrument Code	Gross Weight (W2) = Wt. of vial + cap + cotton + solution		
BA001	Tare Weight (W1) = Wt. of vial + cap + cotton		
Analyst	Specific Gravity = [(W2-W1) * 1000 μ L/mL] / [Vol. of Solution μ L * 1.000 g/mL]		
ADP			
Date			
03/08/97	v RESULT v		
Time	Specific Gravity =	1.107	
02:00 AM			

Data Entry by: <i>R. Jones</i>	Date: 03/08/97
Approved by: <i>John McCluskey</i>	Date: 03/19/97

LABCORE Completed Worklist Report for Worklist# 16706

Analyst: kgh Instrument: IC02

Book# 42A20C

Method: 14-533-105 Rev/Mod D-1

Worklist Comment: @IC-01 FOR T-110 RTS

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1	OCB	0	①IC-QC F	QC	1	<1.20e-2	ug/mL
1	OCB	0	①IC-QC CL	QC	1	<1.70e-2	ug/mL
1	OCB	0	①IC-QC NO2	QC	1	<1.08e-1	ug/mL
1	OCB	0	①IC-QC BR	QC	1	<1.25e-1	ug/mL
1	OCB	0	①IC-QC NO3	QC	1	2.32e-01	0.232 ug/mL
1	OCB	0	①IC-QC PO4	QC	1	<1.20e-1	ug/mL
1	OCB	0	①IC-QC SO4	QC	1	<1.38e-1	ug/mL
1	OCB	0	①IC-QC OXALATE2	QC	1	<1.05e-1	ug/mL
1	CCV	0	①IC-QC F	QC	5.90e01	6.26e+01	106.102 % Recovery
2	CCV	0	①IC-QC CL	QC	7.90e01	9.26e+01	117.215 % Recovery
2	CCV	0	①IC-QC NO2	QC	5.42e02	6.14e+02	113.284 % Recovery
2	CCV	0	①IC-QC BR	QC	5.89e02	6.32e+02	107.301 % Recovery
2	CCV	0	①IC-QC NO3	QC	5.94e02	6.42e+02	108.081 % Recovery
2	CCV	0	①IC-QC PO4	QC	5.44e02	5.79e+02	106.434 % Recovery
2	CCV	0	①IC-QC SO4	QC	6.31e02	7.02e+02	111.252 % Recovery
2	CCV	0	①IC-QC OXALATE2	QC	5.28e02	5.50e+02	104.167 % Recovery
3	SAMPLE	S97T000119	0	①IC-01 F-02 LIQUID	N/A	4.800e-01	1.20e-002 ug/mL
3	SAMPLE	S97T000119	0	①IC-01 CL-02 LIQUID	N/A	9.170e+00	1.70e-002 ug/mL
3	SAMPLE	S97T000119	0	①IC-01 NO2-02 LIQUID	N/A	7.050e-01	0.108 ug/mL
3	SAMPLE	S97T000119	0	①IC-01 BR-02 LIQUID	N/A	< 1.250e-01	0.125 ug/mL
3	SAMPLE	S97T000119	0	①IC-01 NO3-02 LIQUID	N/A	1.451e+01	0.133 ug/mL
3	SAMPLE	S97T000119	0	①IC-01 PO4-02 LIQUID	N/A	1.921e+00	0.120 ug/mL
3	SAMPLE	S97T000119	0	①IC-01 SO4-02 LIQUID	N/A	1.720e+03	0.138 ug/mL
3	SAMPLE	S97T000119	0	①IC-01 OXALATE2 LIQUID	N/A	< 1.050e-01	0.105 ug/mL
4	DUP	S97T000119	0	①IC-01 F-02 LIQUID	4.00e-01	4.12e-01	2.956 RPD
4	DUP	S97T000119	0	①IC-01 CL-02 LIQUID	9.17e+00	9.05e+00	1.317 RPD
4	DUP	S97T000119	0	①IC-01 NO2-02 LIQUID	7.05e-01	7.05e-01	0.000 RPD
4	DUP	S97T000119	0	①IC-01 BR-02 LIQUID	<1.25e-1	<1.25e-1	RPD
4	DUP	S97T000119	0	①IC-01 NO3-02 LIQUID	1.45e+01	1.43e+01	1.189 RPD
4	DUP	S97T000119	0	①IC-01 PO4-02 LIQUID	1.92e+00	1.92e+00	0.000 RPD
4	DUP	S97T000119	0	①IC-01 SO4-02 LIQUID	1.72e+03	1.62e+03	1.760 RPD
4	DUP	S97T000119	0	①IC-01 OXALATE2 LIQUID	<1.05e-1	<1.05e-1	RPD

Final page for worklist# 16706

John 3-18-97
Analyst Signature Date

Analyst Signature Date

James M. Lyle 3/19/97

CCV failed for Cl, NO₂ and SO₄ and these units shown for QC (BLK/BKG) may not reflect the actual units. These need to be rerun, but samples 472 were rejected. These will be rerun as S97T000381.

LABCORE Data Entry Template for Worklist# 16706

Analyst: HPH Instrument: IC0 02 Book# 42200-C

Method: LA-533-105 Rev/Mod _____

Worklist Comment: @IC-01 FOR T-110 RTS

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	CCB				@IC-QC	QC		
2	CCV				@IC-QC	QC		
3	SAMPLE	S97T000119 0			@IC-01	LIQUID	97000083	T-110
		Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4	DUP	S97T000119 0			@IC-01	LIQUID		

Final page for worklist # 16706

HPH 3-7-97
Analyst Signature Date

Analyst Signature Date

Data Entry Comments: I used the remainder of the sample.
16706.MAR.SCH
16706.MAR.CSV

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

A-0010-IC		DATA FILE/WORKLIST RESOLUTION			18-Mar-97			
Worklist#: 16706				Data File: 16706MAR.CSV				
	Seq	Type	Sample #	Seq#	Data File	Sample Name	Dilution	
-	=>	1	CCB	-	1	97030921.d01	BLANK	1.00
	=>	2	CCV		2	97030921.d03	STD 42N20-C	101.00
	=>	3	SAMPLE		3	97030921.d05	S97T000119 SAM	1.00
	=>	4	DUP		4	97030921.d06	S97T000119 DUP	1.00
			S97T000119					
			S97T000119					
+				+				

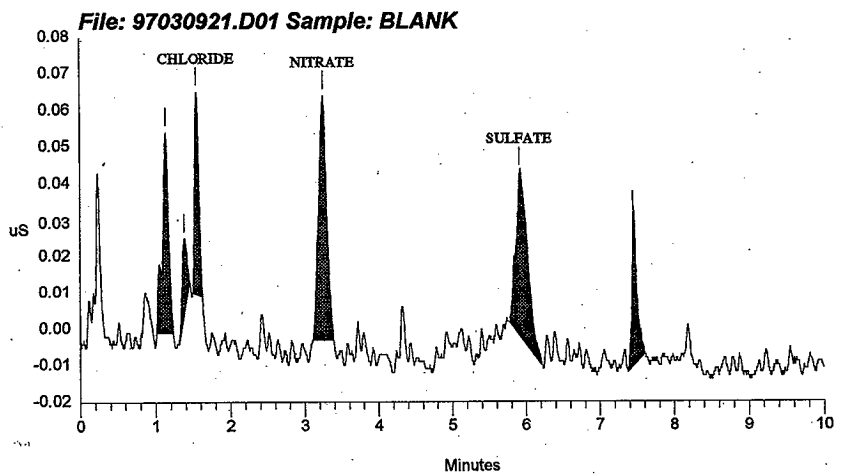
Save(F4) Abort(Shift-F3) ListFiles(Shift-F1) UploadFile(F8)

Sample Name: BLANK Date: 03/10/1997 11:04:07
 Data File : C:\DX\DATA\97030921.D01
 Method : C:\DX\METHOD\ANIONS.MET
 ACI Address: 1 System: 1 Inject#: 1 Detector: CDM-1
 Analyst : *Jane Jones for KLOFF* Column:

Calibration	Volume	Dilution	Points	Rate	Start	Stop	Area	Reject
External	1	1	3000	5Hz	0.00	10.00		50

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.14		0.000	55	319	1	
2	1.39		0.000	20	88	1	
3	1.55	CHLORIDE	0.006	55	213	1	-0.22
4	3.25	NITRATE	0.232	67	503	1	1.67
5	5.92	SULFATE	0.124	45	504	1	-2.79
6	7.45		0.000	41	201	1	
Totals			0.362	284	1827		



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 475 TO 478.

```

=====
Sample Name: STD 42N20-C                               Date: 03/10/1997 14:43:35
Data File  : C:\DX\DATA\97030921.D03
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 3                    Detector: CDM-1
Analyst    : [Signature]                               Column:
=====
    
```

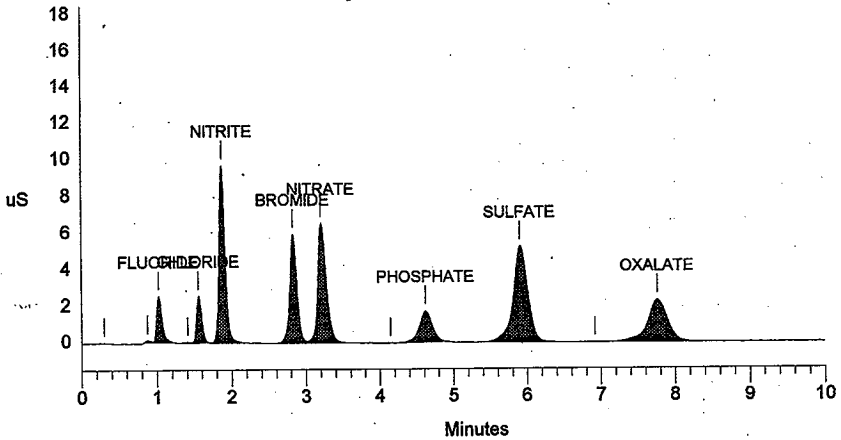
```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External           1           101    3000 5Hz   0.00 10.00           50
    
```

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	0.30		0.000	52	337	1	
2	0.87		0.000	87	372	2	
3	1.02	FLUORIDE	62.600	2486	12207	2	0.00
4	1.41		0.000	34	192	2	
5	1.55	CHLORIDE	92.587	2548	12146	2	0.22
6	1.87	NITRITE	613.718	9683	53155	1	0.54
7	2.83	BROMIDE	631.625	5959	39693	2	-0.12
8	3.21	NITRATE	642.456	6537	52248	2	0.21
10	4.62	PHOSPHATE	579.217	1720	21534	1	-0.43
11	5.91	SULFATE	702.358	5252	72644	1	-3.01
13	7.76	OXALATE	550.271	2311	43606	1	-3.28
Totals			3874.833	36670	308133		

File: 97030921.D03 Sample: STD 42N20-C



```

=====
Sample Name: S97T000119 SAM                               Date: 03/10/1997 15:15:41
Data File  : C:\DX\DATA\97030921.D05
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 5                       Detector: CDM-1
Analyst    :                                             Column:
=====
    
```

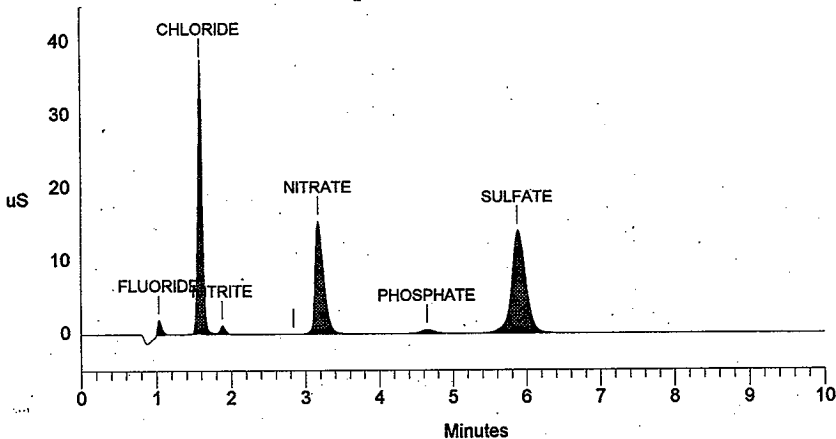
```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External           1           1 3000 5Hz 0.00 10.00           50
    
```

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.03	FLUORIDE	0.400	2028	7818	1	1.31
2	1.59	CHLORIDE	9.170	37083	146801	2	2.37
3	1.88	NITRITE	0.705	1167	5545	2	0.89
5	3.17	NITRATE	14.513	15459	123673	1	-0.83
6	4.65	PHOSPHATE	1.921	544	6814	1	0.14
7	5.88	SULFATE	17.204	14010	186799	1	-3.45
Totals			43.912	70290	477451		

File: 97030921.D05 Sample: S97T000119 SAM



```

=====
Sample Name: S97T000119 DUP                               Date: 03/10/1997 15:30:20
Data File  : C:\DX\DATA\97030921.D06
Method     : C:\DX\METHOD\ANIONS.MET
ACI Address: 1 System: 1 Inject#: 6                       Detector: CDM-1
Analyst    :                                             Column:
=====
    
```

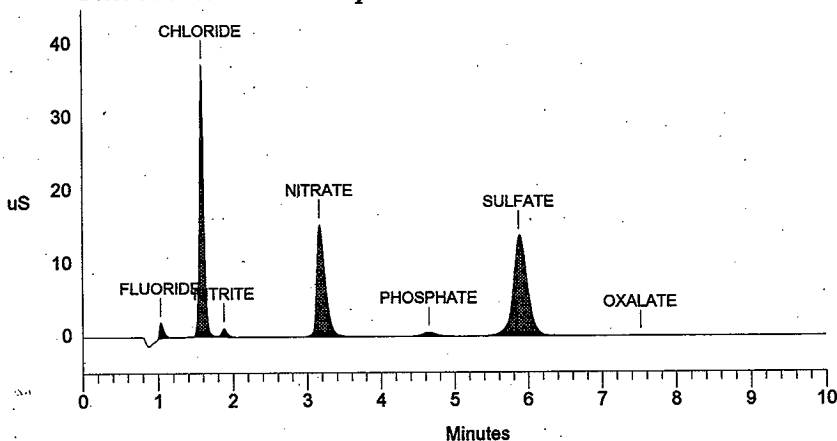
```

-----
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External           1           1 3000 5Hz 0.00 10.00           50
    
```

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.03	FLUORIDE	0.412	2049	8066	1	1.31
2	1.59	CHLORIDE	9.046	37206	144215	2	2.37
3	1.88	NITRITE	0.705	1157	5546	2	0.89
4	3.17	NITRATE	14.305	15376	121809	1	-0.83
5	4.65	PHOSPHATE	1.919	538	6809	1	0.29
6	5.88	SULFATE	16.942	13794	183784	1	-3.45
7	7.52	OXALATE	0.067	11	59	1	-6.27
Totals			43.397	70130	470289		

File: 97030921.D06 Sample: S97T000119 DUP



LABCORE Completed Worklist Report for Worklist# 17115

Analyst: eal

Instrument: IC01

Book# 42N20D

Method: LA-533705 Rev/Mod D7

Worklist Comment: T-110 IC. RCJ

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit	
1	CCB	0	⊖IC-QC	F	QC	1	<1.20e-2	ug/mL	
1	CCB	0	⊖IC-QC	CL	QC	1	<1.70e-2	ug/mL	
1	CCB	0	⊖IC-QC	NO2	QC	1	<1.09e-1	ug/mL	
1	CCB	0	⊖IC-QC	BR	QC	1	<1.25e-1	ug/mL	
1	CCB	0	⊖IC-QC	NO3	QC	1	2.08e-01	0.208 ug/mL	
1	CCB	0	⊖IC-QC	PO4	QC	1	<1.20e-1	ug/mL	
1	CCB	0	⊖IC-QC	SO4	QC	1	<1.38e-1	ug/mL	
1	CCB	0	⊖IC-QC	OXALATE2	QC	1	<1.05e-1	ug/mL	
2	CCV	0	⊖IC-QC	F	QC	5.90e01	6.11e+01	103.559 % Recovery	
2	CCV	0	⊖IC-QC	CL	QC	7.90e01	7.73e+01	97.848 % Recovery	
2	CCV	0	⊖IC-QC	NO2	QC	5.42e02	5.13e+02	94.649 % Recovery	
2	CCV	0	⊖IC-QC	BR	QC	5.89e02	5.90e+02	100.170 % Recovery	
2	CCV	0	⊖IC-QC	NO3	QC	5.94e02	6.22e+02	105.892 % Recovery	
2	CCV	0	⊖IC-QC	PO4	QC	5.44e02	4.93e+02	90.625 % Recovery	
2	CCV	0	⊖IC-QC	SO4	QC	6.31e02	6.52e+02	103.328 % Recovery	
2	CCV	0	⊖IC-QC	OXALATE2	QC	5.33e02	5.20e+02	97.561 % Recovery	
3	SAMPLE	S97T000381	0	⊖IC-01	F-02	LIQUID	N/A	4.950e-01	0.132 ug/mL
3	SAMPLE	S97T000381	0	⊖IC-01	CL-02	LIQUID	N/A	7.653e+00	0.187 ug/mL
3	SAMPLE	S97T000381	0	⊖IC-01	NO2-02	LIQUID	N/A	< 1.188e+00	1.188 ug/mL
3	SAMPLE	S97T000381	0	⊖IC-01	BR-02	LIQUID	N/A	< 1.375e+00	1.375 ug/mL
3	SAMPLE	S97T000381	0	⊖IC-01	NO3-02	LIQUID	N/A	< 7.611e+00	1.529 ug/mL
3	SAMPLE	S97T000381	0	⊖IC-01	PO4-02	LIQUID	N/A	< 1.320e+00	1.320 ug/mL
3	SAMPLE	S97T000381	0	⊖IC-01	SO4-02	LIQUID	N/A	< 1.676e+01	1.518 ug/mL
3	SAMPLE	S97T000381	0	⊖IC-01	OXALATE2	LIQUID	N/A	< 1.155e+00	1.155 ug/mL
4	DUP	S97T000381	0	⊖IC-01	F-02	LIQUID	4.95e-01	5.19e-01	4.734 RPD
4	DUP	S97T000381	0	⊖IC-01	CL-02	LIQUID	7.65e+00	8.15e+00	6.329 RPD
4	DUP	S97T000381	0	⊖IC-01	NO2-02	LIQUID	<1.19e0	<1.19e0	RPD
4	DUP	S97T000381	0	⊖IC-01	BR-02	LIQUID	<1.38e0	<1.38e0	RPD
4	DUP	S97T000381	0	⊖IC-01	NO3-02	LIQUID	7.51e+00	7.09e+00	7.075 RPD
4	DUP	S97T000381	0	⊖IC-01	PO4-02	LIQUID	<1.32e0	<1.32e0	RPD
4	DUP	S97T000381	0	⊖IC-01	SO4-02	LIQUID	1.68e+01	1.72e+01	2.353 RPD
4	DUP	S97T000381	0	⊖IC-01	OXALATE2	LIQUID	<1.16e0	<1.16e0	RPD

Final page for worklist# 17115

Analyst Signature

Date

Analyst Signature

Date

Juan M. Luyk 3/31/97

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 17115

Analyst: EAL Instrument: IC0 1 Book# 42N20-D

Method: LA-533-105 Rev/Mod D1

Worklist Comment: T-110 IC. RCJ

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	CCB		@IC-QC	QC		
2	CCV		@IC-QC	QC		
3	SAMPLE	S97T000381 0	@IC-01	LIQUID	97000083	T-110
Analytes Requested: BR-02 , CL-02 , F-02 , NO2-02 , NO3-02 , OXALATE2, PO4-02 , SO4-02						
4	DUP	S97T000381 0	@IC-01	LIQUID		

Final page for worklist # 17115

[Signature]
 Analyst Signature Date 03-20-97

 Analyst Signature Date

17115 MAR CSV gmF 3/27/97

UPLOADED 3-27-97

JH Warell

17115 MAR. CSV

Validated 3/31/97 gmEye

Data Entry Comments:

A-0010-IC				DATA FILE/WORKLIST RESOLUTION				27-Mar-97	
Worklist#: 17115				Data File: 17115MAR.CSV					
	Seq	Type	Sample #	Seq#	Data File	Sample Name	Dilution		
-	=>	1	CCB	-	1	97032001.d01	INST. BLANK	1.00	
	=>	2	CCV		2	97032001.d02	42N20-D STD.	101.00	
	=>	3	SAMPLE		3	97032001.d07	S97T000381	11.00	
	=>	4	DUP		4	97032001.d08	S97T000381DUP	11.00	
			S97T000381						
			S97T000381						
+				+					

Save (F4) Abort (Shift-F3) ListFiles (Shift-F1) UploadFile (F8)

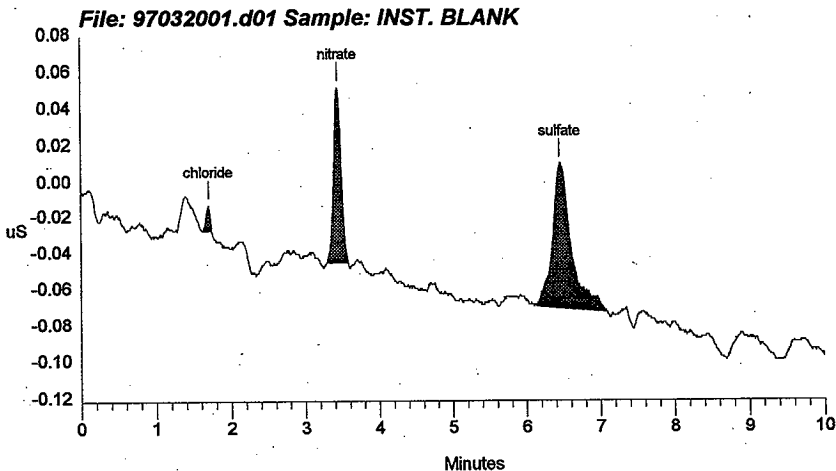
Data Reprocessed On 03/24/1997 15:53:17

=====
 Sample Name: INST. BLANK Date: 03/20/1997 19:39:28
 Data File : C:\DX\DATA\97032001.d01
 Method : C:\DX\METHOD\KIT.MET
 ACI Address: 1 System: 1 Inject#: 1 Detector: CDM-1
 Analyst : *Jan Jurec* Column: AG4A/AS4A anion column
 =====

=====
 Calibration Volume *Low* Dilution *2/1* Points Rate Start Stop Area Reject
 External 1 1 3000 5Hz 0.00 10.00 50
 =====

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.70	chloride	-0.006	14	51	1	3.03
2	3.44	nitrate	0.208	96	678	1	0.88
3	6.45	sulfate	0.046	79	1402	1	4.25
Totals			0.248	189	2131		



SIGNATURE ABOVE REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 482 TO 485

Data Reprocessed On 03/24/1997 15:53:18

```

=====
Sample Name: 42N20-D STD.                               Date: 03/20/1997 19:51:41
Data File  : C:\DX\DATA\97032001.d02
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 2                    Detector: CDM-1
Analyst    :                                           Column: AG4A/AS4A anion column
=====

```

```

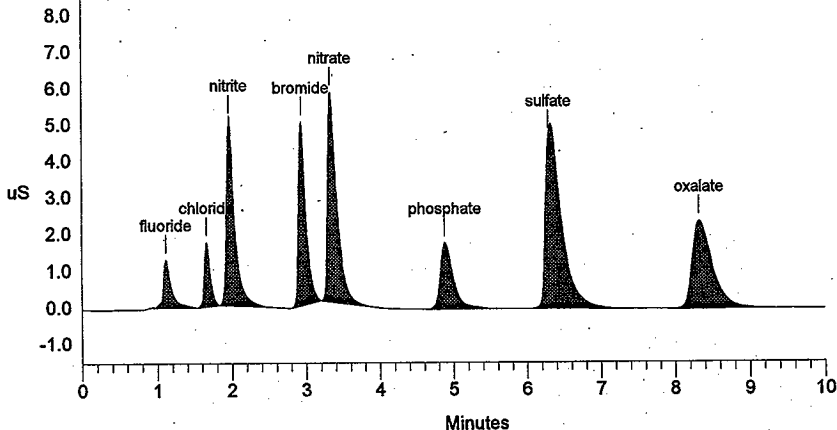
-----
Calibration Volume  Dilution Points Rate  Start  Stop Area Reject
-----
External           1           101    3000  5Hz   0.00  10.00           50
-----

```

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.11	fluoride	61.083	1294	9706	1	-1.47
2	1.66	chloride	77.288	1742	9360	1	0.61
3	1.96	nitrite	513.053	5073	38171	1	-1.51
4	2.93	bromide	589.568	5019	33798	1	-2.22
5	3.33	nitrate	629.352	5740	48887	1	-2.44
6	4.88	phosphate	528.161	1801	22094	1	3.39
7	6.29	sulfate	651.912	4748	75700	1	1.67
8	8.32	oxalate	519.638	2401	45098	1	5.45
Totals			3570.055	27817	282815		

File: 97032001.d02 Sample: 42N20-D STD.



Data Reprocessed On 03/24/1997 15:53:21

```

=====
Sample Name: S97T000381                               Date: 03/20/1997 23:16:29
Data File  : C:\DX\DATA\97032001.d07
Method     : C:\DX\METHOD\KIT.MET
ACI Address: 1 System: 1 Inject#: 7                   Detector: CDM-1
Analyst    :                                           Column: AG4A/AS4A anion column
=====

```

```

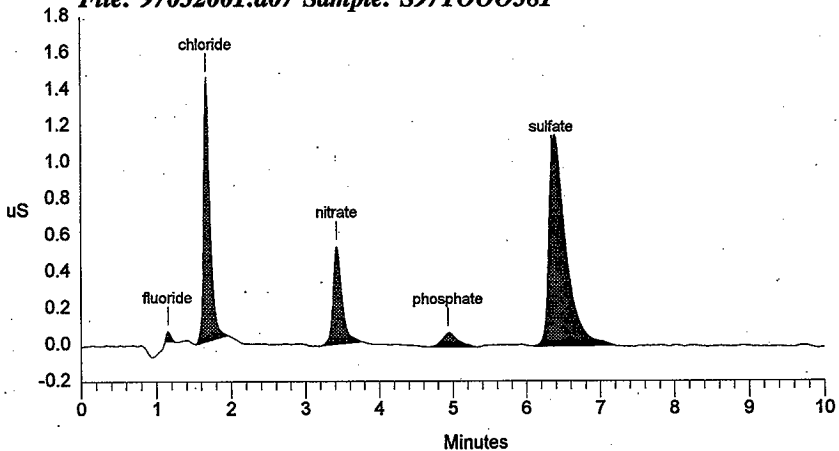
=====
Calibration Volume Dilution Points Rate Start Stop Area Reject
-----
External           1           11    3000 5Hz   0.00 10.00           50
=====

```

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.15	fluoride	0.495	55	244	1	2.06
2	1.67	chloride	7.653	1441	8511	1	1.01
3	3.43	nitrate	7.611	536	4501	1	0.49
4	4.93	phosphate	3.488	77	1117	1	4.52
5	6.35	sulfate	16.757	1015	18305	1	2.53
Totals			36.004	3125	32677		

File: 97032001.d07 Sample: S97T000381



```

=====
Sample Name: S97TOOO381DUP                               Date: 03/20/1997 23:27:21
Data File  : C:\DX\DATA\97032001.d08
Method     : C:\DX\METHOD\KIT.MET                       HNF-SD-WM-DP-238, REV. 0
ACI Address: 1 System: 1 Inject#: 8                       Detector:CDM-1
Analyst    :                                             Column: AG4A/AS4A anion column
=====
    
```

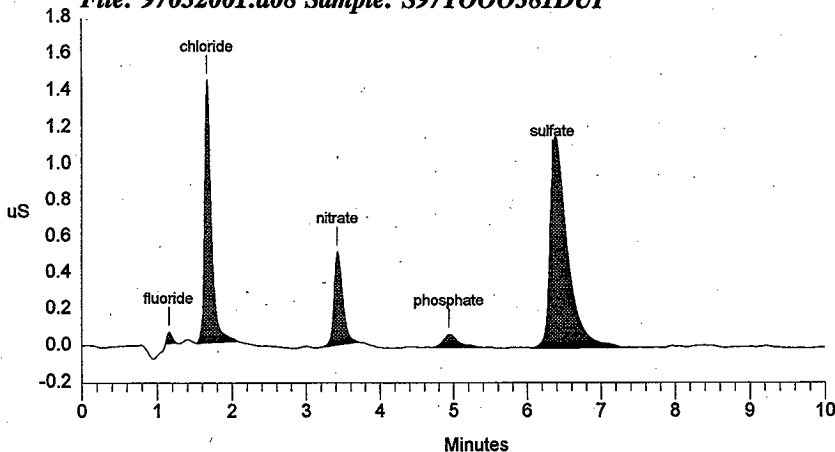
```

-----
Calibration Volume  Dilution Points Rate  Start  Stop Area Reject
-----
External           1           11  3000  5Hz   0.00  10.00           50
    
```

***** Peak Report: All Peaks *****

Pk. Num	Ret Time	Component Name	Concentration ug/ml	Height	Area	Bl. Code	%Delta
1	1.15	fluoride	0.519	60	279	1	2.06
2	1.67	chloride	8.147	1437	9060	1	1.01
3	3.42	nitrate	7.094	513	4129	1	0.29
4	4.93	phosphate	3.309	71	1049	1	4.52
5	6.35	sulfate	17.179	1008	18746	1	2.53
Totals			36.248	3089	33262		

File: 97032001.d08 Sample: S97TOOO381DUP



02/19/97 15:33
A-0004-1

FILE # 0970221 B. TXT

HNF-SD-WM-DP-238, REV. 0

Page: 1

LABCORE Data Entry Template for Worklist# 16639

Analyst: B. GOECKE Instrument: ICP01⁰² Book# 65B44BMethod: LA-505-1517161 Rev/Mod B-1

Worklist Comment: ICP T-110 (DIRECT)

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	ICV		@ICP-QC	QC		
2	ICB		@ICP-QC	QC		
3	LLS		@ICP-QC	QC		
4	ICSA		@ICP-QC	QC		
5	ICSAB		@ICP-QC	QC		
6	SERDIL	S97T000008 0 D	@ICP-D01	LIQUID		
7	SAMPLE	S97T000008 0 D	@ICP-D01	LIQUID	96001704	T-110 GRAB
			Analytes Requested: AG-D-01, AL-D-01, AS-D-01, B-D-01, BA-D-01, BE-D-01, BI-D-01, CA-D-01, CD-D-01, CE-D-01, CO-D-01, CR-D-01, CU-D-01, FE-D-01, K-D-01, LA-D-01, LI-D-01, MG-D-01, MN-D-01, MO-D-01, NA-D-01, ND-D-01, NI-D-01, P-D-01, PB-D-01, S-D-01, SB-D-01, SE-D-01, SI-D-01, SM-D-01, SR-D-01, TI-D-01, TL-D-01, U-D-01, V-D-01, ZN-D-01, ZR-D-01			
8	DUP	S97T000008 0 D	@ICP-D01	LIQUID		
9	SPK	S97T000008 0 D	@ICP-D01	LIQUID		
10	CCV		@ICP-QC	QC		
11	CCB		@ICP-QC	QC		
12	SAMPLE	S97T000119 0 D	@ICP-D01	LIQUID	97000083	T-110
			Analytes Requested: AG-D-01, AL-D-01, AS-D-01, B-D-01, BA-D-01, BE-D-01, BI-D-01, CA-D-01, CD-D-01, CE-D-01, CO-D-01, CR-D-01, CU-D-01, FE-D-01, K-D-01, LA-D-01, LI-D-01, MG-D-01, MN-D-01, MO-D-01, NA-D-01, ND-D-01, NI-D-01, P-D-01, PB-D-01, S-D-01, SB-D-01, SE-D-01, SI-D-01, SM-D-01, SR-D-01, TI-D-01, TL-D-01, U-D-01, V-D-01, ZN-D-01, ZR-D-01			

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

02/19/97 15:33
A-0004-1

LABCORE Data Entry Template for Worklist# 16639

S Type	Sample#	R	A	Test	Matrix	Group#	Project
13 DUP	S97T000119	0	D	@ICP-DO1	LIQUID		
14 ICSA				@ICP-QC	QC		
15 IC SAB				@ICP-QC	QC		
16 CCV				@ICP-QC	QC		
17 CCB				@ICP-QC	QC		

Final page for worklist # 16639

[Signature] 2-21-97
 Analyst Signature Date

Reviewed by:
[Signature] 2/24/97
 Analyst Signature Date

S97T000008-C	.1ml - 2.2ml - 2ml - 6ml	DF
8	.1ml - 2.2ml	500
8-D	.1ml - 2.2ml	100
8-A	.1ml - 2ml (5575) - 2.2ml	100
8-X	.1ml - 2.2ml - 1ml - 2ml	100
8-AX	.1ml - (.1ml - .1ml XWHR 2575) - 2ml 2-21-97	1000
	.1ml - 2.2ml - 1ml - (.1ml - .1ml XWHR 2575) - 2ml	1000
S97T000119		
119-D	1ml - 6ml	7
	1ml - 6ml	7

Data Entry Comments: Spike money calculation:

$$S97T000008 \quad Al = \left(\frac{97.86}{1.0} \right) - 0 \quad \times 100 = 97.86\%$$

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Second post spike:

$$Na = \frac{\left(\frac{47260}{1000}\right) - \left(\frac{36980}{1000}\right)}{10} \times 100 = 102.8\%$$

$$P = \frac{\left(\frac{15370}{1000}\right) - \left(\frac{5592}{1000}\right)}{10} \times 100 = 97.8\%$$

HNF-SD-WM-DP-238, REV. 0

Analysis Report

Summary

Fri 02-21-97 02:46:29 PM

page 1

#	Sample Name	File	Method	Date	Time	OpID	Type	Mode
1	ICV	970221B	ICP2	02/21/97	13:40	BJG	Q	CONC
2	ICB	970221B	ICP2	02/21/97	13:43	BJG	Q	CONC
3	LLS	970221B	ICP2	02/21/97	13:45	BJG	Q	CONC
4	ICSA	970221B	ICP2	02/21/97	13:48	BJG	Q	CONC
5	ICSAB	970221B	ICP2	02/21/97	13:51	BJG	Q	CONC
6	S97T000008 L	970221B	ICP2	02/21/97	13:57	BJG	S	CONC
7	S97T000008-	970221B	ICP2	02/21/97	13:59	BJG	S	CONC
8	S97T000008 D	970221B	ICP2	02/21/97	14:02	BJG	S	CONC
9	S97T000008-A	970221B	ICP2	02/21/97	14:05	BJG	S	CONC
10	S97T000008-X	970221B	ICP2	02/21/97	14:09	BJG	S	CONC
11	S97T000008-AX	970221B	ICP2	02/21/97	14:12	BJG	S	CONC
12	CCV	970221B	ICP2	02/21/97	14:15	BJG	Q	CONC
13	CCB	970221B	ICP2	02/21/97	14:26	BJG	Q	CONC
14	S97T000119	970221B	ICP2	02/21/97	14:28	BJG	S	CONC
15	S97T000119_D	970221B	ICP2	02/21/97	14:31	BJG	S	CONC
16	ICSA	970221B	ICP2	02/21/97	14:34	BJG	Q	CONC
17	ICSAB	970221B	ICP2	02/21/97	14:37	BJG	Q	CONC
18	CCV	970221B	ICP2	02/21/97	14:39	BJG	Q	CONC
19	CCB	970221B	ICP2	02/21/97	14:42	BJG	Q	CONC

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 489 TO 494.

BJG

2-21-97

T-110

Int-9.2ul

Int-6ul

S97T000008 + 119

FILE # 0970221 B.TRT

Analysis Report

Averages

Fri 02-21-97 02:46:29 PM

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#	Sample Name	Ag	Al	As	B	Ba	Be
1	ICV	4.936	4.947	5.246	5.017	4.975	5.119
2	ICB	.0003	.0075	.0005	.0067	.0003	.0005
3	LLS	.0225	.1142	.2034	.1066	.1000	.1008
4	ICSA	.0001	242.8	-.0450	.0013	.0001	.0004
5	ICSAB	.9595	240.4	-.0344	-.0009	.4719	.4774
6	S97T000008 L	2.560	3.231	-1.749	-.4890	.0100	.1255
7	S97T000008-	2.608	.7131	1.660	.4817	.0029	.0210
8	S97T000008 D	2.703	1.156	.0312	.1440	.0024	.0168
9	S97T000008 A	95.46	97.86	104.6	98.32	96.82	99.04
10	S97T000008 X	2.608	5.924	3.107	-.4927	-.0121	.2096
11	S97T000008 AX	8854.	9744.	10050.	9883.	10050.	9920.
12	CCV	4.907	4.896	5.184	4.975	4.974	5.047
13	CCB	Q.0143	.0044	.0040	.0019	-.0001	.0002
14	S97T000119	.0016	.0737	.0360	1.448	.0169	.0015
15	S97T000119 D	.0017	.0699	-.0153	1.417	.0167	.0018
16	ICSA	.0032	241.3	-.0471	-.0051	.0001	.0003
17	ICSAB	.9638	241.7	-.0517	.0020	.4809	.4782
18	CCV	4.916	4.945	5.184	5.021	5.042	5.094
19	CCB	.0020	.0118	.0032	.0058	.0002	.0005

#	Sample Name	Bi	Ca	Cd	Ce	Co	Cr
1	ICV	5.096	4.906	5.017	5.003	5.061	5.009
2	ICB	.0035	.0007	.0010	-.0034	.0027	.0001
3	LLS	.2189	.2415	.0118	.1998	.0420	.0214
4	ICSA	.0064	246.3	.0012	-.0062	.0002	.0076
5	ICSAB	.0035	246.0	.9350	-.0022	.4922	.4807
6	S97T000008 L	6.219	2.142	.1586	-2.621	.7753	34.79
7	S97T000008-	4.717	1.546	-.0330	-.4876	.1693	34.58
8	S97T000008 D	1.088	1.266	-.0213	-.0089	.2083	34.49
9	S97T000008 A	104.2	98.04	98.52	97.92	99.27	133.0
10	S97T000008 X	11.22	3.038	.0917	-8.523	1.298	35.53
11	S97T000008 AX	10170.	9964.	9881.	10150.	9962.	9994.
12	CCV	5.085	4.867	4.970	4.962	5.020	4.961
13	CCB	-.0287	.0016	-.0001	-.0082	.0005	-.0005
14	S97T000119	.1731	16.12	-.0010	-.0665	.0081	-.0029
15	S97T000119 D	-.1182	16.07	.0016	-.0405	.0128	-.0029
16	ICSA	.0075	247.0	.0005	.0042	.0023	.0087
17	ICSAB	.0023	245.5	.9343	.0040	.4673	.4801
18	CCV	5.130	4.913	4.998	5.034	5.058	4.995
19	CCB	-.0082	.0016	-.0004	.0003	.0013	.0014

#	Sample Name	Cu	Eu	Fe	K	La	Li
1	ICV	5.359	-.0023	5.276	4.834	5.109	5.017
2	ICB	-.0006	-.0012	-.0003	.0899	-.0004	-.0010
3	LLS	.0213	-.0014	.1053	Q.3162	.1041	.0198
4	ICSA	-.0091	-.0298	93.14	.0792	-.0055	.0020
5	ICSAB	.4786	-.0287	92.28	-.0227	-.0058	1.026
6	S97T000008 L	.0076	-.4581	1.061	301.4	-.0662	-.2317
7	S97T000008-	-.0941	-.0706	1.816	316.4	-.0788	-.0221

Analysis Report Averages Fri 02-21-97 02:46:29 PM page 3

#	Sample Name	Cu	Eu	Fe	K	La	Li
8	S97T000008 D	- .0727	- .0826	1.824	338.3	.0421	- .0332
9	S97T000008-A	104.9	- .1397	104.4	420.9	100.8	99.63
10	S97T000008-X	- .8446	- .6095	- .2708	317.4	- .8690	- .8562
11	S97T000008-AX	9932.	- 3.345	9867.	9771.	10120.	9962.
12	CCV	5.302	- .0022	5.201	4.647	5.053	4.963
13	CCB	- .0004	- .0008	- .0011	- .1322	- .0012	- .0006
14	S97T000119	- .0014	.0073	- .0103	- .3938	- .0059	.0016
15	S97T000119_D	- .0029	.0099	- .0085	1.263	- .0014	.0008
16	ICSA	- .0098	- .0323	92.73	.0977	- .0044	.0022
17	IC SAB	.4853	- .0258	92.30	.0227	- .0049	1.035
18	CCV	5.358	- .0021	5.234	4.713	5.128	5.014
19	CCB	- .0004	- .0011	.0001	.0676	- .0002	- .0008

#	Sample Name	Mg	Mn	Mo	Na	Nd	Ni
1	ICV	5.031	4.918	5.122	5.160	5.083	5.006
2	ICB	.0044	- .0001	.0120	- .0107	- .0008	- .0002
3	LLS	.2116	.0191	.1061	.1974	.2024	.0391
4	ICSA	230.6	- .0063	- .0066	197.1	.0006	- .0065
5	IC SAB	247.5	.4480	- .0077	194.2	.0009	.9258
6	S97T000008 L	4.368	.0292	.1678	37240.	.0595	1.626
7	S97T000008-	8605.	.2015	.0167	36950.	- .3872	.0035
8	S97T000008 D	1.338	.1982	- .0395	36880.	- .1855	.0890
9	S97T000008-A	97.36	94.93	100.7	37440.	99.43	97.74
10	S97T000008-X	- 1.160	- .1487	1.646	36980.	.0722	2.739
11	S97T000008-AX	10200.	9877.	10020.	47260.	9817.	9896.
12	CCV	4.954	4.886	5.090	5.061	5.025	4.968
13	CCB	- .0005	- .0004	- .0029	- .0088	- .0011	- .0025
14	S97T000119	3.398	.2715	.0064	11.68	- .0143	.0199
15	S97T000119_D	3.356	.2703	- .0105	11.55	- .0121	- .0130
16	ICSA	248.7	- .0061	- .0029	194.1	.0035	.0012
17	IC SAB	248.1	.4446	- .0094	195.7	.0038	.9193
18	CCV	4.979	4.898	5.115	5.119	5.095	5.001
19	CCB	- .0001	- .0001	.0089	- .0119	- .0004	.0058

#	Sample Name	P	Pb	S	Sb	Se	Si
1	ICV	5.100	4.925	4.963	4.878	4.825	4.964
2	ICB	- .0091	- .0169	- .0020	- .0066	.0556	- .0084
3	LLS	.3942	.1993	.1933	.0968	Q.2692	.1268
4	ICSA	.0038	.0014	- .0376	.0146	.0050	- .0010
5	IC SAB	.0385	.9718	- .0451	- .0029	- .0112	- .0072
6	S97T000008 L	5600.	- 6.006	1587.	- 4.188	22.17	59.45
7	S97T000008-	5548.	- 1.526	1580.	.2831	6.001	64.33
8	S97T000008 D	5561.	- 1.732	1592.	.3830	4.271	64.67
9	S97T000008-A	5695.	96.90	1686.	97.33	102.0	163.9
10	S97T000008-X	5592.	- 4.013	1599.	2.398.	55.53	64.77
11	S97T000008-AX	15370.	10040.	11280.	10130.	9742.	10180.
12	CCV	5.102	4.873	4.951	4.832	4.793	4.937
13	CCB	- .0059	- .0079	- .0102	.0015	- .0511	- .0052
14	S97T000119	.8121	- .0466	8.820	- .0519	.3677	4.702
15	S97T000119_D	.7533	- .1052	9.084	- .0368	.3787	4.752

Analysis Report

Averages

Fri 02-21-97 02:46:29 PM

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#	Sample Name	P	Pb	S	Sb	Se	Si
16	ICSA	-.0064	-.0052	-.0208	.0044	-.0083	.0098
17	ICSA B	.0212	.9699	-.0117	.0229	-.0166	-.0029
18	CCV	5.047	4.920	4.920	4.860	4.812	4.948
19	CCB	-.0024	-.0109	.0006	.0002	.0724	-.0030

#	Sample Name	Sm	Sr	Th	Ti	Tl	U
1	ICV	5.006	5.024	.0634	4.991	4.893	9.787
2	ICB	-.0144	.0000	.0055	-.0002	-.0395	-.0625
3	LLS	.1885	.0203	.0099	.0200	.3787	.4220
4	ICSA	-.0170	.0020	.0048	.0003	-.0072	-.1197
5	ICSA B	-.0116	.0019	.0059	.0008	.0047	-.1248
6	S97T000008 L	-7.675	.0027	.8945	-.2313	-14.05	-31.84
7	S97T000008	-.9400	.0405	.5909	-.0925	-3.156	-4.837
8	S97T000008 D	-1.238	.0405	.7433	-.0683	-1.641	-5.058
9	S97T000008 A	97.08	98.25	1.698	98.16	93.84	186.3
10	S97T000008 X	-8.213	-.0966	2.251	-.2206	-8.345	-44.07
11	S97T000008 AX	9834.	9981.	132.5	10090.	9830.	19240.
12	CCV	4.955	4.952	.0632	4.923	4.843	9.694
13	CCB	-.0103	-.0001	.0013	-.0007	-.0062	-.0430
14	S97T000119	-.0857	-.0739	.0425	-.0049	-.0276	-.2659
15	S97T000119 D	-.0421	.0736	.0197	-.0066	-.1424	-.1999
16	ICSA	-.0123	.0019	.0032	.0008	.0348	-.1251
17	ICSA B	-.0191	.0020	.0022	.0008	.0273	-.1351
18	CCV	5.018	5.024	.0624	4.987	4.883	9.818
19	CCB	-.0153	-.0000	.0049	-.0002	-.0138	-.0681

#	Sample Name	V	Y	Zn	Zr
1	ICV	5.115	.0053	5.121	5.025
2	ICB	-.0027	-.0008	.0001	-.0029
3	LLS	.0981	-.0006	.0219	.0172
4	ICSA	-.0034	.0063	.0050	-.0055
5	ICSA B	.4671	.0066	.9505	-.0050
6	S97T000008 L	-1.439	-.3783	.3979	-1.294
7	S97T000008	-.2358	-.0763	.1371	-.2187
8	S97T000008 D	-.1984	-.0605	.1688	-.2658
9	S97T000008 A	100.2	.0306	101.7	98.52
10	S97T000008 X	-2.954	-.6866	.0437	-1.924
11	S97T000008 AX	9928.	11.41	9842.	9982.
12	CCV	5.057	.0053	5.072	4.979
13	CCB	-.0022	-.0005	-.0001	-.0019
14	S97T000119	-.0211	-.0043	.4522	-.0184
15	S97T000119 D	-.0119	-.0032	.4475	-.0143
16	ICSA	-.0028	.0065	.0060	-.0047
17	ICSA B	.4666	.0062	.9495	-.0054
18	CCV	5.097	.0052	5.084	5.027
19	CCB	-.0031	-.0009	.0010	-.0032

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LBCORE Completed Worklist Report for Worklist# 16990

Analyst: slh

Instrument: CARB2

Book# 25N12A
26N12A

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: T-110 & 2706T (S97TP00015) @TICTOC1

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 BLNK	0		@TICTOC1 TIC-02	LIQUID	1	5.00e+0	5.000	ug/mL
1 BLNK	0		@TICTOC1 TOC-02	LIQUID	1	1.00e-1	0.100	ug/mL
2 STD	0		@TICTOC1 TIC-02	LIQUID	6.02e02	6.10e+2	101.329 % Recovery	
2 STD	0		@TICTOC1 TOC-02	LIQUID	3.001e03	2.86e+3	95.302 % Recovery	
3 SAMPLE	S97T000381	0	@TICTOC1 TIC-02	LIQUID	N/A	1.41e+1	5.000	ug/mL
3 SAMPLE	S97T000381	0	@TICTOC1 TOC-02	LIQUID	N/A	< 4.00e+1	40.000	ug/mL
4 DUP	S97T000381	0	@TICTOC1 TIC-02	LIQUID	1.41e+1	1.48e+1	4.844	RPD
4 DUP	S97T000381	0	@TICTOC1 TOC-02	LIQUID	<4.00e+1	<4.00e+1	RPD	
5 SPK	S97T000381	0	@TICTOC1 TIC-02	LIQUID	100	100.1	100.100 % Recovery	
5 SPK	S97T000381	0	@TICTOC1 TOC-02	LIQUID	100	96.3	96.300 % Recovery	
6 SAMPLE	S97TP00015	0	@TICTOC1 TIC-02	LIQUID	N/A	2.89e+1	5.000	ug/mL
6 SAMPLE	S97TP00015	0	@TICTOC1 TOC-02	LIQUID	N/A	6.49e+1	40.000	ug/mL

Final page for worklist# 16990

Analyst Signature

Date

Analyst Signature

Date

R. J. Arnold 4/10/97
Reviewer Signature Date

04/10/97 13:09
A-0004-1

LABCORE Data Entry Template for Worklist# 16990

Analyst: _____ **Instrument:** CARB2 _____ **Book#** _____

Method: LA-342-100 Rev/Mod _____

Worklist Comment: T-110 & 2706T (S97TP00015) @TICTOC1

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 BLNK			@TICTOC1	LIQUID		
2 STD			@TICTOC1	LIQUID		
3 SAMPLE	S97T000381 0		@TICTOC1	LIQUID	97000083	T-110
	Analytes Requested: TIC-02 , TOC-02					
4 DUP	S97T000381 0		@TICTOC1	LIQUID		
5 SPK	S97T000381 0		@TICTOC1	LIQUID		
6 SAMPLE	S97TP00015 0		@TICTOC1	LIQUID	97000211	2706-T
	Analytes Requested: TIC-02 , TOC-02					

Final page for worklist # 16990

Analyst Signature _____ **Date** _____

Analyst Signature _____ **Date** _____

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

03/13/97 14:11
A-0004-1

LABCORE Data Entry Template for Worklist# 16990

Analyst: SJH Instrument: CARB2 Book# TIC 25N12-A
TOC 26N12-A

Method: LA-342-100 Rev/Mod E-0

Worklist Comment: T-110, @TICTOC1, Std: TIC= 1.0mL, TOC= .200mL skm

S	Type	Sample#	R	A	Test	Matrix	Group#	Project
1	BLNK				@TICTOC1 LIQUID			
2	STD				@TICTOC1 LIQUID			
3	SAMPLE	S97T000381 0			@TICTOC1 LIQUID		97000083	T-110
Analytes Requested: TIC-02 , TOC-02								
4	DUP	S97T000381 0			@TICTOC1 LIQUID			

Final page for worklist # 16990

Sandra Hood Boatright
 Analyst Signature Date
 4-6-97

Analyst Signature Date

Data Entry Comments:

WL # 17167 + ~~17217~~ + ~~17335~~
 RWS 4/8/97
 added to this WL

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

LABCORE Data Entry Template for Worklist# 17167

Analyst: SLH Instrument: CARB2 _____ Book# TIC 25N12-A

Method: LA-342-100 Rev/Mod _____ TOC 26N12-A

Worklist Comment: 2706T ^{See 3/26/97} 15-1 T PLANT FOR @TICTOC1 (STD .2-10-.2 TOC)1.0 TIC RT

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	STD		@TICTOC1	LIQUID		
2	BLNK		@TICTOC1	LIQUID		
3	SAMPLE	S97TP00015 0	@TICTOC1	LIQUID	97000211	2706-T

Analytes Requested: TIC-02 , TOC-02

Final page for worklist # 17167

Sandra Rhoad Boatright
Analyst Signature Date
4-6-97

Analyst Signature Date

Data Entry Comments:

added to WL # 16990

INSTRUMENT CODE

ANALYSIS TIME

ANALYSIS DATE

TIC: TOC: LA-342-106 (E-0)
WORKLIST # 2015 4/17/17
INITIALS 4/17/17
16990774674747 SUT

0345

4-6-94

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

SAMPLE # = S97700381 STD # =
SAMPLE WEIGHT (g) 1ml = 1.00375
SPIKE STANDARD VOLUME (mL) TOC:

SAMPLE # = BASE 2 STD # =
SAMPLE WEIGHT (g) TOC:
SPIKE STANDARD VOLUME (mL) TOC: 39.30

FINAL COULOMETER READING (u TIC: 17.9 TOC: 44.9

FINAL COULOMETER READING (u TIC: 613.0 TOC: 611.8

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

SAMPLE # = S97700381 STD # = TIC 25N12-A
SAMPLE WEIGHT (g) 1ml = 1.00315 TOC 26N12-A
SPIKE STANDARD VOLUME (mL) 500 uL TOC: 100 uL
FINAL COULOMETER READING (u TIC: 318.4 TOC: 335.4

SND SAMPLE # = STD 2 STD # = TIC 25ND-A
SAMPLE WEIGHT (g) TOC:
SPIKE STANDARD VOLUME (mL) 200 uL TOC: 200 uL
FINAL COULOMETER READING (u TIC: 8.10 TOC: 39.20

Wash

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

SAMPLE # = S977P0015 STD # =
SAMPLE WEIGHT (g) 1ml = 0.99719
SPIKE STANDARD VOLUME (mL) TOC:
FINAL COULOMETER READING (u TIC: 32.0 TOC: 104.2

499 SAMPLE # = BIL 2 STD # =
SAMPLE WEIGHT (g) TOC:
SPIKE STANDARD VOLUME (mL) TOC: 39.20
FINAL COULOMETER READING (u TIC: 8.10 TOC: 39.20

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

BASELINE BLANK SAMPLE DUPLICATE SPIKE TRIPLICATE

SAMPLE # = S977P0008 STD # =
SAMPLE WEIGHT (g) 1ml = 1.0018
SPIKE STANDARD VOLUME (mL) TOC:
FINAL COULOMETER READING (u TIC: 102.4 TOC: 908

SAMPLE # = S97700381 STD # =
SAMPLE WEIGHT (g) 1ml = 1.00209
SPIKE STANDARD VOLUME (mL) TOC:
FINAL COULOMETER READING (u TIC: 17.2 TOC: 46.6

RUNS 4/19/97

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 2

Date: 04/05/97

Time: 22:18:16

Sample Size = 1000 uL
Dil Factor = 1
Blank ID # =
Blank Value = .28 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.50	60.00
3	1.50	35.90	98.61
4	2.00	195.10	81.60
5	2.50	368.70	47.08
6	3.00	489.30	24.65
7	3.50	552.70	11.47
8	4.00	582.30	5.08
9	4.50	598.30	2.67
10	5.00	604.30	0.99
11	5.50	607.60	0.54
12	6.00	608.90	0.21
13	6.50	609.60	0.11
14	7.00	610.20	0.10
15	7.50	610.70	0.08
16	8.00	611.00	0.05
17	8.50	611.40	0.07
18	9.00	611.90	0.08
19	9.50	612.10	0.03
20	10.00	612.30	0.03
21	10.50	612.70	0.07
22	11.00	613.00	0.05

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(613 - 3.078872) (1) / (1000) =

+6.099E-01 g/L Carbon

(613 - 3.078872) (1) / (1000) (12) =

+5.083E-02 Molar Carbon

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 500 TO 519

Sample Run. By:

Sandra Hood Boatman
SL HOOD

00002

1ml
25M12-A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: STD 2

Date: 04/05/97

Time: 22:33:36

Sample Size = 200 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.57 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.50	3.20	93.75
4	2.00	21.60	85.19
5	2.50	75.70	71.47
6	3.00	181.80	58.36
7	3.50	335.60	45.83
8	4.00	476.40	29.55
9	4.50	552.00	13.70
10	5.00	586.10	5.82
11	5.50	599.10	2.17
12	6.00	603.70	0.76
13	6.50	605.80	0.35
14	7.00	607.10	0.21
15	7.50	608.20	0.18
16	8.00	609.00	0.13
17	8.50	609.60	0.10
18	9.00	610.10	0.08
19	9.50	610.60	0.08
20	10.00	611.10	0.08
21	10.50	611.40	0.05
22	11.00	611.80	0.07

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(611.8 - 39.25562) (1)/(200) = +2.863E+00 g/L Carbon
 (611.8 - 39.25562) (1)/(200) (12) = +2.386E-01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

200ml
26N12-A

Sample Run By: Sandra Hood Boatright
SL HOOD 00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE 2

Date: 04/05/97

Time: 21:41:43

Sample Size = 1 uL
 Dil Factor = 1
 Blank ID # = BASE 2
 Blank Value = N/A

Analyst : SL HOOD
 Min Readings = 22
 Max Readings = 22
 % Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1.	0.51	0.10	0.00
2	1.01	0.10	0.00
3	1.51	0.30	66.67
4	2.00	0.50	40.00
5	2.50	0.70	28.57
6	3.00	0.90	22.22
7	3.50	1.00	10.00
8	4.00	1.20	16.67
9	4.50	1.40	14.29
10	5.00	1.50	6.67
11	5.50	1.60	6.25
12	6.00	1.80	11.11
13	6.50	1.90	5.26
14	7.00	2.10	9.52
15	7.50	2.20	4.55
16	8.00	2.30	4.35
17	8.50	2.40	4.17
18	9.00	2.60	7.69
19	9.50	2.70	3.70
20	10.00	2.90	6.90
21	10.50	3.00	3.33
22	11.00	3.10	3.23

BLANK VALUE = 3.1 micrograms carbon
 BLANK FACTOR = 3.1 / 10.99609 =

+2.8E-01 ug/min Carbon

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT

TICTOC REV 2.0

<<< BLANK ANALYSIS >>>

Sample: BASE 2

Date: 04/05/97

Time: 21:58:50

Sample Size = 1 uL
 Dil Factor = 1
 Blank ID # = BASE 2
 Blank Value = N/A

Analyst : SL HOOD
 Min Readings = 22
 Max Readings = 22
 % Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.20	100.00
3	1.50	2.50	92.00
4	2.00	7.60	67.11
5	2.50	15.50	50.97
6	3.01	23.30	33.48
7	3.50	28.60	18.53
8	4.00	31.40	8.92
9	4.50	33.10	5.14
10	5.00	34.10	2.93
11	5.50	35.00	2.57
12	6.00	35.60	1.69
13	6.50	36.00	1.11
14	7.00	36.50	1.37
15	7.50	37.00	1.35
16	8.00	37.30	0.80
17	8.50	37.70	1.06
18	9.00	38.10	1.05
19	9.50	38.40	0.78
20	10.00	38.70	0.78
21	10.50	38.90	0.51
22	11.00	39.30	1.02

BLANK VALUE = 39.3 micrograms carbon

BLANK FACTOR = 39.3 / 10.99951 = +3.57E+00 ug/min Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

SL HOOD

00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK 2

Date: 04/05/97

Time: 22:47:25

Sample Size = 1 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = .28 ug/minute C

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.20	0.00
2	1.00	0.60	66.67
3	1.50	1.70	64.71
4	2.00	2.60	34.62
5	2.50	3.20	18.75
6	3.00	3.60	11.11
7	3.50	3.90	7.69
8	4.00	4.20	7.14
9	4.50	4.70	10.64
10	5.00	5.00	6.00
11	5.50	5.20	3.85
12	6.00	5.40	3.70
13	6.50	5.70	5.26
14	7.00	6.00	5.00
15	7.50	6.30	4.76
16	8.00	6.50	3.08
17	8.50	6.80	4.41
18	9.00	7.10	4.23
19	9.50	7.40	4.05
20	10.00	7.60	2.63
21	10.50	7.90	3.80
22	11.00	8.10	2.47

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(8.1 - 3.080171) (1)/(1) =

+5.0E+00 g/L Carbon

(8.1 - 3.080171) (1)/(1) (12) =

+4.2E-01 Molar Carbon

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: BLK 2

Date: 04/05/97

Time: 23:01:35

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.57 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.20	0.00
2	1.01	0.70	71.43
3	1.50	5.20	86.54
4	2.00	14.20	63.38
5	2.50	22.50	36.89
6	3.00	27.50	18.18
7	3.50	31.00	11.29
8	4.00	32.60	4.91
9	4.50	33.80	3.55
10	5.00	34.40	1.74
11	5.50	35.00	1.71
12	6.00	35.50	1.41
13	6.50	35.90	1.11
14	7.00	36.40	1.37
15	7.50	36.90	1.36
16	8.00	37.20	0.81
17	8.50	37.60	1.06
18	9.00	38.10	1.31
19	9.50	38.20	0.26
20	10.00	38.60	1.04
21	10.50	38.90	0.77
22	11.00	39.20	0.77

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(39.2 - 39.26564) (1)/(1) = < 5.00 E-3 g/L Carbon
(39.2 - 39.26564) (1)/(1) (12) = < 4.17 E-4 Molar Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

SL HOOD

00002

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T00381

Date: 04/05/97

Time: 23:17:48

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .28 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.80	62.50
3	1.51	2.50	68.00
4	2.00	5.60	55.36
5	2.50	9.10	38.46
6	3.00	10.90	16.51
7	3.50	12.30	11.38
8	4.00	13.20	6.82
9	4.50	13.80	4.35
10	5.00	14.00	1.43
11	5.50	14.40	2.78
12	6.00	14.70	2.04
13	6.50	15.00	2.00
14	7.00	15.30	1.96
15	7.50	15.50	1.29
16	8.00	15.80	1.90
17	8.50	16.10	1.86
18	9.00	16.10	0.00
19	9.50	16.40	1.83
20	10.00	16.60	1.20
21	10.50	16.80	1.19
22	11.00	17.20	2.33

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(17.2 - 3.079419) (1) / (1) =
(17.2 - 3.079419) (1) / (1) (12) =

+1.41E+01 g/L Carbon
+1.18E+00 Molar Carbon

Sample Run By:

SL HOOD

00002

35 1ml
1.00 26g

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381

Date: 04/05/97

Time: 23:30:35

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.57 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.60	83.33
3	1.50	4.90	87.76
4	2.00	16.00	69.38
5	2.50	25.70	37.74
6	3.00	32.60	21.17
7	3.50	36.80	11.41
8	4.00	38.90	5.40
9	4.50	40.10	2.99
10	5.00	41.10	2.43
11	5.50	41.80	1.67
12	6.00	42.50	1.65
13	6.50	43.00	1.16
14	7.00	43.60	1.38
15	7.50	43.90	0.68
16	8.00	44.30	0.90
17	8.50	44.70	0.89
18	9.00	45.10	0.89
19	9.50	45.50	0.88
20	10.00	45.90	0.87
21	10.50	46.20	0.65
22	11.00	46.60	0.86

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(46.6 - 39.26259) (1)/(1) = +7.34E+00 g/L Carbon
 (46.6 - 39.26259) (1)/(1) (12) = +6.11E-01 Molar Carbon
 <<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!!>>>>

Sample Run By:

SL HOOD

00002

SS Inl
1.0026g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 DUP Date: 04/05/97 Time: 23:43:27

Sample Size = 1 uL Analyst : SL HOOD
Dil Factor = 1 Min Readings = 22
Blank ID # = Max Readings = 22
Blank Value = .28 ug/minute C % Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.10	0.00
2	1.01	0.50	80.00
3	1.51	2.20	77.27
4	2.00	5.60	60.71
5	2.50	9.10	38.46
6	3.00	11.70	22.22
7	3.50	13.10	10.69
8	4.00	13.80	5.07
9	4.50	14.30	3.50
10	5.00	14.60	2.05
11	5.50	15.00	2.67
12	6.00	15.20	1.32
13	6.50	15.60	2.56
14	7.00	15.70	0.64
15	7.50	16.00	1.88
16	8.00	16.30	1.84
17	8.50	16.50	1.21
18	9.00	16.90	2.37
19	9.50	17.10	1.17
20	10.00	17.40	1.72
21	10.50	17.60	1.14
22	11.00	17.90	1.68

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(17.9 - 3.079966) (1)/(1) = +1.48E+01 g/L Carbon
 (17.9 - 3.079966) (1)/(1) (12) = +1.24E+00 Molar Carbon

Sample Run By: SL HOOD 00002

55
Incl
1.0037

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 DUP

Date: 04/05/97

Time: 23:56:56

Sample Size = 1 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = 3.57 ug/minute C

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.30	0.00
2	1.01	0.60	50.00
3	1.51	4.70	87.23
4	2.00	14.50	67.59
5	2.50	23.80	39.08
6	3.00	30.80	22.73
7	3.50	35.00	12.00
8	4.00	37.30	6.17
9	4.50	38.50	3.12
10	5.00	39.50	2.53
11	5.50	40.20	1.74
12	6.00	40.80	1.47
13	6.50	41.40	1.45
14	7.00	41.80	0.96
15	7.50	42.30	1.18
16	8.00	42.70	0.94
17	8.50	43.20	1.16
18	9.00	43.60	0.92
19	9.50	43.90	0.68
20	10.00	44.20	0.68
21	10.50	44.60	0.90
22	11.00	44.90	0.67

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(44.9 - 39.25911) (1)/(1) =

+5.64E+00 g/L Carbon

(44.9 - 39.25911) (1)/(1) (12) =

+4.70E-01 Molar Carbon

<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>

Sample Run By:

SL HOOD

00002

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 SPK

Date: 04/06/97

Time: 01:19:39

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.57 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading	==== Analysis Time	==== Coulometer	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.50	100.00
3	1.51	6.80	92.65
4	2.01	45.10	84.92
5	2.50	128.60	64.93
6	3.00	218.10	41.04
7	3.50	275.80	20.92
8	4.00	304.80	9.51
9	4.50	319.90	4.72
10	5.00	325.00	1.57
11	5.50	327.70	0.82
12	6.00	329.50	0.55
13	6.50	330.70	0.36
14	7.00	331.40	0.21
15	7.50	332.10	0.21
16	8.00	332.60	0.15
17	8.50	333.30	0.21
18	9.00	333.60	0.09
19	9.50	334.00	0.12
20	10.00	334.60	0.18
21	10.50	335.10	0.15
22	11.00	335.40	0.09

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon

BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(335.4 - 39.26583) (1)/(1) = +2.961E+02 g/L Carbon
(335.4 - 39.26583) (1)/(1) (12) = +2.468E+01 Molar Carbon

<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!>>>>

Sample Run By:

SL HOOD

00002

SS 1ml =
1.0031g

spk .100ml
26/12-A

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97T0381 SPK

Date: 04/06/97

Time: 00:11:32

Sample Size = 1 uL

Analyst : SL HOOD

Dil Factor = 1

Min Readings = 22

Blank ID # =

Max Readings = 22

Blank Value = .28 ug/minute C

% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	%-1439.49	0.00	0.00
2	%-1438.99	0.40	100.00
3	%-1438.49	14.20	97.18
4	%-1438.00	90.90	84.38
5	%-1437.50	181.10	49.81
6	%-1437.00	244.20	25.84
7	%-1436.50	280.20	12.85
8	%-1436.00	298.40	6.10
9	%-1435.50	307.50	2.96
10	%-1435.00	311.70	1.35
11	%-1434.50	313.60	0.61
12	%-1434.00	314.60	0.32
13	%-1433.50	315.30	0.22
14	%-1433.00	315.70	0.13
15	%-1432.50	316.10	0.13
16	%-1432.00	316.40	0.09
17	%-1431.50	316.80	0.13
18	%-1431.00	317.10	0.09
19	%-1430.50	317.40	0.09
20	%-1430.00	317.80	0.13
21	%-1429.50	318.10	0.09
22	%-1429.00	318.40	0.09

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(318.4 --400.1208) (1)/(1) = +7.185E+02 g/L Carbon
 (318.4 --400.1208) (1)/(1) (12) = +5.988E+01 Molar Carbon

Sample Run By:

SL HOOD

00002

SS 1ml =
1.0031g

SPK .500 ml 25N12-A

TOC- TOTAL ORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97TP00015

Date: 04/06/97

Time: 01:52:39

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = 3.57 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.00	0.00
2	1.01	0.30	100.00
3	1.50	3.90	92.31
4	2.00	14.10	72.34
5	2.50	28.20	50.00
6	3.00	43.10	34.57
7	3.50	53.50	19.44
8	4.00	61.90	13.57
9	4.50	68.10	9.10
10	5.00	72.80	6.46
11	5.50	76.50	4.84
12	6.00	80.50	4.97
13	6.50	83.50	3.59
14	7.00	86.70	3.69
15	7.50	89.40	3.02
16	8.00	92.00	2.83
17	8.50	94.30	2.44
18	9.00	96.60	2.38
19	9.50	98.60	2.03
20	10.00	100.90	2.28
21	10.50	102.40	1.46
22	11.00	104.20	1.73

USER INPUT BLANK VALUE

BLANK VALUE = 39.26826 micrograms carbon
BLANK FACTOR = 39.26826 / 10.99951 = +3.6E+00 ug/min Carbon

SAMPLE RESULTS:

(104.2 - 39.26286) (1)/(1) = +6.494E+01 g/L Carbon
(104.2 - 39.26286) (1)/(1) (12) = +5.411E+00 Molar Carbon
<<<< WARNING - BLANK VALUE EXCEEDS 1.5 ug/min Carbon!!!!!!>>>>

Sample Run By:

SL HOOD

00002

SS 1ml =
0.997/g

TIC- TOTAL INORGANIC CARBON ANALYSIS REPORT
TICTOC REV 2.0

Sample: S97TP**00015**

Date: 04/06/97

Time: 01:38:31

Sample Size = 1 uL
Dil Factor = 1
Blank ID # =
Blank Value = .28 ug/minute C

Analyst : SL HOOD
Min Readings = 22
Max Readings = 22
% Difference = 10

== Reading ==	==== Analysis Time ==	==== Coulometer ==	==== % Difference ==
1	0.51	0.00	0.00
2	1.00	0.30	100.00
3	1.50	2.40	87.50
4	2.00	9.20	73.91
5	2.50	17.50	47.43
6	3.00	22.80	23.25
7	3.50	25.60	10.94
8	4.00	27.20	5.88
9	4.50	28.10	3.20
10	5.00	28.60	1.75
11	5.50	29.00	1.38
12	6.00	29.30	1.02
13	6.50	29.60	1.01
14	7.00	29.90	1.00
15	7.50	30.20	0.99
16	8.00	30.50	0.98
17	8.50	30.70	0.65
18	9.00	30.90	0.65
19	9.50	31.10	0.64
20	10.00	31.40	0.96
21	10.50	31.70	0.95
22	11.00	32.00	0.94

USER INPUT BLANK VALUE

BLANK VALUE = 3.079863 micrograms carbon

BLANK FACTOR = 3.079863 / 10.99951 = +2.8E-01 ug/min Carbon

SAMPLE RESULTS:

(32 - 3.078925) (1)/(1) =
(32 - 3.078925) (1)/(1) (12) =

+2.89E+01 g/L Carbon
+2.41E+00 Molar Carbon

Sample Run By:

SL HOOD

00002

ss 1ml = 0.9971g

TIC/TOC : LA-342-100 (E-0)		LIQUIDS	
TVda	Sample Size In mL	(SS)	TOC
BLANK	Dilution Factor	(DF)	1.0000
Wofk List	µg of Carbon In Sample	(C1)	1
16990	µg of Carbon from Baseline	(C2)	39.2
Test Code			39.3
@TICOC1			
Matrix			
Liquid			
Batch Number			
Regrun			
0			
Sample Prep			
N/A			
Sample #			
BENK			
Instrument Code			
CARB.2			
Prepared By			
RWS			
Chemist			
RWS			
Analyst			
SLH			
Date Complete			
04/07/97			
Analysis Date			
04/08/97			
Analysis Time			
Sample Point			
T-110 & 2706T			

µg of Carbon = |C1-C2|

Method Detection Limit in µg/mL	TIC	TOC
	5	40
µg of Carbon	5.00E+00	1.00E-01

Date Entered By:	RWS	Date:	04/07/97
Signature of Chemist:	<i>RWS</i>	Date:	4/7/97

26N12A RWS 4/7/97

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	(SS)	TIC	TOC
STANDARD	Dilution Factor	(DF)	1.0000	0.2000
Work List	Final Coulometer Reading in µg	(C1)	1	1
16990	µg of Carbon from Baseline	(C2)	915	611.6
Test Code	Standard Book Number		3.1	39.3
@TIC TOC1	Standard Value (µg/ml)		25N12A	24N12E
Matrix			602	3000

QC Actual in µg/mL = Standard Value (µg/mL)
 QC Found in µg/mL = (C1 - C2) * DF / SS
 QC Found in µg/mL for TIC = 5 if C1 < C2
 QC Found in µg/mL for TOC = 40 if C1 < C2
 % Recovery = QC Found / QC Actual * 100

Method Detection Limit in µg/mL	TIC	TOC
QC Actual in µg/mL	5	40
QC Found in µg/mL	6.02E+02	3.00E+03
Percent Standard Recovery	101.3	95.4

RWS 4/9/00

Data Entered By: RWS Date: 04/07/97
 Signature of Chemist: *RWS Schwab* Date: 4/7/97

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	TIC	TOC
SAMPLE	(SS)	1.0000	1.0000
Work list	(DF)	5	1
16990	(C1)	17.2	45.8
Test Code	(C2)	3.3	39.3
@TIC/TOC1			
Matrix			
LIQUID			
Batch Number			
Resin			
0			
Sample Prep			
N/A			

µg of Carbon/mL = (C1-C2) * DF / SS
 µg of Carbon/mL for TIC = 5 if C1 < C2
 µg of Carbon/mL for TOC = 40 if C1 < C2

Sample #	S97D90381
Instrument Code	CARE2
Prepared By	RWS
Chemist	RWS
Analyst	SLH
Date Complete	04/07/97
Analysis Date	04/06/97
Analysis Time	
Sample Point	T-110 & 2706T

NOTE: FOR TOC: The Reported Result is	<	40.
Method Detection Limit in µg/mL	TIC	5
Method Detection Limit in µg/mL	TOC	40
µg of Carbon/mL	Note:	1.41E+01
		40

RWS
4/7/97

Data Entered By	RWS	Date:	04/07/97
Signature of Chemist:	<i>RWS</i>	Date:	4/7/97

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	TIC	TOC
DUP	(SS)	1.0000E	1.0000E
Work List	Dilution Factor	1	1
16990	µg of Carbon in Sample	17.9	44.9
	µg of Carbon from Baseline	3.1	36.3
Test Code	Known µg of C from Original Sample		
@TICTOC1			
Main			
Liquid			
Batch Number			
Retent			
0			
Sample Prep			
N/A			
Sample #			
S97T000381			
Instrument Code			
CARB2			
Prepared By			
IWS			
Chemist			
IWS			
Analyst			
SLH			
Date Complete			
04/07/97			
Analysis Date			
04/06/97			
Analysis Time			
Sample Point			
1-110 & 2706T			

µg of Carbon/mL = (C1-C2) * DF / SS
 µg of Carbon/mL for TIC = 5 if C1 < C2
 µg of Carbon/mL for TOC = 40 if C1 < C2

NOTE: FOR TOC: The Reported Result is < 40.

Method Detection Limit in µg/mL	TIC	TOC
µg of Carbon/mL	5	40
Note:	1.48E+01	< 5.60E+00

RWS
4/19/97

RWS
4/7/97

40

Date Entered By:	IWS	Date:	04/07/97
Signature of Chemist:	<i>RWS</i>	Date:	4/7/97

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Vial Data	TIC	TOC
SPIKE	Sample Volume in mL (SS)	1.0000	1.0000
Work List	Final Coulometer Reading in µg (C1)	17.2	46.6
16990	Spiked Vial Data		
Test Code	Sample Volume in mL (SPK SS)	1.0000	1.0000
@TICTOC1	Amount of Spike Std. in mL (SPK VOL)	0.500	0.100
Matrix	Final Coulometer Reading in µg (C2)	318.4	335.4
LIQUID	Spike Book Number	25N12A	24N12E
Batch Number	Spike Standard Value in µg/ml (SPK CONC)	602	3000
Run			
0			
Sample Prep			
N/A			
Sample #	Percent Spike Recovery = $(C2 - C1 * (SPK SS) / SS) / ((SPK CONC) * (SPK VOL)) * 1$		
S97T000381			
Instrument Code	QC Actual in µg/mL = Spike Value (µg/mL)		
CARB 2	QC Found in µg/mL = (Percent Spike Recovery)*(QC Actual) / 100		
Prepared By			
RWS			
Chemist			
RWS			
Analyst			
SLH			
Date Complete			
04/07/96			
Analysis Date			
04/06/97			
Analysis Time			
		TIC	TOC
	QC Actual in µg/mL	6.02E+02	3.00E+03
Sample Point	QC Found in µg/mL	6.02E+02	2.89E+03
T-110 & 27061	Percent Spike Recovery	100.1	96.3

4/7/97
RWS
6N12A

Data Entered By:	RWS	Date:	04/07/96
Signature of Chemist:	<i>RWS Schneider</i>	Date:	4/7/96

SPIKE.WB1 REV 1.1

342100ML

LAD #14-97
HNF-SD-WM-DP-238, REV. 0

TIC/TOC : LA-342-100 (E-0) LIQUIDS

Type	Sample Size in mL	(SS)	TIC	TOC
SAMPLE	Dilution Factor	(DF)	1.0000	1.0000
Wofx List	µg of Carbon in Sample	(C1)	1	1
16990	µg of Carbon from Baseline	(C2)	32	104.2
Test Code			3.1	39.3
@TIC/TOC1				

µg of Carbon/mL = (C1-C2) * DF / SS
 µg of Carbon/mL for TIC = 5 if C1 < C2
 µg of Carbon/mL for TOC = 40 if C1 < C2

Matrix	Liquid
Batch Number	
Regrun	
0	
Sample Prep	N/A
Sample #	
S97TP00015	
Instrument Code	
CAR162	
Prepared By	
RWS	
Chemist	
RWS	
Analyst	
SEH	
Date Complete	
04/07/97	
Analysis Date	
04/06/97	
Analysis Time	
Sample Point	
1-110 & 2/06T	

Method Detection Limit in µg/mL	TIC	TOC
	5	40
µg of Carbon/mL	2.89E+01	6.49E+01

Data Entered By: RWS Date: 04/07/97
 Signature of Chemist: [Signature] Date: 4/7/97

HNF-SD-WM-DP-238, REV. 0

RADIOCHEMICAL ANALYSIS

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LABCORE Completed RadChem Report for Worklist#: 16695

Analyst: jds Instrument: AB16 Book# _____

Method: _____ Rev/Mod _____

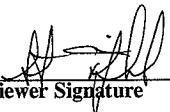
Worklist Comment: T-110, @ALPHA01, Deter. s.s. using Ludlum. skm

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@ALPHA01 ALPHA01	LIQUID	2.00E-04	1.85E-4	92.500	% Recovery
1 STD	0	@ALPHA01 ALPHA01E	LIQUID	1.00	3.42E+00	3.420	% Ct. Error
2 BLNK	0	@ALPHA01 ALPHA01	LIQUID	1	-2.85E-7		uCi/mL
2 BLNK	0	@ALPHA01 ALPHA01E	LIQUID	1.00	3.03E+02	303.000	uCi/mL
3 BLNK/BKG	0	@ALPHA01 ALPHA01	LIQUID	1.00E+00	4.44E+00	4.440	BLNK/BKG
4 SAMPLE	S97T000119 0	@ALPHA01 ALPHA01	LIQUID	N/A	5.37E-07	400.0e-009	uCi/mL
4 SAMPLE	S97T000119 0	@ALPHA01 ALPHA01E	LIQUID	N/A	1.16E+02	0.0e+000	% Ct. Error
5 DUP	S97T000119 0	@ALPHA01 ALPHA01	LIQUID	5.37E-7	5.65E-7	5.082	RPD
5 DUP	S97T000119 0	@ALPHA01 ALPHA01E	LIQUID	1.00	6.69E+01	66.900	% Ct. Error

Final page for worklist# 16695

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____


 Reviewer Signature _____ Date 3/7/97

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 16695

Analyst: Jds Instrument: AB00 #16 Book# 7985C

Method: LA-508-101 Rev/Mod F-0

Worklist Comment: T-110, @ALPHA01, Deter. s.s. using Ludlum. skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	STD		@ALPHA01	LIQUID		
2	BLNK		@ALPHA01	LIQUID		
3	BLNK/BKG		@ALPHA01	LIQUID		
4	SAMPLE	S97T000119 0	@ALPHA01	LIQUID	97000083	T-110
Analytes Requested: ALPHA01 , ALPHA01E						
5	DUP	S97T000119 0	@ALPHA01	LIQUID		

Final page for worklist # 16695

Jds Jds 3/4/97
 Analyst Signature Date 3/5/97

Lue Hogan 3-5-97
 Analyst Signature Date
C.J. Quinn 3-5-97

Data Entry Comments:

S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	16
STD	DISH SIZE (1, 2, or 5) (MS)	2
Worklist	GROSS COUNTS (GC)	3336
16695	COUNT TIME In MINUTES (CT)	30
ALPHA01	BACKGROUND In cpm (BKG)	0.03
AT	SAMPLE SIZE In mL (SS)	1.000
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	111.170
Batch Number	Standard Value In µCi/mL	2.00E-04
9700569	Concentration In µCi/L =	1.87E-01
Returns	Replicate Concentration in µCi/L =	1.84E-01
0	AVERAGE CONCENTRATION In µCi/L =	1.8550E-01

R_s (Sample Count Rate) = $(TC / CT) - BKG$
 ALPHA TOTAL µCi/L = $R_s * 1000mL/L * DF / (EFF * SS * 2220000dpm/\mu Ci)$
 ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
 Relative Counting Error = $[|(The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100$
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Sample Prep	N/A	
Sample	WL16695	
Instrument Code	WB27806	
Prepared By	SEH	
Chemist	SLF	ALPHA TOTAL CONCENTRATION in µCi/mL = 1.85E-04
Analyst	JDS	
Date Complete	03/05/97	RELATIVE COUNTING ERROR = 3.4%
Analysis Date	03/05/97	
Analysis Time	02:45 AM	
Sample Point	T-110	

DETECTION LEVEL
4.00E-07 µCi/mL

Analyst:	SEH	Date: 05-Mar-97
Signature of Chemist:	SLF	Date: 3/7/97
STANDARD.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1)

LIQUIDS

			BLNK	REPLICATE
Type	DETECTOR NUMBER		16	16
BLNK	DISH SIZE (1, 2, or 5)	(MS)	2	2
Worklist	GROSS COUNTS	(GC)	6	2
16695	COUNT TIME in MINUTES	(CT)	30	30
ALPHA Bk	BACKGROUND in cpm	(BKG)	0.03	0.03
AT	SAMPLE SIZE in mL	(SS)	1.000	1.000
Test Code	DILUTION FACTOR	(DF)	1	1
@ALPHA01	DIGEST DILUTION FACTOR	(DDF)	1	1
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		0.170	0.130

Batch Number	Blank Concentration in µCi/L	2.85E-04
97000569	Replicate Concentration in µCi/L	< 2.19E-04
Return	Maximum Concentration in µCi/L	< 2.854E-04
0		

Sample Prep: N/A
 Sample #: N/A
 WL 16695
 Instrument Code: WB27806
 Prepared By: SEH
 Chemist: SLF

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
 ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
 Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT) |] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/mL (Maximum)	=	< 2.85E-07	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rs.			
JDS				4.00E-07
Date Complete	RELATIVE COUNTING ERROR		303.4%	µCi/mL
03/05/97				
Analysis Date				
03/05/97				
Analysis Time				
02:45 AM				
Sample Point				
T-110				

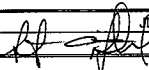
Analyst:	JDS	Date: 05-Mar-97
Signature of Chemist:	SLF	Date: 3/7/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) LIQUIDS

	SAMPLE	REPLICATE
DETECTOR NUMBER	16	16
SAMPLE DISH SIZE (1, 2, or 5) (MS)	2	2
WORKLIST GROSS COUNTS (GC)	5	16
16695 COUNT TIME in MINUTES (CT)	30	30
ANALYST BACKGROUND ln cpm (BKG)	0.03	0.03
AT SAMPLE SIZE in mL (SS)	1.000	1.000
TEST CODE DILUTION FACTOR (DF)	1	1
@ALPHA01 DIGEST DILUTION FACTOR (DDF)	1	1
MATRIX EFFICIENCY FACTOR (EFF)	0.2683	0.2683
LIQUID Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.137	0.503
BATCH NUMBER		
97000569	Blank Concentration in µCi/L	2.29E-04
REPEAT	Replicate Concentration in µCi/L	8.45E-04
0	Average Concentration in µCi/L	5.3726E-04
SAMPLE PREP		
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG	
SAMPLE S97000119	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)	
INSTRUMENT CODE WB27806	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L	
PREPARED BY SEH	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100	
CHEMIST	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
SLF	ALPHA TOTAL in µCi/mL (Average) =	5.37E-07
ANALYST JDS		DETECTION LEVEL
DATE COMPLETE 03/05/97	RELATIVE COUNTING ERROR	116.1%
ANALYSIS DATE 03/05/97		4.00E-07 µCi/mL
ANALYSIS TIME 02:45 AM		
SAMPLE POINT T-110		

// system:exityes-

Analyst:	JDS	Date: 05-Mar-97
Signature of Chemist:		Date: 3/2/97
SAMPLE.WB1 Rev. 1.0	508101ML	SLF

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) LIQUIDS

	DUP	REPLICATE
DETECTOR NUMBER	16	16
DISH SIZE (1, 2, or 5)	(MS) 2	2
GROSS COUNTS	(GC) 11	11
COUNT TIME in MINUTES	(CT) 30	30
BACKGROUND in cpm	(BKG) 0.03	0.03
SAMPLE SIZE in mL	(SS) 1.000	1.000
DILUTION FACTOR	(DF) 1	1
DIGEST DILUTION FACTOR	(DDF) 1	1
EFFICIENCY FACTOR	(EFF) 0.2683	0.2683
Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.337	0.337

Blank Concentration in µCi/L	5.65E-04
Replicate Concentration in µCi/L	5.65E-04
Average Concentration in µCi/L	5.6523E-04

Sample Prep
 N/A
Sample #
 S97T000119
Instrument Code
 WB27806
Prepared by
 SEH
Chemist
 SLF
 ALPHA TOTAL in µCi/mL (Average) = 5.65E-07
 Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF * DDF / (EFF * SS * 2220000dpm/µCi)
 ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
 Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Analyst	DETECTION LEVEL
JDS	4.00E-07 µCi/mL
RELATIVE COUNTING ERROR	66.9%

Date Complete
 03/05/97
Analysis Date
 03/05/97
Analysis Time
 02:45 AM
Sample Point
 T-110

// system:excliyes-

Analyst:	JDS	Date: 05-Mar-97
Signature of Chemist:		Date: 3/7/97
SAMPLE.WB1 Rev. 1.0	508101ML	

LBCORE Completed RadChem Report for Worklist#: 16899

Analyst: slh Instrument: AB16 Book# _____

Method: _____ Rev/Mod _____


Worklist Comment: T-110, @ALPHA01, Deter s.s. by Ludlum. Std= 1.0mL. skm

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@ALPHA01 ALPHA01	SOLID	2.00E-04	1.39E-4	69.500	% Recovery
1 STD	0		@ALPHA01 ALPHA01E	SOLID	1.00	3.96E+00	3.960	% Ct. Error
2 BLNK-PREP	0		@ALPHA01 ALPHA01	SOLID	1	<1.75E-4		uCi/g
2 BLNK-PREP	0	F	@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3 BLNK/BKG	0		@ALPHA01 ALPHA01	SOLID	1.00E+00	2.78E+0	2.780	BLNK/BKG
4 SAMPLE	S97T000150	0 F	@ALPHA01 ALPHA01	SOLID	N/A	3.42E-02	404.0e-006	uCi/g
4 SAMPLE	S97T000150	0 F	@ALPHA01 ALPHA01E	SOLID	N/A	8.15E+00	0.0e+000	% Ct. Error
5 DUP	S97T000150	0 F	@ALPHA01 ALPHA01	SOLID	3.42E-2	3.02E-2	12.422	RPD
5 DUP	S97T000150	0 F	@ALPHA01 ALPHA01E	SOLID	1.00	8.63E+00	8.630	% Ct. Error
6 SAMPLE	S97T000151	0 F	@ALPHA01 ALPHA01	SOLID	N/A	3.91E-02	435.0e-006	uCi/g
6 SAMPLE	S97T000151	0 F	@ALPHA01 ALPHA01E	SOLID	N/A	7.79E+00	0.0e+000	% Ct. Error
7 DUP	S97T000151	0 F	@ALPHA01 ALPHA01	SOLID	3.91E-2	3.98E-2	1.774	RPD
7 DUP	S97T000151	0 F	@ALPHA01 ALPHA01E	SOLID	1.00	7.77E+00	7.770	% Ct. Error

Final page for worklist# 16899

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____


Reviewer Signature _____ Date 3/13/97

LABCORE Data Entry Template for Worklist# 16899

Analyst: SLH Instrument: AB00 16 Book# 79BSC
123D43 spk

Method: LA-508-101 Rev/Mod F-0

Worklist Comment: T-110, @ALPHA01, Deter s.s. by Ludlum. Std= 1.0mL. skm

S Type	Sample#	R	A	Test	Matrix	Group#	Project
1	STD			@ALPHA01	SOLID		
2	BLNK-PREP			@ALPHA01	SOLID		
3	BLNK/BKG			@ALPHA01	SOLID		
4	SAMPLE	S97T000150	0	F	@ALPHA01	SOLID	97000083 T-110
Analytes Requested: ALPHA01 , ALPHA01E							
5	DUP	S97T000150	0	F	@ALPHA01	SOLID	
6	SAMPLE	S97T000151	0	F	@ALPHA01	SOLID	97000083 T-110
Analytes Requested: ALPHA01 , ALPHA01E							
7	DUP	S97T000151	0	F	@ALPHA01	SOLID	

Final page for worklist # 16899

JA 3/7/97
 Analyst Signature Date
SLHood Boatright 3-8-96

SLH 3/10/97
 Analyst Signature Date
Sue Hogan 3-10-97


Data Entry Comments: Did a boil down on sample and still
had crusty dishes

Run samples at 500ml per Scot Fitzgerald
 S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code. SLH

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

		STANDARD	REPLICATE
Type	DETECTOR NUMBER	16	16
STD	DISH SIZE (1, 2, or 5) (MS)	2	2
WorkList	GROSS COUNTS (GC)	2458	2520
16899	COUNT TIME in MINUTES (CT)	30	30
Authority?	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	1.000	1.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
LIQUID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	81.903	83.970
Batch Number	Standard Value in µCi/mL	2.00E-04	
97000818	Concentration in µCi/L =	1.38E-01	
Rerun	Replicate Concentration in µCi/L =	1.41E-01	
0	AVERAGE CONCENTRATION in µCi/L =	1.3924E-01	
Sample Prep			
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)		
WL16899-STD	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L		
Instrument Code	Relative Counting Error = [((The Square Root of TC + BKG * CT) / (TC - BKG * CT))] * 1.96 * 100		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL =	1.39E-04	DETECTION LEVEL
Analyst			
SLH			
Date Complete			4.00E-07 µCi/mL
03/10/97	RELATIVE COUNTING ERROR =	4.0%	
Analysis Date			
03/08/97			
Analysis Time			
05:00 AM			
Sample Point			
T-110			

Analyst:		MCB	Date: 10-Mar-97
Signature of Chemist:		SLF	Date: 3/12/97
STANDARD.WB1 Rev. 1.0	508101ML		

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

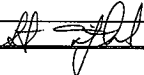
		BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	16	16
BLNK-PREP	DISH SIZE (1, 2, or 5) (MS)	2	2
Worklist	GROSS COUNTS (GC)	4	1
16899	COUNT TIME in MINUTES (CT)	30	30
Alnoml Bk	BACKGROUND in cpm (BKg)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.500	0.500
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9808	1.9808
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	0.103	0.079
Batch Number			
97000818	Blank Concentration in µCi/g	1.75E-04	
ReRun	Replicate Concentration in µCi/g	< 1.34E-04	
0	Maximum Concentration in µCi/g	< 1.7517E-04	
Sample Prep			
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 222000dpm/µCi)		
WL16899-BLNK			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Maximum) =	< 1.75E-04	DETECTION LEVEL 4.04E-04 µCi/g
Analyst	LESS THAN Value was Determined from Rs.		
SLH			
Date Complete	RELATIVE COUNTING ERROR	500.0%	
03/10/97			
Analysis Date			
03/08/97			
Analysis Time			
05:00 AM			
Sample Point			
T-110			

Analyst:	SLH	Date: 10-Mar-97
Signature of Chemist:	SLF	Date: 3/13/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

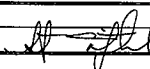
		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	630	581
16899	COUNT TIME in MINUTES (CT)	30	30
Alert By	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.500	0.500
Lot Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9808	1.9808
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	20.970	19.337
Batch Number			
97000818	Blank Concentration in $\mu\text{Ci/g}$	3.55E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	3.28E-02	
0	Average Concentration in $\mu\text{Ci/g}$	3.4164E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T00150			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	3.42E-02	DETECTION LEVEL
Analyst			
SLH			4.04E-04
Date Complete	RELATIVE COUNTING ERROR	8.2%	$\mu\text{Ci/g}$
03/10/97			
Analysis Date			
03/08/97			
Analysis Time			
05:00 AM			
Sample Point			
T-110			

Analyst:	SLH	Date: 10-Mar-97
Signature of Chemist:		Date: 3/12/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

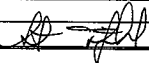
		DUP	REPLICATE
Type	DETECTOR NUMBER	16	16
DUP	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	518	572
16899	COUNT TIME in MINUTES (CT)	30	30
Attrib?	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.500	0.500
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.018	2.018
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	17.237	19.037
Batch Number			
97000818	Blank Concentration in µCi/g	2.87E-02	
Rerun	Replicate Concentration in µCi/g	3.17E-02	
0	Average Concentration in µCi/g	3.0178E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000150			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	3.02E-02	DETECTION LEVEL
Analyst			
SLH			3.96E-04
Date Complete	RELATIVE COUNTING ERROR	8.6%	µCi/g
03/10/97			
Analysis Date			
03/08/97			
Analysis Time			
05:00 AM			
Sample Point			
T-110			

Analyst:	SLH	Date: 10-Mar-97
Signature of Chemist:		Date: 3/12/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM6

AT : LA-508-101 (E-1) SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2
Work List	GROSS COUNTS	(GC)	651
16899	COUNT TIME in MINUTES	(CT)	30
A for TB?	BACKGROUND in cpm	(BKG)	0.03
AT	SAMPLE SIZE in mL	(SS)	0.500
Test Code	DILUTION FACTOR	(DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.84
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE		21.670
Batch Number			21.137
97000818	Blank Concentration in $\mu\text{Ci/g}$	3.95E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	3.86E-02	
0	Average Concentration in $\mu\text{Ci/g}$	3.9059E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000151			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
MCB			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	3.91E-02	DETECTION LEVEL
Analyst			
SLH			
Date Complete	RELATIVE COUNTING ERROR	7.8%	4.35E-04 $\mu\text{Ci/g}$
03/10/97			
Analysis Date			
03/08/97			
Analysis Time			
05:00 AM			
Sample Point			
T-110			

Analyst	SLH	Date: 10-Mar-97
Signature of Chemist: 	SLF	Date: 3/12/97

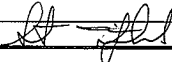
SAMPLE.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: DUP7

AT : LA-508-101 (E-1) SOLIDS

	DUP	REPLICATE
Type	DETECTOR NUMBER	16 16
DUP	DISH SIZE (1, 2, or 5) (MS)	2 2
Work List	GROSS COUNTS (GC)	726 639
16899	COUNT TIME in MINUTES (CT)	30 30
A for TB?	BACKGROUND in cpm (BKG)	0.03 0.03
AT	SAMPLE SIZE in mL (SS)	0.500 0.500
Test Code	DILUTION FACTOR (DF)	1 1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9168 1.9168
Matrix	EFFICIENCY FACTOR (EFF)	0.2683 0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	24.170 21.270
Batch Number		
97000818	Blank Concentration in $\mu\text{Ci/g}$	4.23E-02
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	3.73E-02
0	Average Concentration in $\mu\text{Ci/g}$	3.9800E-02
Sample Prep		
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$	
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$	
S97T000151		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$	
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
Prepared By		
MCB		
Chemist		
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	3.98E-02
Analyst		DETECTION LEVEL
SLH		
Date Complete		4.17E-04 $\mu\text{Ci/g}$
03/10/97	RELATIVE COUNTING ERROR	7.8%
Analysis Date		
03/08/97		
Analysis Time		
05:00 AM		
Sample Point		
T-110		

Analyst:	SLH	Date: 10-Mar-97
Signature of Chemist:		Date: 3/12/97
SAMPLE.WB1 Rev. 1.0	508101ML	SLF

LBCORE Completed RadChem Report for Worklist#: 17065

Analyst: smf

Instrument: AB16

Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@ALPHA01 ALPHA01	SOLID	2.00E-04	1.72E-4	86.000	% Recovery
1 STD	0	@ALPHA01 ALPHA01E	SOLID	1.00	3.60E+00	3.600	% Ct. Error
2 BLNK-PREP	0	@ALPHA01 ALPHA01	SOLID	1	-1.47E-3		uCi/g
2 BLNK-PREP	0	@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3 BLNK/BKG	0	@ALPHA01 ALPHA01	SOLID	1.00E+00	7.84E-01	0.784	BLK/BKG
3 BLNK/BKG	0	@ALPHA01 ALPHA01E	SOLID	1.00E+00	1.67E+01	371.0E-005	uCi/g
4 SAMPLE	S97T000232	O F	@ALPHA01 ALPHA01	SOLID	N/A	4.56E-02	% Ct. Error
4 SAMPLE	S97T000232	O F	@ALPHA01 ALPHA01E	SOLID	N/A	1.67E+01	0.0E+000
4 SAMPLE	S97T000232	O F	@ALPHA01 ALPHA01	SOLID	4.56E-2	6.26E-2	31.423 RPD
5 DUP	S97T000232	O F	@ALPHA01 ALPHA01	SOLID	1.00	1.48E+01	14.800 % Ct. Error
5 DUP	S97T000232	O F	@ALPHA01 ALPHA01E	SOLID	1.00	2.37E-02	66.201 % Recovery
6 SPK	S97T000232	O F	@ALPHA01 ALPHA01	SOLID	3.58E-02	4.04E-02	402.0E-005 uCi/g
6 SPK	S97T000232	O F	@ALPHA01 ALPHA01E	SOLID	N/A	1.89E+01	0.0E+000 % Ct. Error
7 SAMPLE	S97T000233	O F	@ALPHA01 ALPHA01	SOLID	N/A	1.89E+01	0.0E+000
7 SAMPLE	S97T000233	O F	@ALPHA01 ALPHA01E	SOLID	N/A	1.89E+01	0.0E+000
7 SAMPLE	S97T000233	O F	@ALPHA01 ALPHA01	SOLID	4.94E-2	6.03E-2	39.523 RPD
8 DUP	S97T000233	O F	@ALPHA01 ALPHA01	SOLID	4.94E-2	6.03E-2	39.523 RPD
8 DUP	S97T000233	O F	@ALPHA01 ALPHA01E	SOLID	1.00	1.39E+01	13.900 % Ct. Error
8 DUP	S97T000233	O F	@ALPHA01 ALPHA01	SOLID	1.00	4.41E-02	143.0E-005 uCi/g
9 SAMPLE	S97T000268	O F	@ALPHA01 ALPHA01	SOLID	N/A	1.55E+01	0.0E+000 % Ct. Error
9 SAMPLE	S97T000268	O F	@ALPHA01 ALPHA01E	SOLID	N/A	1.55E+01	0.0E+000
9 SAMPLE	S97T000268	O F	@ALPHA01 ALPHA01	SOLID	4.41E-2	3.90E-2	12.274 RPD
10 DUP	S97T000268	O F	@ALPHA01 ALPHA01	SOLID	1.00	1.81E+01	18.100 % Ct. Error
10 DUP	S97T000268	O F	@ALPHA01 ALPHA01E	SOLID	1.00	1.81E+01	18.100 % Ct. Error

Final page for worklist# 17065

Analyst Signature _____

Date _____

Analyst Signature _____

Date _____

Reviewer Signature _____

Date _____

The elevated RPDs are acceptable due to low sample alpha activity.
The SPK recovery is within method control limits for the STD. No rerun requested.

smf
3/19/97

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 17065

Analyst: SMF Instrument: AB00 16 Book# 79B56

Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	SOLID		
2 BLNK-PREP			@ALPHA01	SOLID		
3 BLNK/BKG			@ALPHA01	SOLID		
4 SAMPLE	S97T000232	0 F	@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T000232	0 F	@ALPHA01	SOLID		
6 SPK	S97T000232	0 F	@ALPHA01	SOLID		
7 SAMPLE	S97T000233	0 F	@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
8 DUP	S97T000233	0 F	@ALPHA01	SOLID		
9 SAMPLE	S97T000268	0 F	@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
10 DUP	S97T000268	0 F	@ALPHA01	SOLID		

Final page for worklist # 17065

Lucie M. Dalton 3-18-97
 Analyst Signature Date

Jue Hagan 3-19-97
 Analyst Signature Date
ABG - 3/19/97

Data Entry Comments: ASPK # 123B43 .100 mL

WORKBOOK PAGE: STD1

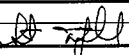
AT: LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	16
STD	DISH SIZE (1, 2, or 5) (MS)	2
WorkList	GROSS COUNTS (GC)	3188
17065	COUNT TIME in MINUTES (CT)	30
Atorn.B7	BACKGROUND in cpm (BKG)	0.17
AT	SAMPLE SIZE in mL (SS)	1.000
TestCode	DILUTION FACTOR (DF)	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	106.097
BatchNumber	Standard Value in µCi/mL	2.00E-04
97000988	Concentration in µCi/L =	1.78E-01
Rerun	Replicate Concentration in µCi/L =	1.66E-01
0	AVERAGE CONCENTRATION in µCi/L =	1.7228E-01

Sample Prep: N/A
 Sample: WL17065
 Instrument Code: WB27806
 Prepared By: SEH
 Chemist: SLF
 Analysis: SMF
 Date Complete: 03/19/97
 Analysis Date: 03/18/97
 Analysis Time: 04:30 PM
 Sample Point: T-110

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)
 ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L
 Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL CONCENTRATION in µCi/mL =	1.72E-04	DETECTION LEVEL
SMF			
03/19/97	RELATIVE COUNTING ERROR =	3.6%	7.42E-07 µCi/mL

Analyst:	SEH	Date: 19-Mar-97
Signature of Chemist:		Date: 3/19/97
STANDARD.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1)

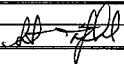
SOLIDS

		BLNK-PREP	REPLICATE
Wp	DETECTOR NUMBER	16	16
BLNK-PREP	DISH SIZE (1, 2, or 5)	(MS) 2	2
Work List	GROSS COUNTS	(GC) 3	5
17065	COUNT TIME in MINUTES	(CT) 30	30
Autocount	BACKGROUND in cpm	(BKG) 0.17	0.17
AT	SAMPLE SIZE in mL	(SS) 0.100	0.100
Test Code	DILUTION FACTOR	(DF) 1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L) 1.9996	1.9996
Matrix	EFFICIENCY FACTOR	(EFF) 0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	0.176	0.176

Batch Number	9700988	Blank Concentration in µCi/g	< 1.47E-03
Regrun	0	Replicate Concentration in µCi/g	< 1.47E-03
Sample Prep		Maximum Concentration in µCi/g	< 1.4748E-03

N/A
 Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
 WL17065
 Instrument Code: Relative Counting Error = [[(The Square Root of TC + BKG * CT) / (TC - BKG * CT)]] * 1.96 * 100
 WB27806
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	SEH		
Chemist	SLF	ALPHA TOTAL in µCi/g (Maximum) =	< 1.47E-03
Analyst	SMF	LESS Than Value was Determined from Lc.	DETECTION LEVEL
Date Complete	03/19/97	RELATIVE COUNTING ERROR	500.0%
Analysis Date	03/18/97		3.71E-03 µCi/g
Analysis Time	04:30 PM		
Sample Point	T-110		

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF Date: 3/19/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

	SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2
Worklist	GROSS COUNTS (GC)	184
17066	COUNT TIME in MINUTES (CT)	30
At Cont Br	BACKGROUND in cpm (BKG)	0.17
AT	SAMPLE SIZE in mL (SS)	0.100
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9996
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	4.897

Batch Number	
97000988	Blank Concentration in µCi/g
ReRun	Replicate Concentration in µCi/g
1	Average Concentration in µCi/g

Sample Prep
 FUSION01
 Sample
 S97T000232
 Instrument Code
 WB27806
 Prepared by
 SEH
 Chemist

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Average) =	4.56E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete			3.71E-03
03/19/97	RELATIVE COUNTING ERROR	16.7%	µCi/g
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

// system;exit;yes-

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

	DUP	REPLICATE
Type	DETECTOR NUMBER	16
DUP	DISH SIZE (1, 2, or 5) (MS)	2
Worklist	GROSS COUNTS (GC)	229
17065	COUNT TIME in MINUTES (CT)	30
At total Bk	BACKGROUND in cpm (BKG)	0.17
AT	SAMPLE SIZE in mL (SS)	0.100
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.8304
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	7.463
Batch Number		6.197

97000988	Blank Concentration in µCi/g	6.85E-02
1	Replicate Concentration in µCi/g	5.68E-02
1	Average Concentration in µCi/g	6.2647E-02

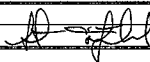
Sample Prep: FUSION01
 Sample: S97T00232
 Instrument Code: WB27806
 Prepared By: SEH
 Chemist: SLF

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Average) =	6.26E-02	DETECTION LEVEL
Analyst: SMF			
Date Complete: 03/19/97	RELATIVE COUNTING ERROR	14.8%	4.05E-03 µCi/g
Analysis Date: 03/18/97			
Analysis Time: 04:30 PM			
Sample Point: T-110			

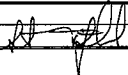
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Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF Date: 3/19/97
SAMPLE WB1 Rev. 1.0	508101ML	

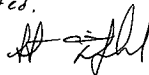
WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
Detector Number	DETECTOR NUMBER	16	16
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
WorkList	TOTAL COUNTS (TC)	36767	48166
17065	COUNT TIME in MINUTES (CT)	30	30
17065	BACKGROUND In cpm (BKG)	0.17	0.17
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9996	1.9996
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	123B43	123B43
97000988	SPIKE VALUE in µCi/mL (SVAl)	3.5843E-02	3.5843E-02
Retrun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2883	0.2883
1	SAMPLE + SPIKE µCi/g (S+S)	1.03E+01	1.35E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	4.5591E-02	
FUSION01			
Sample			
S97T000232	Rs (Sample Count Rate) = (TC / CT) - BKG		
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
WB27806	QC ACTUAL = SVAl		
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000)))/(DF/SS/Dg/L))))		
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) * 100		
Chemist			
SLF			
Analyst			
SMF			
Date Complete			
03/19/97			
Analysis Date			
03/18/97	QC ACTUAL =	3.58E-02	
Analysis Time	QC FOUND =	2.37E-02	
04:30 PM	AVG. PERCENT SPIKE RECOVERY =	66.0%	
Sample Point			
T-110			

Analyst:	SEH	Date: 19-Mar-97
Signature of Chemist:		SLF Date: 3/19/97
SPIKE.WB1 Rev. 1.0	508101ML	

The elevated RPD for the SPK + SPK/REP is the result of solids on the mounts causing an inconsistent geometry. No recal requested.



3/19/97

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) SOLIDS

		SAMPLE	REPLICATE
Detector	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Worklist	GROSS COUNTS (GC)	155	122
17065	COUNT TIME in MINUTES (CT)	30	30
Atomic B7	BACKGROUND in cpm (BKG)	0.17	0.17
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.848	1.848
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	4.997	3.897

Batch Number	Blank Concentration in µCi/g	4.54E-02
97000988	Replicate Concentration in µCi/g	3.54E-02
ReRun	Average Concentration in µCi/g	4.0398E-02
1		

Sample Prep
 FUSION01
 Sample #
 S97T000233
 Instrument Code
 WB27806
 Prepared By
 SEH
 Chemist
 SLF
 ALPHA TOTAL in µCi/g (Average) = 4.04E-02
 Analyst
 SMF
 Date Complete
 03/19/97
 Analysis Date
 03/18/97
 Analysis Time
 04:30 PM
 Sample Point
 T-110

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
 Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT) |] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	4.04E-02	DETECTION LEVEL
			4.02E-03 µCi/g
RELATIVE COUNTING ERROR		18.9%	

(/ system;exit)yes-

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97

SAMPLE.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1) SOLIDS

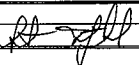
		DUP	REPLICATE
Type	DETECTOR NUMBER	16	16
DUP	DISH SIZE (1, 2, or 5)	(MS)	2
Worklist	GROSS COUNTS	(GC)	220
17065	COUNT TIME in MINUTES	(CT)	30
Authorization	BACKGROUND in cpm	(BKG)	0.17
AT	SAMPLE SIZE in mL	(SS)	0.100
Test Code	DILUTION FACTOR	(DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9672
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE		7.163

Batch Number		
97000588	Blank Concentration in µCi/g	6.11E-02
ReRun	Replicate Concentration in µCi/g	5.94E-02
1	Average Concentration in µCi/g	6.0282E-02

Sample Prep
 FUSION01 Rs (Sample Count Rate) = (TC / CT) - BKG
 Sample# ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
 S97T00233
 Instrument Code Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
 WB27806 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	SEH		
Chemist	SLF	ALPHA TOTAL in µCi/g (Average) =	6.03E-02
Analyst	SMF		DETECTION LEVEL
Date Complete	03/19/97	RELATIVE COUNTING ERROR	13.9%
Analysis Date	03/18/97		3.77E-03 µCi/g
Analysis Time	04:30 PM		
Sample Point	T-110		

(/ system:exit)yes-

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF Date: 3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML	

AT : LA-508-101 (E-1) SOLIDS

	SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16
SAMPLE	DISH SIZE (1, 2, or 5)	2
Worklist	GROSS COUNTS (MS)	174
17065	(GC)	177
Automatic?	COUNT TIME in MINUTES (CT)	30
AT	BACKGROUND in cpm (BKG)	0.17
Test Code	SAMPLE SIZE in mL (SS)	0.100
@ALPHA01	DILUTION FACTOR (DF)	1
Matrix	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.1628
SOLID	EFFICIENCY FACTOR (EFF)	0.2683
Batch Number	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	5.730

97000988	Blank Concentration in µCi/g	4.37E-02
Retrun	Replicate Concentration in µCi/g	4.45E-02
1	Average Concentration in µCi/g	4.4092E-02

Sample Prep
 FUSION01 Rs (Sample Count Rate) = (TC / CT) - BKG
 Sample # ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
 S97700268
 Instrument Code Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
 WB27806 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	SEH	Chemist	SLF	ALPHA TOTAL in µCi/g (Average) =	4.41E-02	DETECTION LEVEL
Analyst	SMF					
Date Complete	03/19/97	RELATIVE COUNTING ERROR		15.5%		3.43E-03 µCi/g
Analysis Date	03/18/97					
Analysis Time	04:30 PM					
Sample Point	T-110					

// systemexit=yes-

Analyst:	SMF	Date:	19-Mar-97
Signature of Chemist:	SLF	Date:	3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML		

WORKBOOK PAGE: DUP10

AT : LA-508-101 (E-1) SOLIDS

	DUP	REPLICATE
Type	DETECTOR NUMBER	16
DUP	DISH SIZE (1, 2, or 5)	(MS) 2
WorkList	GROSS COUNTS	(GC) 170
17065	COUNT TIME in MINUTES	(CT) 30
Atkorn/B7	BACKGROUND in cpm	(BKG) 0.17
AT	SAMPLE SIZE in mL	(SS) 0.100
Test Code	DILUTION FACTOR	(DF) 1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L) 2.0952
Matrix	EFFICIENCY FACTOR	(EFF) 0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	5.497

Batch Number	
97000988	Blank Concentration in µCi/g
Recon	Replicate Concentration in µCi/g
1	Average Concentration in µCi/g

Sample Prep
 FUSION01
 Sample
 S97T00268
 Instrument Code
 WB27806
 Prepared By
 SEH
 Chemist
 SLF

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 222000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT) |] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Chemist	ALPHA TOTAL in µCi/g (Average)	=	3.90E-02	DETECTION LEVEL
Analyst				
SMF				
Date Complete	RELATIVE COUNTING ERROR		18.1%	3.54E-03 µCi/g
03/19/97				
Analysis Date				
03/18/97				
Analysis Time				
04:30 PM				
Sample Point				
T-110				

// system exit yes-

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML	

LABCORE Completed RadChem Report for Worklist#: 17066

Analyst: smf

Instrument: AB18

Book# _____

Method: _____ Rev/Mod _____

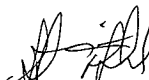
Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@ALPHA01 ALPHA01 SOLID		2.00E-04	1.65E-4	84.500	% Recovery
1 STD	0		@ALPHA01 ALPHA01E SOLID		1.00	3.65E+00	3.650	% Ct. Error
2 BLNK-PREP	0		@ALPHA01 ALPHA01 SOLID		1	8.52E-4		uCi/g
2 BLNK-PREP	0		@ALPHA01 ALPHA01E SOLID		1.00	5.00E+02	500.000	uCi/g
3 BLNK/BKG	0		@ALPHA01 ALPHA01 SOLID		1.00E+00	2.78E+00	2.780	BLNK/BKG
4 SAMPLE	S97T000162	0 F	@ALPHA01 ALPHA01 SOLID		N/A	6.05E-02	196.0e-005	uCi/g
4 SAMPLE	S97T000162	0 F	@ALPHA01 ALPHA01E SOLID		N/A	1.44E+01	0.0e+000	% Ct. Error
5 DUP	S97T000162	0 F	@ALPHA01 ALPHA01 SOLID		6.05E-2	6.51E-2	7.325	RPD
5 DUP	S97T000162	0 F	@ALPHA01 ALPHA01E SOLID		1.00	1.33E+01	13.300	% Ct. Error
6 SPK	S97T000162	0 F	@ALPHA01 ALPHA01 SOLID		3.58E-02	2.45E-02	68.436	% Recovery
7 SAMPLE	S97T000169	0 F	@ALPHA01 ALPHA01 SOLID		N/A	4.29E-02	211.0e-005	uCi/g
7 SAMPLE	S97T000169	0 F	@ALPHA01 ALPHA01E SOLID		N/A	1.65E+01	0.0e+000	% Ct. Error
8 DUP	S97T000169	0 F	@ALPHA01 ALPHA01 SOLID		4.29E-2	5.32E-2	21.436	RPD
8 DUP	S97T000169	0 F	@ALPHA01 ALPHA01E SOLID		1.00	1.52E+01	15.200	% Ct. Error
9 SAMPLE	S97T000178	0 F	@ALPHA01 ALPHA01 SOLID		N/A	5.52E-02	227.0e-005	uCi/g
9 SAMPLE	S97T000178	0 F	@ALPHA01 ALPHA01E SOLID		N/A	1.49E+01	0.0e+000	% Ct. Error
10 DUP	S97T000178	0 F	@ALPHA01 ALPHA01 SOLID		5.52E-2	5.04E-2	9.091	RPD
10 DUP	S97T000178	0 F	@ALPHA01 ALPHA01E SOLID		1.00	1.54E+01	15.400	% Ct. Error

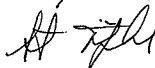
Final page for worklist# 17066

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____


 Reviewer Signature _____ Date 3/19/97

The SPK recovery for 162 is within method control limits for the STD. No rerun requested.


 3/19/97

Units shown for QC (BLK/BKG) may not reflect the actual units.

LBCORE Data Entry Template for Worklist# 17066

Analyst: SMF Instrument: AB00 18 Book# 79B56

Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	SOLID		
2 BLNK-PREP			@ALPHA01	SOLID		
3 BLNK/BKG			@ALPHA01	SOLID		
4 SAMPLE	S97T000162	0 F	@ALPHA01	SOLID	97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T000162	0 F	@ALPHA01	SOLID		
6 SPK	S97T000162	0 F	@ALPHA01	SOLID		
7 SAMPLE	S97T000169	0 F	@ALPHA01	SOLID	97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
8 DUP	S97T000169	0 F	@ALPHA01	SOLID		
9 SAMPLE	S97T000178	0 F	@ALPHA01	SOLID	97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
10 DUP	S97T000178	0 F	@ALPHA01	SOLID		

Final page for worklist # 17066

Susan M. Dutton 3-18-97
Analyst Signature Date

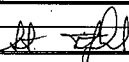
Sharon Holden 3-19-97 SM
Analyst Signature Date
Jac Hogan 3-19-97

Data Entry Comments: A SPK # 123843 .100mL

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

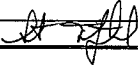
		STANDARD	REPLICATE
Type	DETECTOR NUMBER	18	18
STD	DISH SIZE (1, 2, or 5) (MS)	2	2
Worksheet	GROSS COUNTS (GC)	3087	2883
17066	COUNT TIME in MINUTES (CT)	30	30
Analyst	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	1.000	1.000
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	102.870	96.070
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04	
97000989	Concentration in $\mu\text{Ci/L}$ =	1.75E-01	
Rerun	Replicate Concentration in $\mu\text{Ci/L}$ =	1.64E-01	
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.6946E-01	
Sample Prep			
N/A	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/L}$ = $Rs * 1000\text{mL} * DF / (EFF * SS * 2220000\text{dpm}/\mu\text{Ci})$		
WL17066	ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L} / 1000\text{mL/L}$		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.69E-04	DETECTION LEVEL
Analyst			
SMF			
Date Complete			4.06E-07 $\mu\text{Ci/mL}$
03/19/97	RELATIVE COUNTING ERROR =	3.7%	
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Cont			
T-110			

Analyst:	SLH2	Date: 19-Mar-97
Signature of Chemist:		Date: 3/19/97
STANDARD.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

		BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	18	18
BLNK-PREP	DISH SIZE (1, 2, or 5) (MS)	2	2
Worksheet	GROSS COUNTS (GC)	4	1
17066	COUNT TIME in MINUTES (CT)	30	30
Atom Label	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0668	2.0668
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.103	0.079
Batch Number			
97000989	Blank Concentration in µCi/g	8.52E-04	
ReRun	Replicate Concentration in µCi/g	< 6.52E-04	
0	Maximum Concentration in µCi/g	< 8.5178E-04	
Sample Prep			
NA	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sampler	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
WL17066			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Maximum) =	< 8.52E-04	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rs.		
SMF			
Date Complete	RELATIVE COUNTING ERROR	500.0%	1.96E-03 µCi/g
03/19/97			
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF Date: 3/19/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	18	18
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2
Worklist	GROSS COUNTS	(GC)	253
17066	COUNT TIME in MINUTES	(CT)	30
Al or B?	BACKGROUND in cpm	(BKG)	0.03
AT	SAMPLE SIZE in mL	(SS)	0.100
Test Code	DILUTION FACTOR	(DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0668
Matrix	EFFICIENCY FACTOR	(EFF)	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		6.270
Batch Number			
97000989	Blank Concentration in µCi/g	6.93E-02	
Rerun	Replicate Concentration in µCi/g	5.17E-02	
1	Average Concentration in µCi/g	6.0476E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000162			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	6.05E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete	RELATIVE COUNTING ERROR	14.4%	1.96E-03 µCi/g
03/19/97			
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sampler Unit			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SAMPLE.WB1 Rev. 1.	508101ML	

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	18	18
DUP	DISH SIZE (1, 2, or 5)	2	2
Worksheet	GROSS COUNTS (MS)	219	258
17066	COUNT TIME in MINUTES (GC)	30	30
Atom By	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0716	2.0716
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	7.270	8.570
Batch Number			
97000989	Blank Concentration in µCi/g	5.98E-02	
Rerun	Replicate Concentration in µCi/g	7.05E-02	
1	Average Concentration in µCi/g	6.5134E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sampler	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000162			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	6.51E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete	RELATIVE COUNTING ERROR	13.3%	1.96E-03 µCi/g
03/19/97			
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SAMPLE.WB1 Rev. 1.	508101ML	

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	18	18
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Worklist	TOTAL COUNTS (TC)	39376	47455
17066	COUNT TIME in MINUTES (CT)	30	30
Avion E-7	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0668	2.0668
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	123B43	123B43
97000989	SPIKE VALUE in µCi/mL (SVal)	3.5843E-02	3.5843E-02
Recur	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2644	0.2644
1	SAMPLE + SPIKE µCi/g (S+S)	1.08E+01	1.30E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	6.0476E-02	
FUSION01			
Sample#			
S97T000162	Rs (Sample Count Rate) = (TC / CT) - BKG		
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / ((EFF * SS * Dg/L * 2220000dpm/µCi)		
WB27809	QC ACTUAL = SVal		
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000)))/(DF/SS/Dg/L))))		
SLH2	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) * 100		
Chemist			
SLF			
Analyst			
SMF			
Date Complete			
03/19/97			
Analysis Date			
03/18/97	QC ACTUAL =	3.58E-02	
Analysis Time	QC FOUND =	2.45E-02	
04:30 PM	AVG. PERCENT SPIKE RECOVERY =	68.4%	
Sample Point			
T-110			

Analyst:	SLH2	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SPIKE.WB1 Rev. 1.0	508101ML	

The RPD for the SPK + SPK/Dup is due to solids on the mount causing an inconsistent geometry. No recur requested. *[Signature]* 3/19/97

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	18	18
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Worksheet	GROSS COUNTS (GC)	150	143
17066	COUNT TIME in MINUTES (CT)	30	30
Alon 187	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9252	1.9252
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	4.970	4.737
Batch Number			
97000989	Blank Concentration in µCi/g	4.40E-02	
Rerun	Replicate Concentration in µCi/g	4.19E-02	
1	Average Concentration in µCi/g	4.2949E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000169			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	4.29E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete	RELATIVE COUNTING ERROR	16.5%	2.11E-03 µCi/g
03/19/97			
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97

SAMPLE.WB1 Rev. 1.

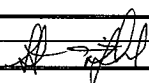
508101ML

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1)

SOLIDS


		DUP	REPLICATE
Type	DETECTOR NUMBER	18	18
DUP	DISH SIZE (1, 2, or 5)	(MS) 2	2
Worksheet	GROSS COUNTS	(GC) 201	169
17066	COUNT TIME in MINUTES	(CT) 30	30
Alorin By	BACKGROUND in cpm	(BKG) 0.03	0.03
AT	SAMPLE SIZE in mL	(SS) 0.100	0.100
Test Code	DILUTION FACTOR	(DF) 1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L) 1.964	1.964
Matrix	EFFICIENCY FACTOR	(EFF) 0.2644	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	6.670	5.603
Batch Number			
97000989	Blank Concentration in µCi/g	5.79E-02	
Run	Replicate Concentration in µCi/g	4.86E-02	
1	Average Concentration in µCi/g	5.323E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sampler	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000169			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	5.32E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete	RELATIVE COUNTING ERROR	15.2%	2.07E-03 µCi/g
03/19/97			
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		Date: 3/19/97
SAMPLE.WB1 Rev. 1.	508101ML	

WORKBOOK PAGE: SAM9

AT : LA-508-101 (E-1) SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	18	18
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Work Dist	GROSS COUNTS (GC)	183	175
17066	COUNT TIME in MINUTES (CT)	30	30
Analysis By	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.832	1.832
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	6.070	5.803
Batch Number			
97000989	Blank Concentration in µCi/g	5.64E-02	
Run	Replicate Concentration in µCi/g	5.40E-02	
1	Average Concentration in µCi/g	5.5208E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 222000dpm/µCi)		
S97T000178			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	5.52E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete	RELATIVE COUNTING ERROR	14.9%	2.22E-03 µCi/g
03/19/97			
Analyst Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF Date: 3/19/97

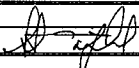
SAMPLE.WB1 Rev. 1.

508101ML

WORKBOOK PAGE: DUP10

AT : LA-508-101 (E-1) SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	18	18
DUP	DISH SIZE (1, 2, or 5)	(MS)	2
Worksheet	GROSS COUNTS (GC)	164	184
17066	COUNT TIME in MINUTES (CT)	30	30
Analysis By	BACKGROUND in cpm (BKG)	0.03	0.03
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9488	1.9488
Matrix	EFFICIENCY FACTOR (EFF)	0.2644	0.2644
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	5.437	6.103
Batch Number			
97000989	Blank Concentration in µCi/g	4.75E-02	
Repn	Replicate Concentration in µCi/g	5.34E-02	
1	Average Concentration in µCi/g	5.0442E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample #	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000178			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27809	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
SLH2			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	5.04E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete	RELATIVE COUNTING ERROR	15.4%	2.08E-03 µCi/g
03/19/97			
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.	508101ML	Date: 3/19/97

LBCORE Completed RadChem Report for Worklist#: 17067

Analyst: smf Instrument: AB13 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

Seq Type	Sample#	RA	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@ALPHA01 ALPHA01	SOLID	2.00E-04	1.79E-4	89.500	% Recovery
1 STD	0		@ALPHA01 ALPHA01E	SOLID	1.00	3.41E+00	3.410	% Ct. Erro
2 BLNK-PREP	0		@ALPHA01 ALPHA01	SOLID	1	-1.45E-3		uCi/g
2 BLNK-PREP	0		@ALPHA01 ALPHA01E	SOLID	1.00	5.00E+02	500.000	uCi/g
3 BLNK/BKG	0		@ALPHA01 ALPHA01	SOLID	1.00E+00	1.17E+00	1.170	BLNK/BKG
4 SAMPLE	S97T000148	0 F	@ALPHA01 ALPHA01	SOLID	N/A	7.50E-02	293.0e-005	uCi/g
4 SAMPLE	S97T000148	0 F	@ALPHA01 ALPHA01E	SOLID	N/A	1.25E+01	0.0e+000	% Ct. Error
5 DUP	S97T000148	0 F	@ALPHA01 ALPHA01	SOLID	7.50E-2	6.68E-2		11.566 RPD
5 DUP	S97T000148	0 F	@ALPHA01 ALPHA01E	SOLID	1.00	1.37E+01	13.700	% Ct. Erro
6 SPK	S97T000148	0 F	@ALPHA01 ALPHA01	SOLID	3.59E-02	2.77E-02		77.374 % Recovery
7 SAMPLE	S97T000149	0 F	@ALPHA01 ALPHA01	SOLID	N/A	4.66E-02	472.0e-005	uCi/g
7 SAMPLE	S97T000149	0 F	@ALPHA01 ALPHA01E	SOLID	N/A	1.49E+01	0.0e+000	% Ct. Error
8 DUP	S97T000149	0 F	@ALPHA01 ALPHA01	SOLID	4.66E-2	5.12E-2		9.407 RPD
8 DUP	S97T000149	0 F	@ALPHA01 ALPHA01E	SOLID	1.00	1.40E+01	14.000	% Ct. Erro

Final page for worklist# 17067

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____


 Reviewer Signature _____ Date 3/20/97

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 17067

Analyst: SLF Instrument: AB00 13 Book# 79356

Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	SOLID		
2 BLNK-PREP			@ALPHA01	SOLID		
3 BLNK/BKG			@ALPHA01	SOLID		
4 SAMPLE	S97T000148	0 F	@ALPHA01	SOLID	97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T000148	0 F	@ALPHA01	SOLID		
6 SPK	S97T000148	0 F	@ALPHA01	SOLID		
7 SAMPLE	S97T000149	0 F	@ALPHA01	SOLID	97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
8 DUP	S97T000149	0 F	@ALPHA01	SOLID		

Final page for worklist # 17067

Susie M. Jullon 3-18-97
Analyst Signature Date

C. J. Davis 3/19/97
Analyst Signature Date
MCB 3/19/97

Data Entry Comments: ABPK #173B43 .100ml

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	13 13
STD	DISH SIZE (1, 2, or 6) (MS)	2 2
Worklist	GROSS COUNTS (GC)	3502 3315
17067	COUNT TIME in MINUTES (CT)	30 30
Air on 15?	BACKGROUND in cpm (BKG)	0.1 0.1
AT	SAMPLE SIZE in mL (SS)	1.000 1.000
Test Code	DILUTION FACTOR (DF)	1 1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56 79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2857 0.2857
LIQUID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	116.633 110.400
Batch Number	Standard Value in µCi/mL	2.00E-04
97000990	Concentration in µCi/mL =	1.84E-01
Rmin	Replicate Concentration in µCi/L =	1.74E-01
0	AVERAGE CONCENTRATION in µCi/L =	1.7898E-01
Sample Prep		
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG	
Sample	ALPHA TOTAL µCi/L = Rs * 1000mL/L * DF / (EFF * SS * 2220000dpm/µCi)	
WL17067	ALPHA TOTAL µCi/mL = ALPHA TOTAL µCi/L / 1000mL/L	
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100	
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
Prepared by		
CJO		
Chemist		
SLF	ALPHA TOTAL CONCENTRATION in µCi/mL =	1.79E-04
Analyst		DETECTION LEVEL
SMF		
Date Complete		5.68E-07 µCi/mL
03/19/97	RELATIVE COUNTING ERROR =	3.4%
Analysis Date		
03/18/97		
Analysis Time		
04:30 PM		
Sample Cont		
T-110		

Analyst:	CJO	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/20/97

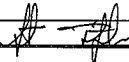
STANDARD.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

		BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	13	13
BLNK-PREP	DISH SIZE (1, 2, or 5)	(MS)	2
Worklist	GROSS COUNTS	(GC)	4
17067	COUNT TIME in MINUTES	(CT)	30
ALPHA01	BACKGROUND in cpm	(BKG)	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100
Test Code	DILUTION FACTOR	(DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.9388
Matrix	EFFICIENCY FACTOR	(EFF)	0.2857
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.179	0.135
Batch Number			
97000990	Blank Concentration in $\mu\text{Ci/g}$	<	1.45E-03
ReRun	Replicate Concentration in $\mu\text{Ci/g}$	<	1.10E-03
0	Maximum Concentration in $\mu\text{Ci/g}$	<	1.4544E-03
Sample Prep			
N/A	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sampler	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
WL17067			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)]^2 * 1.96 * 100$		
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared by			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	<	1.45E-03
Analyst	LESS THAN Value was Determined from Rmax.		DETECTION LEVEL
SMF			
Date Complete			2.93E-03
03/19/97	RELATIVE COUNTING ERROR	500.0%	$\mu\text{Ci/g}$
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Cont.			
T-110			

Analyst	SMF	Date: 19-Mar-97
Signature of Chemist:		Date: 3/20/97
BLANK.WB1 Rev. 1.0	508101ML	SLF

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

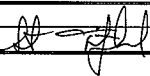
		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	13	13
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Worklist	GROSS COUNTS (GC)	303	256
17087	COUNT TIME in MINUTES (CT)	30	30
AT	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9388	1.9388
Matrix	EFFICIENCY FACTOR (EFF)	0.2857	0.2857
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	10.000	8.433
Batch Number			
97000990	Blank Concentration in $\mu\text{Ci/g}$	8.13E-02	
ReRun	Replicate Concentration in $\mu\text{Ci/g}$	6.86E-02	
2	Average Concentration in $\mu\text{Ci/g}$	7.4951E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000148			
Instrument Code	Relative Counting Error = $[\{ (\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT) \}] * 1.96 * 100$		
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared by			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	7.50E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete			2.93E-03
03/19/97	RELATIVE COUNTING ERROR	12.5%	$\mu\text{Ci/g}$
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.0	508101ML	Date: 3/20/97

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

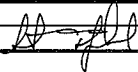
		DUP	REPLICATE
Type	DETECTOR NUMBER	13	13
DUP	DISH SIZE (1 , 2 , or 5) (MS)	2	2
Worklist	GROSS COUNTS (GC)	288	213
17067	COUNT TIME in MINUTES (CT)	30	30
Alpha B?	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9468	1.9468
Matrix	EFFICIENCY FACTOR (EFF)	0.2857	0.2857
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	9.500	7.000
Batch Number			
97000990	Blank Concentration in $\mu\text{Ci/g}$	7.69E-02	
Run	Replicate Concentration in $\mu\text{Ci/g}$	5.67E-02	
2	Average Concentration in $\mu\text{Ci/g}$	6.6814E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sampler	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000148			
Instrument Code	Relative Counting Error = $[\{ (\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT) \}] * 1.96 * 100$		
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared by			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	6.68E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete			2.92E-03 $\mu\text{Ci/g}$
03/19/97	RELATIVE COUNTING ERROR	13.7%	
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Cont			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.0	508101ML	Date: 3/20/97

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

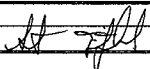
		SPIKE	REPLICATE
Type	DETECTOR NUMBER	13	13
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Worksheet	TOTAL COUNTS (TC)	51611	54501
17067	COUNT TIME in MINUTES (CT)	30	30
Area/By	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100	0.100
Lab Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9388	1.9388
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	123B43	123B43
97000990	SPIKE VALUE in µCi/mL (SVal)	3.5843E-02	3.5843E-02
ReRun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2857	0.2857
2	SAMPLE + SPIKE µCi/g (S+S)	1.40E+01	1.48E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	7.4951E-02	
FUSION01			
Sample #			
S97T000148	Rs (Sample Count Rate) = (TC / CT) - BKG		
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
WB27810	QC ACTUAL = SVal		
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))		
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) * 100		
Chemist			
SLF			
Analyst			
SMF			
Date Complete			
03/19/97			
Analysis Date			
03/18/97	QC ACTUAL =	3.58E-02	
Analysis Time	QC FOUND =	2.77E-02	
04:30 PM	AVG. PERCENT SPIKE RECOVERY =	77.4%	
Sample Point			
T-110			

Analyst:	CJO	Date: 19-Mar-97
Signature of Chemist:		SLF
SPIKE.WB1 Rev. 1.0	508101ML	Date: 3/20/97

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) SOLIDS

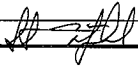
		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	13	13
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Worksheet	GROSS COUNTS (GC)	181	195
17067	COUNT TIME in MINUTES (CT)	30	30
Alpha/Beta	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Task Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.086	2.086
Matrix	EFFICIENCY FACTOR (EFF)	0.2857	0.2857
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	5.933	6.400
Batch Number			
97000990	Blank Concentration in µCi/g	4.48E-02	
Repin	Replicate Concentration in µCi/g	4.84E-02	
2	Average Concentration in µCi/g	4.6609E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample#	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T00149			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	4.66E-02	DETECTION LEVEL
Analyst			
SMF			
Date Complete			2.72E-03 µCi/g
03/19/97	RELATIVE COUNTING ERROR	14.9%	
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Cont			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.0	508101ML	Date: 3/20/97

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1) SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	13	13
DUP	DISH SIZE (1, 2, or 5) (MS)	2	2
WorkList	GROSS COUNTS (GC)	206	224
17067	COUNT TIME in MINUTES (CT)	30	30
Alert Bkg	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.1744	2.1744
Matrix	EFFICIENCY FACTOR (EFF)	0.2857	0.2857
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	6.767	7.367
Batch Number			
97000990	Blank Concentration in $\mu\text{Ci/g}$	4.91E-02	
Run	Replicate Concentration in $\mu\text{Ci/g}$	6.34E-02	
2	Average Concentration in $\mu\text{Ci/g}$	5.1240E-02	
Sample Prep	Rs (Sample Count Rate) = (TC / CT) - BKG		
FUSION01	ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
Sampler	S97T000149		
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27810	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared by	CJO		
Chemist	SLF		
Analyst	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	5.12E-02	DETECTION LEVEL
SMF			2.61E-03
Date Complete	RELATIVE COUNTING ERROR	14.0%	$\mu\text{Ci/g}$
03/19/97			
Analysis Date			
03/18/97			
Analysis Time			
04:30 PM			
Sample Point			
T-110			

Analyst:	SMF	Date: 19-Mar-97
Signature of Chemist:		SLF Date: 3/20/97

SAMPLE.WB1 Rev. 1.0

508101ML

LABCORE Completed RadChem Report for Worklist#: 17068

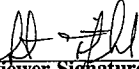
Analyst: jmv Instrument: AB15 Book# _____

Method: _____ Rev/Mod _____

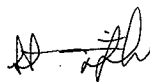
Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		@ALPHA01 ALPHA01 SOLID		2.00E-04	1.94E-4	97.000	% Recovery
1 STD	0		@ALPHA01 ALPHA01E SOLID		1.00	3.33E+00	3.330	% Ct. Error
2 BLNK-PREP	0		@ALPHA01 ALPHA01 SOLID		1	-1.92E-3		uCi/g
2 BLNK-PREP	0		@ALPHA01 ALPHA01E SOLID		1.00	5.00E+02	500.000	uCi/g
3 BLNK/BKG	0		@ALPHA01 ALPHA01 SOLID		1.00E+00	1.15E+00	1.150	BLNK/BKG
4 SAMPLE	S97T000269	0 F	@ALPHA01 ALPHA01 SOLID		N/A	7.78E-02	315.0e-005	uCi/g
4 SAMPLE	S97T000269	0 F	@ALPHA01 ALPHA01E SOLID		N/A	1.17E+01	0.0e+000	% Ct. Error
5 DUP	S97T000269	0 F	@ALPHA01 ALPHA01 SOLID		7.78E-2	7.22E-2	7.467	RPD
5 DUP	S97T000269	0 F	@ALPHA01 ALPHA01E SOLID		1.00	1.26E+01	12.600	% Ct. Error
6 SPK	S97T000269	0 F	@ALPHA01 ALPHA01 SOLID		3.58E-02	1.89E-02	52.793	% Recovery
7 SAMPLE	S97T000270	0 F	@ALPHA01 ALPHA01 SOLID		N/A	8.96E-02	325.0e-005	uCi/g
7 SAMPLE	S97T000270	0 F	@ALPHA01 ALPHA01E SOLID		N/A	1.21E+01	0.0e+000	% Ct. Error
8 DUP	S97T000270	0 F	@ALPHA01 ALPHA01 SOLID		8.96E-2	7.62E-2	16.164	RPD
8 DUP	S97T000270	0 F	@ALPHA01 ALPHA01E SOLID		1.00	1.21E+01	12.100	% Ct. Error

Final page for worklist# 17068

Analyst Signature	Date	Analyst Signature	Date
			3/19/97
Reviewer Signature	Date		

Low spk recovery is consistent with the 1st run (even though sample size was decreased). This indicates that the low recovery is due to matrix interference. No rerun requested.

 3/19/97

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 17068

Analyst: JmV Instrument: AB00 15 Book# 79856

Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Rerun #1. SLF

S Type	Sample#	R A	Test	Matrix	Group#	Project
1	STD		@ALPHA01	SOLID		
2	BLNK-PREP		@ALPHA01	SOLID		
3	BLNK/BKG		@ALPHA01	SOLID		
4	SAMPLE	S97T000269 0 F	@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
5	DUP	S97T000269 0 F	@ALPHA01	SOLID		
6	SPK	S97T000269 0 F	@ALPHA01	SOLID		
7	SAMPLE	S97T000270 0 F	@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
8	DUP	S97T000270 0 F	@ALPHA01	SOLID		

Final page for worklist # 17068

JmV 4-18-97
Analyst Signature Date

JmV 3-19-97
Analyst Signature Date
MCS 3/19/97

Data Entry Comments: A 5x 1) R3B43 .100mL

HNF-SD-WM-DP-238, REV. 0

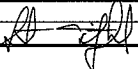
WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (E-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	15
STD	DISH SIZE (1, 2, or 5) (MS)	2
Worksheet	GROSS COUNTS (GC)	3467
17068	COUNT TIME in MINUTES (CT)	30
Acquired By	BACKGROUND in cpm (BKG)	0.13
AT	SAMPLE SIZE in mL (SS)	1.000
Test Code	DILUTION FACTOR (DF)	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2701
LIQUID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	115.437
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04
97000991	Concentration in $\mu\text{Ci/L}$ =	1.93E-01
ReRun	Replicate Concentration in $\mu\text{Ci/L}$ =	1.96E-01
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$ =	1.9427E-01

Sample Rep: N/A
 NA
 Sampler: Rs (Sample Count Rate) = (TC / CT) - BKG
 WL17068 ALPHA TOTAL $\mu\text{Ci/L}$ = Rs * 1000mL/L * DF / (EFF * SS * 222000dpm/ μCi)
 Instrument Code: ALPHA TOTAL $\mu\text{Ci/mL}$ = ALPHA TOTAL $\mu\text{Ci/L}$ / 1000mL/L
 WB26872 Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT) |] * 1.96 * 100
 Prepared By: SEH
 SEH
 Chemist: SLF
 SLF

ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.94E-04	DETECTION LEVEL
RELATIVE COUNTING ERROR =	3.3%	6.64E-07 $\mu\text{Ci/mL}$
Date Complete	03/19/97	
Analysis Date	03/18/97	
Analysis Time	02:16 PM	
Sample Point	T-110	

Analyst:	SEH	Date: 19-Mar-97
Signature of Chemist:		Date: 3/19/97
STANDARD.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

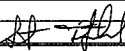
		BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	16	16
BLNK-PREP	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	6	3
17068	COUNT TIME in MINUTES (CT)	30	30
Atom B?	BACKGROUND in cpm (BKG)	0.13	0.13
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.1076	2.1076
Matrix	EFFICIENCY FACTOR (EFF)	0.2701	0.2701
SOLID	Lc, Rmax, or Rs (SAMPLE RATE) as APPROPRIATE	0.243	0.154

Batch Number	97000981	Blank Concentration in $\mu\text{Ci/g}$	< 1.92E-03
Recon	0	Replicate Concentration in $\mu\text{Ci/g}$	< 1.22E-03
Sample Prep		Maximum Concentration in $\mu\text{Ci/g}$	< 1.9233E-03

R_s (Sample Count Rate) = $(TC / CT) - BKG$
 $ALPHA\ TOTAL\ \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$

$WL17068$
 $WB26872$
 Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	SEH		
Chemist	SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Maximum) =	< 1.92E-03
Analyst	JMV	LESS THAN Value was Determined from Rmax.	DETECTION LEVEL 3.15E-03 $\mu\text{Ci/g}$
Date Complete	03/19/97	RELATIVE COUNTING ERROR	
Analysis Date	03/18/97		
Analysis Time	02:15 PM		
Sample Point	T-110		

Analyst:	JMV	Date:	19-Mar-97
Signature of Chemist:		SLF	Date: 3/19/97
BLANK.WBT Rev. 1.0	508101ML		

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

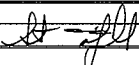
	SAMPLE	REPLICATE
Type	DETECTOR NUMBER	15 16
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2 2
WorkList	GROSS COUNTS (GC)	304 294
17068	COUNT TIME in MINUTES (CT)	30 30
AutomUB7	BACKGROUND in cpm (BKG)	0.13 0.13
AT	SAMPLE SIZE in mL (SS)	0.100 0.100
testCode	DILUTION FACTOR (DF)	1 1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.1076 2.1076
Matrix	EFFICIENCY FACTOR (EFF)	0.2701 0.2701
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	10.003 9.670

Batch Number	
97000991	Blank Concentration in µCi/g 7.92E-02
Retun	Replicate Concentration in µCi/g 7.65E-02
1	Average Concentration in µCi/g 7.7836E-02

Sample Prep
 FUSION01 Rs (Sample Count Rate) = (TC / CT) - BKG
 Sample ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)
 S97T000269
 Instrument Code Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
 WB26872 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Prepared By	SEH	Chemist	SLF	ALPHA TOTAL in µCi/g (Average) = 7.78E-02	DETECTION LEVEL
Analyst	JMV	Date Complete	03/19/97	RELATIVE COUNTING ERROR 11.7%	3.15E-03 µCi/g
Analysis Date	03/18/97	Analysis Time	02:15 PM	Sample Point	T-110

// system\exitlyes-

Analyst:	JMV	Date:	19-Mar-97
Signature of Chemist:		SLF	Date: 3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML		

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1) SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	15	15
DUP	DISH SIZE (1, 2, or 5)	(MS) 2	2
Work List	GROSS COUNTS	(GC) 279	252
17068	COUNT TIME in MINUTES	(CT) 30	30
Attribution	BACKGROUND in cpm	(BKG) 0.13	0.13
AT	SAMPLE SIZE in mL	(SS) 0.100	0.100
Test Code	DILUTION FACTOR	(DF) 1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L) 2.0152	2.0152
Matrix	EFFICIENCY FACTOR	(EFF) 0.2701	0.2701
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	9.170	8.270

Batch Number		
97000981	Blank Concentration in µCi/g	7.59E-02
Regrun	Replicate Concentration in µCi/g	6.84E-02
1	Average Concentration in µCi/g	7.2164E-02

Sample Rep: FUSION01
 Sample: S97000269
 Instrument Code: WB26872
 Prepared By: SEH
 Chemist: SLF

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

SLF	ALPHA TOTAL in µCi/g (Average)	=	7.22E-02	DETECTION LEVEL
Analyst				
JMV				
Date Complete				3.29E-03 µCi/g
03/19/97	RELATIVE COUNTING ERROR		12.6%	
Analysis Date				
03/18/97				
Analysis Time				
02:15 PM				
Sample Point				
T-110				

// system;exit;yes-

Analyst:	JMV	Date:	19-Mar-97
Signature of Chemist:	<i>[Signature]</i>	SLF	Date: 3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML		

WORKBOOK PAGE: SPK6

AT: LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	15	15
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Worksheet	TOTAL COUNTS (TC)	35478	33099
17068	COUNT TIME in MINUTES (CT)	30	30
Angular B?	BACKGROUND in cpm (BKG)	0.13	0.13
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.1076	2.1076
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	123B43	123B43
97000991	SPIKE VALUE in µCi/mL (SVAl)	3.5843E-02	3.5843E-02
Retrun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2701	0.2701
1	SAMPLE + SPIKE µCi/g (S+S)	9.36E+00	8.73E+00
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	7.8359E-02	
FUSION01			
Sample#			
S97T000269	Rs (Sample Count Rate) = (TC / CT) - BKG		
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L *2220000dpm/µCi)		
WB26872	QC ACTUAL = SVAl		
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))		
SEH	PERCENT SPIKE RECOVERY = (QC FOUND / QC.ACTUAL) *100		
Chemist			
SLF			
Analyst			
JMV			
Date Complete			
03/19/97			
Analysis Date			
03/18/97	QC ACTUAL =	3.58E-02	
Analysis Time	QC FOUND =	1.89E-02	
02:16 PM	AVG. PERCENT SPIKE RECOVERY =	52.7%	
Sample Point			
T-110			

Analyst:	SEH	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97

SPIKE.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) SOLIDS

		SAMPLE	REPLICATE
TYPE	DETECTOR NUMBER	15	15
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2
Work List	GROSS COUNTS	(GC)	272
17068	COUNT TIME in MINUTES	(CT)	30
Prepared By	BACKGROUND In cpm	(BKG)	0.13
AT	SAMPLE SIZE in mL	(SS)	0.100
Test Code	DILUTION FACTOR	(DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.0408
Matrix	EFFICIENCY FACTOR	(EFF)	0.2701
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		8.937
Batch Number			13.003

97000991	Blank Concentration in µCi/g	7.30E-02
Run	Replicate Concentration in µCi/g	1.06E-01
1	Average Concentration in µCi/g	8.964E-02

Sample Prep: FUSION01
 Sample #: S97T000270
 Instrument Code: WB26872
 Prepared By: SEH
 Chemist: SLF

Rs (Sample Count Rate) = (TC / CT) - BKG
 ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)

Relative Counting Error = [|(The Square Root of TC + BKG * CT) / (TC - BKG * CT)|] * 1.96 * 100
 Detection Levels and Less Than Values are determined from Procedure LA-508-002.

ALPHA TOTAL in µCi/g (Average)	=	8.96E-02	DETECTION LEVEL
			3.25E-03 µCi/g
RELATIVE COUNTING ERROR		12.1%	
Date Complete: 03/19/97			
Analysis Date: 03/18/97			
Analysis Time: 02:15 PM			
Sample Point: T-110			

// system:exit=yes-

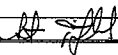
Analyst:	JMV	Date: 19-Mar-97
Signature of Chemist:	SLF	Date: 3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1) SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	15	15
DUP	DISH SIZE (1, 2, or 5)	(MS) 2	2
Work List	GROSS COUNTS	(GC) 276	309
17068	COUNT TIME in MINUTES	(CT) 30	30
Alpha Bkg	BACKGROUND in cpm	(BKG) 0.13	0.13
AT	SAMPLE SIZE in mL	(SS) 0.100	0.100
Test Code	DILUTION FACTOR	(DF) 1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L) 2.106	2.106
Matrix	EFFICIENCY FACTOR	(EFF) 0.2701	0.2701
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	9.070	10.170
Batch Number			
97000991	Blank Concentration in µCi/g	7.18E-02	
Rerun	Replicate Concentration in µCi/g	8.05E-02	
1	Average Concentration in µCi/g	7.6180E-02	
Sample Prep	Rs (Sample Count Rate) = (TC / CT) - BKG		
FUSION01	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
Sample#	S97T000270		
Instrument Code	WB26872		
Prepared By	SEH		
Chemist	SLF		
SLF	ALPHA TOTAL in µCi/g (Average)	=	7.62E-02
Analyst			DETECTION LEVEL
JMV			3.15E-03
Date Complete	RELATIVE COUNTING ERROR		µCi/g
03/19/97			12.1%
Analysis Date	03/18/97		
Analysis Time	02:15 PM		
Sample Point	T-110		

// system;exit;yes-

Analyst:	JMV	Date: 19-Mar-97
Signature of Chemist:		Date: 3/19/97
SAMPLE.WB1 Rev. 1.0	508101ML	

LABCORE Completed RadChem Report for Worklist#: 17072

Analyst: slh Instrument: AB16 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

Seq Type	Sample#	R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0		0ALPHA01 ALPHA01 SOLID		2.00E-04	1.71E-4	85.500	% Recovery
1 STD	0		0ALPHA01 ALPHA01E SOLID		1.00	3.64E+00	3.640	% Ct. Error
2 BLNK-PREP	0		0ALPHA01 ALPHA01 SOLID		1	<1.64E-3		uCi/g
2 BLNK-PREP	0		0ALPHA01 ALPHA01E SOLID		1.00	5.00E+02	500.000	uCi/g
3 BLNK/BKG	0		0ALPHA01 ALPHA01 SOLID		1.00E+00	2.00E+00	2.000	BLNK/BKG
4 SAMPLE	S97T000196	0 F	0ALPHA01 ALPHA01 SOLID		N/A	5.88E-02	295.0e-005	uCi/g
4 SAMPLE	S97T000196	0 F	0ALPHA01 ALPHA01E SOLID		N/A	1.58E+01	0.0e+000	% Ct. Error
5 DUP	S97T000196	0 F	0ALPHA01 ALPHA01 SOLID		5.88E-2	6.14E-2	4.326	RPD
5 DUP	S97T000196	0 F	0ALPHA01 ALPHA01E SOLID		1.00	1.37E+01	13.700	% Ct. Error
6 SPK	S97T000196	0 F	0ALPHA01 ALPHA01 SOLID		3.58E-02	1.90E-02	53.073	% Recovery
7 SAMPLE	S97T000230	0 F	0ALPHA01 ALPHA01 SOLID		N/A	4.47E-02	310.0e+005	uCi/g
7 SAMPLE	S97T000230	0 F	0ALPHA01 ALPHA01E SOLID		N/A	1.60E+01	0.0e+000	% Ct. Error
8 DUP	S97T000230	0 F	0ALPHA01 ALPHA01 SOLID		4.47E-2	4.63E-2	3.516	RPD
8 DUP	S97T000230	0 F	0ALPHA01 ALPHA01E SOLID		1.00	1.61E+01	16.100	% Ct. Error
9 SPK	S97T000230	0 F	0ALPHA01 ALPHA01 SOLID		3.58E-02	2.03E-02	56.704	% Recovery
10 SAMPLE	S97T000231	0 F	0ALPHA01 ALPHA01 SOLID		N/A	2.88E-02	296.0e+005	uCi/g
10 SAMPLE	S97T000231	0 F	0ALPHA01 ALPHA01E SOLID		N/A	2.00E+01	0.0e+000	% Ct. Error
11 DUP	S97T000231	0 F	0ALPHA01 ALPHA01 SOLID		2.88E-2	3.55E-2	20.840	RPD
11 DUP	S97T000231	0 F	0ALPHA01 ALPHA01E SOLID		1.00	1.79E+01	17.900	% Ct. Error

Final page for worklist# 17072

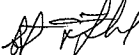
Analyst Signature _____ Date _____ Analyst Signature _____ Date _____



Reviewer Signature Date 3/21/97

SPK recoveries are consistent with 2 runs indicating that low recoveries are due to matrix interference. The RPD for 231 is acceptable due to low sample alpha activity.

No rerun requested.


3/21/97

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Worklist# 17072

Analyst: SLH Instrument: AB00 16 Book# 79B56

Method: LA-508-101 Rev/Mod F-0

Worklist Comment: Use .100 mL sample size. Rerun #2. SLF

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@ALPHA01	SOLID		
2 BLNK-PREP			@ALPHA01	SOLID		
3 BLNK/BKG			@ALPHA01	SOLID		
4 SAMPLE	S97T000196	0 F	@ALPHA01	SOLID	97000083	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
5 DUP	S97T000196	0 F	@ALPHA01	SOLID		
6 SPK	S97T000196	0 F	@ALPHA01	SOLID		
7 SAMPLE	S97T000230	0 F	@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
8 DUP	S97T000230	0 F	@ALPHA01	SOLID		
9 SPK	S97T000230	0 F	@ALPHA01	SOLID		
10 SAMPLE	S97T000231	0 F	@ALPHA01	SOLID	97000111	T-110
	Analytes Requested: ALPHA01 , ALPHA01E					
11 DUP	S97T000231	0 F	@ALPHA01	SOLID		

Final page for worklist # 17072

Sandra J. Hood
 Analyst Signature Date
Boatright
3-20-97

Al. Quinn 3/20/97
 Analyst Signature Date
Ju. Hogan 3-20-97

Data Entry Comments:

WORKBOOK PAGE: STD1

AT : LA-508-101 (E-1) LA-508-113 (B-0) STANDARD

	STANDARD	REPLICATE
Type	DETECTOR NUMBER	16
STD	DISH SIZE (1, 2, or 5)	2
WorkList	GROSS COUNTS	2905
17072	COUNT TIME in MINUTES	30
Antoinette	BACKGROUND in cpm	0.1
AT	SAMPLE SIZE in mL	1.000
Last Code	DILUTION FACTOR	1
@ALPHA01	STANDARD BOOK NUMBER (Std BN)	79B56
Matrix	EFFICIENCY FACTOR (EFF)	0.2683
LIQUID	Lc, Rmax, or Rs.(SAMPLE RATE) as APPROPRIATE	96.733
Batch Number	Standard Value in $\mu\text{Ci/mL}$	2.00E-04
9700995	Concentration in $\mu\text{Ci/L}$	= 1.62E-04
Retain	Replicate Concentration in $\mu\text{Ci/L}$	= 1.79E-04
0	AVERAGE CONCENTRATION in $\mu\text{Ci/L}$	= 1.7055E-04
Sample Prep		
N/A	Rs (Sample Count Rate) = $(\text{TC} / \text{CT}) - \text{BKG}$	
Sample	ALPHA TOTAL $\mu\text{Ci/L}$ = $\text{Rs} * 1000\text{mL} * \text{DF} / (\text{EFF} * \text{SS} * 2220000\text{dpm}/\mu\text{Ci})$	
WL17072	ALPHA TOTAL $\mu\text{Ci/mL}$ = $\text{ALPHA TOTAL } \mu\text{Ci/L} / 1000\text{mL/L}$	
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } \text{TC} + \text{BKG} * \text{CT}) / (\text{TC} - \text{BKG} * \text{CT})] * 1.96 * 100$	
WB27805	Detection Levels and Less Than Values are determined from Procedure LA-508-002.	
Prepared By		
CJO		
Chemist		
SLF	ALPHA TOTAL CONCENTRATION in $\mu\text{Ci/mL}$ =	1.71E-04
Analyst		
SLH		
Date Complete		
03/20/97	RELATIVE COUNTING ERROR =	3.6%
Analysis Date		
03/20/97		
Analysis Time		
02:15 AM		
Sample Point		
T-110		

DETECTION LEVEL
6.05E-07 $\mu\text{Ci/mL}$

Analyst:	CJO	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97

STANDARD.WB1 Rev. 1.0

508101ML

WORKBOOK PAGE: BLANK2

AT : LA-508-101 (E-1) SOLIDS

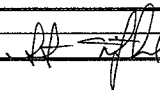
		BLNK-PREP	REPLICATE
Type	DETECTOR NUMBER	16	16
BLNK-PREP	DISH SIZE (1, 2, or 5) (MS)	2	2
Worklist	GROSS COUNTS (GC)	9	3
17072	COUNT TIME in MINUTES (CT)	30	30
ALPHA01	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
TestCode	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0512	2.0512
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	0.200	0.135
BatchNumber			
97000995	Blank Concentration in µCi/g	1.64E-03	
Repin	Replicate Concentration in µCi/g	< 1.10E-03	
0	Maximum Concentration in µCi/g	< 1.6370E-03	
Sample/Rep			
N/A	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample/	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
WL17072			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Maximum) =	< 1.64E-03	DETECTION LEVEL
Analyst	LESS THAN Value was Determined from Rs.		
SLH			2.95E-03
Date Complete	RELATIVE COUNTING ERROR	500.0%	µCi/g
03/20/97			
Analysis Date			
03/20/97			
Analysis Time			
02:15 AM			
Sample Cont			
T-110			

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97
BLANK.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM4

AT : LA-508-101 (E-1) SOLIDS

		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Worklist	GROSS COUNTS (GC)	162	275
17072	COUNT TIME in MINUTES (CT)	30	30
ALPHA01	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Task Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0512	2.0512
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	5.300	9.067
Batch Number			
97000995	Blank Concentration in $\mu\text{Ci/g}$	4.34E-02	
Rerun	Replicate Concentration in $\mu\text{Ci/g}$	7.42E-02	
2	Average Concentration in $\mu\text{Ci/g}$	5.8796E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$ALPHA\ TOTAL\ \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (EFF * SS * Dg/L * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000196			
Instrument Code	Relative Counting Error = $[\{ (The\ Square\ Root\ of\ TC + BKG * CT) / (TC - BKG * CT) \}]^2 * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	5.88E-02	DETECTION LEVEL
Analyst			
SLH			
Date Complete			2.95E-03 $\mu\text{Ci/g}$
03/20/97	RELATIVE COUNTING ERROR	15.8%	
Analysis Date			
03/20/97			
Analysis Time			
02:15 AM			
Sample Point			
T-110			

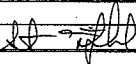
Analyst	SLH	Date: 20-Mar-97
Signature of Chemist:		Date: 3/21/97
SAMPLE.WB1 Rev. 1.0	508101ML	SLF

WORKBOOK PAGE: DUP5

AT : LA-508-101 (E-1)

SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	16	16
DUP	DISH SIZE (1 , 2 , or 5) (MS)	2	2
WorkList	GROSS COUNTS (GC)	213	244
17072	COUNT TIME in MINUTES (CT)	30	30
Alpha/Beta	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0556	2.0556
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	7.000	8.033
Batch Number			
97000995	Blank Concentration in $\mu\text{Ci/g}$	5.72E-02	
Return	Replicate Concentration in $\mu\text{Ci/g}$	6.56E-02	
2	Average Concentration in $\mu\text{Ci/g}$	6.1392E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = $Rs * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
S97T000196			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	6.14E-02	DETECTION LEVEL
Analyst			
SLH			
Date Complete			2.94E-03 $\mu\text{Ci/g}$
03/20/97	RELATIVE COUNTING ERROR	13.7%	
Analysis Date			
03/20/97			
Analysis Time			
02:15 AM			
Sample Cont			
T-110			

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.0	508101ML	Date: 3/21/97

WORKBOOK PAGE: SPK6

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

		SPIKE	REPLICATE
Type	DETECTOR NUMBER	16	16
SPK	DISH SIZE 1, 2, or 5 (MS)	2	2
Worksheet	TOTAL COUNTS (TC)	34040	34284
17072	COUNT TIME in MINUTES (CT)	30	30
Acquired By	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0512	2.0512
Matrix	SPIKE VOLUME in mL (SVol)	0.100	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	123B43	123B43
97000995	SPIKE VALUE in µCi/mL (SVAl)	3.5842E-02	3.5842E-02
Re-run	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2683	0.2683
2	SAMPLE + SPIKE µCi/g (S+S)	9.29E+00	9.35E+00
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	5.8796E-02	
FUSION01			
Sample #	S97T000196		
Instrument Code	WB27806		
Prepared By	CJO		
Chemist	SLF		
Analyst	SLH		
Date Complete	03/20/97		
Analysis Date	03/20/97		
Analysis Time	02:15 AM		
Sample Point	T-110		

Rs (Sample Count Rate) = (TC / CT) - BKG	
SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)	
QC ACTUAL = SVAl	
QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000)))/(DF/SS/Dg/L))))	
PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) * 100	

QC ACTUAL	=	3.58E-02
QC FOUND	=	1.90E-02
AVG. PERCENT SPIKE RECOVERY	=	53.0%

Analyst:	CJO	Date: 20-Mar-97
Signature of Chemist:		SLF Date: 3/21/97
SPIKE.WB1 Rev. 1.0	508101ML	

WORKBOOK PAGE: SAM7

AT : LA-508-101 (E-1) SOLIDS

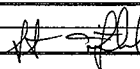
		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5)	(MS)	2
Work List	GROSS COUNTS	(GC)	158
17072	COUNT TIME in MINUTES	(CT)	30
Al For AT BY	BACKGROUND in cpm	(BKG)	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100
Test Code	DILUTION FACTOR	(DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	1.948
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE		5.167

Batch Number	
97000995	Blank Concentration in $\mu\text{Ci/g}$ 4.45E-02
ReRun	Replicate Concentration in $\mu\text{Ci/g}$ 4.48E-02
2	Average Concentration in $\mu\text{Ci/g}$ 4.4673E-02

Sample Prop	
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$
Sample #	ALPHA TOTAL $\mu\text{Ci/g}$ = $R_s * 1000\text{mL/L} * DF / (EFF * SS * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$
S97T000230	

Instrument Code	
WB27806	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)]^2 * 1.96 * 100$
Prepared By	Detection Levels and Less Than Values are determined from Procedure LA-508-002.

Chemist	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average)	=	4.47E-02	DETECTION LEVEL
SLF				
Analyst				
SLH				
Date Complete				3.10E-03
03/20/97	RELATIVE COUNTING ERROR		16.0%	$\mu\text{Ci/g}$
Analysis Date				
03/20/97				
Analysis Time				
02:15 AM				
Sample Cont				
T-110				

Analyst	SLH	Date: 20-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.0	508101ML	Date: 3/21/97

WORKBOOK PAGE: DUP8

AT : LA-508-101 (E-1) SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	16	16
DUP	DISH SIZE (1, 2, or 5) (MS)	2	2
Work List	GROSS COUNTS (GC)	157	172
17072	COUNT TIME in MINUTES (CT)	30	30
AT:LA-508-101	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.9508	1.9508
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs,(SAMPLE RATE) as APPROPRIATE	5.133	5.633
Batch Number			
97000995	Blank Concentration in µCi/g	4.42E-02	
ReRun	Replicate Concentration in µCi/g	4.85E-02	
2	Average Concentration in µCi/g	4.6330E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000230			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	4.63E-02	DETECTION LEVEL
Analyst			
SLH			
Date Complete			3.10E-03
03/20/97	RELATIVE COUNTING ERROR	16.1%	µCi/g
Analysis Date			
03/20/97			
Analysis Time			
02:15 AM			
Sample Point			
T-110			

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:	SLF	Date: 3/21/97

SAMPLE.WB1 Rev. 1.0

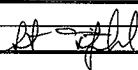
508101ML

HNF-SD-WM-DP-238, REV. 0

WORKBOOK PAGE: SPK9

AT : LA-508-101 (E-1) LA-508-113 (B-0) SPIKED SAMPLE

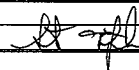
	SPIKE	REPLICATE
Type	DETECTOR NUMBER	16
SPK	DISH SIZE 1, 2, or 6 (MS)	2
Worklist	TOTAL COUNTS (TC)	36608
17072	COUNT TIME in MINUTES (CT)	30
Account#	BACKGROUND in cpm (BKG)	0.1
AT	SAMPLE VOLUME in mL (Spiked Vial) (SS)	0.100
Test Code	SAMPLE DILUTION FACTOR (Spiked Vial) (DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	1.948
Matrix	SPIKE VOLUME in mL (SVol)	0.100
SOLID	SPIKE DILUTION FACTOR (SDF)	1
Batch Number	SPIKE BOOK NUMBER (Spk BN)	123B43
97000995	SPIKE VALUE in µCi/mL (SVal)	3.5842E-02
Rerun	INSTRUMENT EFFICIENCY FACTOR (EFF)	0.2683
2	SAMPLE + SPIKE µCi/g (S+S)	1.05E+01
Sample Prep	AVERAGE or MAXIMUM µCi/g in SAMPLE	4.4673E-02
FUSION01		
Sample#		
S97T000230	Rs (Sample Count Rate) = (TC / CT) - BKG	
Instrument Code	SAMPLE + SPIKE µCi/g = Rs * 1000mL/L * DF / ((EFF * SS * Dg/L * 2220000dpm/µCi)	
WB27806	QC ACTUAL = SVal	
Prepared By	QC FOUND = (((S+S µCi/g - SAMPLE µCi/g) * ((SDF/(SVol*1000))/(DF/SS/Dg/L))))	
CJO	PERCENT SPIKE RECOVERY = (QC FOUND / QC ACTUAL) * 100	
Chemist		
SLF		
Analyst		
SLH		
Date Complete		
03/20/97		
Analysis Date		
03/20/97	QC ACTUAL =	3.58E-02
Analysis Time	QC FOUND =	2.03E-02
02:15 AM	AVG. PERCENT SPIKE RECOVERY =	56.6%
Sample Point		
T-110		

Analyst:	CJO	Date: 20-Mar-97
Signature of Chemist:		SLF
SPIKE.WB1 Rev. 1.0	508101ML	Date: 3/21/97

WORKBOOK PAGE: SAM10

AT : LA-508-101 (E-1) SOLIDS

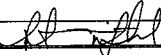
		SAMPLE	REPLICATE
Type	DETECTOR NUMBER	16	16
SAMPLE	DISH SIZE (1, 2, or 5) (MS)	2	2
Worksheet	GROSS COUNTS (GC)	105	111
17072	COUNT TIME in MINUTES (CT)	30	30
AT OR BKG	BACKGROUND in cpm (BKG)	0.1	0.1
AT	SAMPLE SIZE in mL (SS)	0.100	0.100
Test Code	DILUTION FACTOR (DF)	1	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L (Dg/L)	2.0392	2.0392
Matrix	EFFICIENCY FACTOR (EFF)	0.2683	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	3.400	3.600
Batch Number			
97000995	Blank Concentration in µCi/g	2.80E-02	
ReRun	Replicate Concentration in µCi/g	2.96E-02	
2	Average Concentration in µCi/g	2.8816E-02	
Sample Prep			
FUSION01	Rs (Sample Count Rate) = (TC / CT) - BKG		
Sample	ALPHA TOTAL µCi/g = Rs * 1000mL/L * DF / (EFF * SS * Dg/L * 2220000dpm/µCi)		
S97T000231			
Instrument Code	Relative Counting Error = [(The Square Root of TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in µCi/g (Average) =	2.88E-02	DETECTION LEVEL
Analyst			
SLH			
Date Complete			2.96E-03 µCi/g
03/20/97	RELATIVE COUNTING ERROR	20.0%	
Analysis Date			
03/20/97			
Analysis Time			
02:15 AM			
Sample Point			
T-110			

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.0	508101ML	Date: 3/21/97

WORKBOOK PAGE: DUP11

AT : LA-508-101 (E-1) SOLIDS

		DUP	REPLICATE
Type	DETECTOR NUMBER	16	16
DUP	DISH SIZE (1, 2, or 5)	(MS)	2
Worklist	GROSS COUNTS	(GC)	134
17072	COUNT TIME in MINUTES	(CT)	30
Algor/Bkg	BACKGROUND in cpm	(BKG)	0.1
AT	SAMPLE SIZE in mL	(SS)	0.100
Test Code	DILUTION FACTOR	(DF)	1
@ALPHA01	DIGEST GRAMS of SOLIDS / L	(Dg/L)	2.024
Matrix	EFFICIENCY FACTOR	(EFF)	0.2683
SOLID	Lc, Rmax, or Rs, (SAMPLE RATE) as APPROPRIATE	4.367	4.200
Batch Number			
97000995	Blank Concentration in $\mu\text{Ci/g}$	3.62E-02	
ReRun	Replicate Concentration in $\mu\text{Ci/g}$	3.48E-02	
2	Average Concentration in $\mu\text{Ci/g}$	3.5530E-02	
Sample Prep			
FUSION01	R_s (Sample Count Rate) = $(TC / CT) - BKG$		
Sample #	$\text{ALPHA TOTAL } \mu\text{Ci/g} = R_s * 1000\text{mL/L} * DF / (\text{EFF} * \text{SS} * \text{Dg/L} * 2220000\text{dpm}/\mu\text{Ci})$		
S97T00231			
Instrument Code	Relative Counting Error = $[(\text{The Square Root of } TC + BKG * CT) / (TC - BKG * CT)] * 1.96 * 100$		
WB27806	Detection Levels and Less Than Values are determined from Procedure LA-508-002.		
Prepared By			
CJO			
Chemist			
SLF	ALPHA TOTAL in $\mu\text{Ci/g}$ (Average) =	3.55E-02	DETECTION LEVEL
Analyst			
SLH			
Date Complete			2.99E-03
03/20/97	RELATIVE COUNTING ERROR	17.9%	$\mu\text{Ci/g}$
Analysis Date			
03/20/97			
Analysis Time			
02:15 AM			
Sample Point			
T-110			

Analyst:	SLH	Date: 20-Mar-97
Signature of Chemist:		SLF
SAMPLE.WB1 Rev. 1.0	508101ML	Date: 3/21/97

LBCORE Completed RadChem Report for Worklist#: 17005

Analyst: rwk Instrument: AB21 Book# _____

Method: _____ Rev/Mod _____

Worklist Comment: T-110, @PU23901, Deter s.s. by Ludlum. Std: 1.0mL. skm

Seq Type	Sample# R A	Test	Matrix	Actual	Found	DL or Yield	Unit
1 STD	0	@PU23901 PU23901	LIQUID	1.03E-04	1.01E-4	92.661	% Recovery
1 STD	0	@PU23901 PU23901E	LIQUID	1.00	1.47E+00	1.470	% Ct Error
1 STD	0	@PU23901 PU23901T	LIQUID	100	9.50E+01	95.000	% Recovery
2 BLNK	0	@PU23901 PU23901	LIQUID	1	<3.40E-6		uCi/mL
2 BLNK	0	@PU23901 PU23901T	LIQUID	100	9.93E+01	99.300	% Recovery
2 BLNK	0	@PU23901 PU23901E	LIQUID	1.00	1.00E+02	100.000	uCi/mL
3 SAMPLE	S97T000381 0	@PU23901 PU23901	LIQUID	N/A	3.38E-06	338.0e-008	uCi/mL
3 SAMPLE	S97T000381 0	@PU23901 PU23901T	LIQUID	N/A	1.03E+02	0.0e+000	% Recovery
3 SAMPLE	S97T000381 0	@PU23901 PU23901E	LIQUID	N/A	1.60E+02	0.0e+000	% Ct. Error
4 DUP	S97T000381 0	@PU23901 PU23901	LIQUID	<3.38E-6	<3.48E-6		RPD
4 DUP	S97T000381 0	@PU23901 PU23901T	LIQUID	100	9.68E+01	96.800	% Recovery
4 DUP	S97T000381 0	@PU23901 PU23901E	LIQUID	1.00	1.00E+02	100.000	% Ct Error

Final page for worklist# 17005

Analyst Signature _____ Date _____

Analyst Signature _____ Date _____

John Pedersen 18 Mar 97
 Reviewer Signature Date
Validated

LABCORE Data Entry Template for Worklist# 17005

Analyst: RR Instrument: PU01 21 Book# 75 B56

Method: LA-943-128 Rev/Mod B-0

Worklist Comment: T-110, @PU23901, Deter s.s. by Ludlum. Std: 1.0mL. skm

S Type	Sample#	R A	Test	Matrix	Group#	Project
1 STD			@PU23901	LIQUID		
2 BLNK			@PU23901	LIQUID		
3 SAMPLE	S97T000381 0		@PU23901	LIQUID	97000083	T-110
Analytes Requested: PU23901, PU23901E, PU23901T						
4 DUP	S97T000381 0		@PU23901	LIQUID		

Final page for worklist # 17005

RR 3/15/97
 Analyst Signature Date

[Signature] 3/17/97
 Analyst Signature Date
C.J. Quinn 3/17/97

Data Entry Comments:

WORKBOOK PAGE: STD1

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(A-0)

LIQUID

				STD
Type	DATE COUNTED	MAR-15-97	PU 236 AEA FRAC (C236)	0.507
STD	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)	0.000
Work Unit	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)	0.472
17005	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	4965
1000000	DIGEST DILUTION FACTOR	DDF 1.000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.200
Matrix	DETECTOR NUMBER	21	PU 236 cpm	76.270
LIQUID	EFFICIENCY FACTOR	EFF 0.367	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm	71.080
97000926	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
Room	PU-236 DECAY CORR'D VALUE (dpm/mL)	2400.329	Pu 239/240 µCi/L	1.0066E-01
0	PU-238 TRACER VALUE (dpm/mL)	0.000		
Sample Prep	STANDARD BOOK NO	75B56		
N/A	STANDARD VALUE in µCi/mL	1.090E-04		
Sample ID				
w17005				
Instrument Code	Decay Time = Date Counted - Tracer Preparation Date			
WC16105	Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {-ln2 * Decay Time/1040.95}]			
Prepared by	Pu 236 Tracer Recovery = (Total AT Counts / TC -Bkg) * 1/EFF * C236*100/Pu-236 Decay Corr'd Value * SPKV			
SZC	Pu 239/240 µCi/L = (C239)/(Pu 236 Decay Corr'd Value)(SPKV)(1000mL/L)(DF)(DDF) / [(C236)(SS)(2220000 dpm/µCi)]			
Chemist	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value *SPKV *Pu 236 Tracer Recovery / 100)			
JFR	Pu 238 µCi/L = [(Pu 238 dpm)(DF)(DDF)(1000mL/L)] / [(Pu-236 Tracer Recovery /100)(2220000 dpm/µCi)(D g/L)(SS)]			
Analyst	Relative Counting Error = Square Root of [(1/(Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100			
RWK				
Data Complete				
03/17/97	Pu 239/240 µCi/mL	1.01E-04	DETECTION LEVELS in µCi/mL	
Analysis Date	Relative Counting Error	= 1.5%		
03/15/97				
Analysis Time			Pu 239/240	
05:05 AM			6.73E-06	
Sample Count				
T-110	Pu 236 Tracer Recovery	= 95.0%		

Analyst:	RWK	Date:	17-Mar-97
Signature of Chemist:	JFR	Date:	18/Mar 97

STANDARD.WB1 REV 1.0 943128ML

WORKBOOK PAGE: BLANK2

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(A-0)

LIQ

BLNK

Type	DATE COUNTED	MAR-15-97	PU 236 AEA FRAC (C236)	0.960
BLNK	SAMPLE VOLUME in mL	SS	1.000 PU 238 AEA FRAC (C238)	0.000
Worklist	SAMPLE DILUTION FACTOR	DF	1.000 PU 239 AEA FRAC (C239)	0.000
17005	TRACER VOLUME in mL	SPKV	0.100 TOTAL AT COUNTS	2742
Tracer Code	DIGEST DILUTION FACTOR	DDF	1.0000 AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cp (Bkg)	0.200
Matrix	DETECTOR NUMBER	21	PU 236 cpm	71.780
LIQUID	EFFICIENCY FACTOR	EFF	0.3674 PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm	0.000
97000926	TRACER PREPARATION VALUE (dpm/mL)	2600.00	AEA COUNT TIME	480
Karlin	PU-236 DECAY CORR'D VALUE (dpm/mL)	2400.33	Pu 239/240 µCi/L =	< 3.403E-03
0	PU-238 TRACER VALUE (dpm/m)	0.00		

Sample Prep

N/A

Sample #

Decay Time = Date Counted - Tracer Preparation Date

WL17005

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * $e^{-(\ln 2 * \text{Decay Time}/1040.95)}$

Instrument Code

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

WC16105

Pu 239/240 µCi/L = (C239) * (Pu 236 Decay Corr'd Value) * (SPKV) * (1000mL/L) * (DF) * (DDF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/µCi)]

Prepared by

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

SZC

Pu 238 µCi/L = [(Pu 238 dpm) * (DF) * (DDF) * (1000mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/µCi) * (D g/L) * (SS)]

Chemist

Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

JFR

Analyst

RWK

Data Complete

03/17/97

Pu 239/240 µCi/mL < 3.40E-06

DETECTION

Analysis Date

Relative Counting Error = 100.0%

LEVELS

03/16/97

in µCi/mL

Analysis Time

NOTE: Pu 238 Result is a LESS THAN Value.

Pu 239/240

05:05 AM

Pu 238 µCi/mL < 3.40E-06

3.40E-06

Sample ID

Relative Counting Error = 100.0%

Pu 238

T-110

Pu 236 Tracer Recovery = 99.3%

3.40E-06

Analyst:	RWK	Date:	17-Mar-97
Signature of Chemist:	JFR	Date:	18 Mar 97

BLANK.WB1 REV 1.0

943128ML

HNF-SD-WM-DP-238, REV. 0

WORKBOOK PAGE: SAM3

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(A-0)

LIQUID / SO

				SAMPLE
Type	DATE COUNTED	MAR-15-97	PU 238 AEA FRAC (C236)	0.961
SAMPLE	SAMPLE VOLUME in mL	SS 1.000	PU 238 AEA FRAC (C238)	0.000
WorkList	SAMPLE DILUTION FACTOR	DF 1.000	PU 239 AEA FRAC (C239)	0.000
17005	TRACER VOLUME in mL	SPKV 0.100	TOTAL AT COUNTS	2828
Test Code	DIGEST DILUTION FACTOR	DDF 1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO	128B43	BACKGROUND in cpm (Bkg)	0.200
Matrix	DETECTOR NUMBER	21	PU 236 cpm	69,140
LIQUID	EFFICIENCY FACTOR	EFF 0.367	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE	11/15/96	PU 239 cpm	0.000
97000926	TRACER PREPARATION VALUE (dpm/mL)	2600.000	AEA COUNT TIME	480
Recon	PU-238 DECAY CORR'D VALUE (dpm/mL)	2400.329	Pu 239/240 μ Ci/L =	< 3.3753E-03
0	PU-238 TRACER VALUE (dpm/mL)	0.000		

Sample Prep	N/A
Sample #	
S97T000381	
Instrument Code	
WC16105	
Prepared By	
SZC	
Chemist	
JFR	
Analyst	
RWK	
Date Complete	

Decay Time = Date Counted - Tracer Preparation Date

Pu-236 Decay Corr'd Value = Pu-236 Preparation Value * [e to the power of {-ln2 * Decay Time/1040.95}]

Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Corr'd Value * SPKV * EFF)

Pu 239/240 μ Ci/L = (C239) / (Pu 238 Decay Corr'd Value) * (SPKV) / (1000 mL/L) * (DF) * (DDF) / [(C236) * (SS) * (D g/L) * (2220000 dpm/ μ Ci)]

Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)

Pu 238 μ Ci/L = [(Pu 238 dpm) * (DF) * (DDF) * (1000 mL/L)] / [(Pu-236 Tracer Recovery / 100) * (2220000 dpm/ μ Ci) * (D g/L) * (SS)]

Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100

03/17/97	Pu 239/240 μ Ci/mL	< 3.38E-06	
03/15/97	Relative Counting Error	= 100.0%	DETECTION LEVELS in μCi/mL <hr/> Pu 239/240 3.38E-06 Pu 238 3.38E-06
06:05 AM	NOTE: Pu 238 Result is a LESS THAN Value.	< 3.38E-06	
03/15/97	Relative Counting Error	= 100.0%	
T-110	Pu 236 Tracer Recovery	= 102.5%	

Analyst: <i>John Reagin</i>	RWK	Date: 17-Mar-97
Signature of Chemist: <i>John Reagin</i>	JFR	Date: 18 Mar 97

SAMPLE.WB1 REV 1.0

943128ML

HNF-SD-WM-DP-238, REV. 0

0.0020618556701031

Pu 238 and 239/240 : LA-943-128 (B-0) or LA-953-104(A-0)

LIQUID / SO

					DUP
Type	DATE COUNTED		MAR-15-97	PU 236 AEA FRAC (C236)	0.964
DUP	SAMPLE VOLUME in mL	SS	1.000	PU 238 AEA FRAC (C238)	0.000
Work List	SAMPLE DILUTION FACTOR	DF	1.000	PU 239 AEA FRAC (C239)	0.000
17005	TRACER VOLUME in mL	SPKV	0.100	TOTAL AT COUNTS	2662
1341CG06	DIGEST DILUTION FACTOR	DDF	1.0000	AT COUNT TIME (MIN)	30
@PU23901	TRACER BOOK NO		128B43	BACKGROUND in cpm (Bkg)	0.200
Matrix:	DETECTOR NUMBER		21	PU 236 cpm	73.770
LIQUID	EFFICIENCY FACTOR	EFF	0.367	PU 238 cpm	0.000
Batch Number	TRACER PREPARATION DATE		11/15/96	PU 239 cpm	0.000
97000926	TRACER PREPARATION VALUE (dpm/mL)		2600.000	AEA COUNT TIME	480
Baron	PU-236 DECAY CORR'D VALUE (dpm/mL)		2400.329	PU 239/240 μ Ci/L =	< 3.4769E-03
0	PU-238 TRACER VALUE (dpm/mL)		0.000		
Sample Prep					
N/A					
Sample #	Decay Time = Date Counted - Tracer Preparation Date				
S97T000381	Pu-236 Decay Cor'd Value = Pu-236 Preparation Value * [e to the power of {(ln2 * Decay Time/1040.95)}]				
Instrument Code	Pu 236 Tracer Recovery = (Total AT Counts / TC - Bkg) * C236 * 100 / (Pu-236 Decay Cor'd Value * SPKV * EFF)				
WC16105	Pu 239/240 μ Ci/L = (C239) / (Pu 236 Decay Cor'd Value) * (SPKV) / (1000 mL) / (DF) / (DDF) / [(C236) / (SS) * (D g/L) / (2220000 dpm/ μ Ci)]				
Prepared By	Pu 238 dpm = [(Total AT Counts / TC) - Bkg * 1/EFF * C238] - (Pu-238 Tracer Value * SPKV * Pu 236 Tracer Recovery / 100)				
SZC	Pu 238 μ Ci/L = [(Pu 238 dpm) / (DF) / (DDF) / (1000 mL)] / [(Pu-236 Tracer Recovery / 100) / (2220000 dpm/ μ Ci) / (D g/L) / (SS)]				
Chemist	Relative Counting Error = Square Root of [(1 / (Pu 236 cpm * min)) + (1 / (Pu 238 or 239/240 cpm * min))] * 1.96 * 100				
JFR					
Analyst					
RWK					
Data Complete					
03/17/97	Pu 239/240 μ Ci/mL	< 3.48E-06		DETECTION LEVELS	
Analysis Date	Relative Counting Error	= 100.0%		in μCi/mL	
03/15/97				Pu 239/240	
Analysis Time	NOTE: Pu 238 Result is a LESS THAN Value.			3.48E-06	
05:05 AM	Pu 238 μ Ci/mL	< 3.48E-06		Pu 238	
Sample ID/Int	Relative Counting Error	= 100.0%		3.48E-06	
T-110	Pu 236 Tracer Recovery	= 96.8%			

Analyst: <i>John Reizen</i>	RWK	Date: 17-Mar-97	
Signature of Chemist: <i>John Reizen</i>	JFR	Date: 18 Mar 97	

SAMPLE.WB1 REV 1.0

943128ML

DATA REDUCTION REPORT

SAMPLE
 S97T0381-DUP
 File ID: 8a8937.CNF

Counted on: 3/15/97 @11:59
 Detector: AEA8
 Geometry number: 1
 Count time: 28802. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1777.5	1777.5	364.764	364.764	16.000	10.746	8.000	3.794
2	41.5	41.5	292.176	291.988	16.000	13.486	8.000	2.844
3?	13.2	13.2	233.619	233.530	16.000	10.078	8.000	3.014

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid		Count Rate	%err @95	d/m	Activity uCi/ea			
		Exp.	Obs.	Diff.	c/m						
1	Cm243	0.964	5.779	5.747	0.032	0.05	73.77	1.0	280.3	0.126E-03	
	Pu236		5.755	5.747	0.008				208.8	0.941E-04	
2	Th228	0.031	5.400	5.412	-0.012	0.06	2.37	6.2	9.2	0.416E-05	
3		????		5.143			0.58	13.2			
Totals:		0.995	<--valid peaks only-->				76.13				

DETECTOR CALIBRATION

Energy(MEV) = 4.069 + (0.0046)*Channel
 Energy range (MeV): 4.069 TO 6.424
 Efficiency = 0.3605 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	36745.0	100.000
Smoothed	36745.0	100.000
Composite fit	36826.8	100.223
Residuals	-81.8	-0.223

Analyzed by:

EMB

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 13425.7

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Raw Data	Dump	for	AEA	Spectrum:	8a8937.CNF					
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	0.	0.	0.	1.	2.
21	2.	1.	1.	0.	1.	1.	1.	2.	0.	0.
31	0.	2.	0.	1.	1.	0.	0.	0.	0.	0.
41	1.	0.	2.	0.	0.	1.	0.	0.	0.	1.
51	1.	0.	0.	1.	1.	1.	1.	1.	2.	0.
61	1.	1.	1.	0.	0.	1.	2.	2.	1.	0.
71	0.	2.	0.	0.	1.	0.	1.	1.	1.	1.
81	2.	0.	0.	0.	1.	1.	0.	1.	1.	3.
91	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.
101	0.	1.	1.	2.	2.	0.	1.	0.	3.	2.
111	2.	0.	0.	1.	0.	1.	0.	0.	0.	0.
121	0.	3.	1.	0.	1.	1.	3.	2.	0.	2.
131	2.	2.	2.	0.	1.	2.	2.	1.	1.	0.
141	0.	0.	0.	1.	0.	1.	2.	3.	1.	0.
151	2.	1.	1.	0.	0.	0.	3.	1.	0.	1.
161	1.	1.	1.	1.	1.	2.	0.	1.	3.	3.
171	1.	1.	0.	2.	2.	0.	2.	3.	2.	2.
181	0.	4.	1.	1.	3.	0.	1.	0.	4.	1.
191	3.	1.	2.	4.	2.	4.	2.	1.	3.	2.
201	2.	3.	2.	2.	3.	0.	4.	1.	2.	4.
211	1.	5.	2.	3.	3.	2.	3.	6.	6.	7.
221	7.	7.	6.	5.	5.	20.	11.	16.	10.	9.
231	8.	16.	15.	18.	17.	10.	9.	8.	12.	11.
241	4.	7.	4.	8.	6.	6.	4.	1.	8.	4.
251	4.	4.	2.	1.	5.	8.	13.	8.	7.	6.
261	6.	6.	9.	2.	12.	11.	14.	16.	14.	15.
271	13.	20.	16.	21.	22.	23.	16.	18.	15.	27.
281	24.	24.	31.	34.	27.	28.	32.	31.	36.	51.
291	40.	49.	47.	40.	42.	27.	35.	26.	19.	11.
301	22.	10.	10.	16.	19.	15.	23.	22.	20.	27.
311	17.	14.	10.	15.	13.	17.	19.	16.	28.	18.
321	18.	30.	28.	27.	26.	38.	41.	42.	41.	43.
331	48.	45.	62.	74.	96.	70.	99.	107.	122.	144.
341	149.	174.	200.	203.	272.	318.	332.	394.	492.	554.
351	616.	749.	835.	880.	988.	1178.	1313.	1318.	1502.	1601.
361	1684.	1794.	1797.	1826.	1895.	1839.	1737.	1506.	1356.	1139.
371	908.	714.	514.	330.	209.	132.	72.	43.	16.	14.
381	7.	6.	2.	0.	1.	0.	1.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	0.	1.	0.	0.
421	0.	0.	0.	1.	1.	1.	0.	0.	0.	0.
431	0.	0.	0.	0.	0.	1.	0.	0.	1.	0.
441	0.	1.	0.	1.	0.	0.	1.	0.	1.	1.
451	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
461	0.	0.	0.	0.	1.	1.	0.	1.	0.	2.
471	0.	1.	3.	2.	0.	1.	2.	2.	1.	2.
481	1.	2.	1.	1.	5.	4.	6.	2.	1.	0.
491	1.	1.	2.	0.	1.	0.	0.	0.	0.	0.
511	0.	0.								

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL17005-STD
 File ID: 5a5155.CNF

Counted on: 3/15/97 @11:57
 Detector: AEA5
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	2145.9	2145.9	361.639	361.639	12.000	5.740	6.000	2.008
2?	22.3	22.3	304.108	304.108	28.000	7.195	14.000	14.293
3	48.3	48.3	287.035	286.855	14.000	8.398	7.000	4.243
4?	11.3	11.3	272.140	270.356	10.000	2.920	5.000	0.588
5	2272.1	2272.1	228.837	228.836	12.000	5.470	6.000	2.398

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Exp.	Obs.	Centroid Diff.	FWHM	Count Rate	%err @95	d/m	Activity uCi/ea
1	Pu236	0.507	5.755	5.747	0.008	0.03	76.27	1.0	163.3	0.736E-04
2		????		5.482			0.59	18.8		
3	Th228	0.011	5.400	5.403	-0.003	0.04	1.62	8.1	4.8	0.216E-05
4		????		5.327			0.53	17.1		
5	Pu239	0.472	5.147	5.136	0.011	0.03	71.08	1.1	149.2	0.672E-04
	Pu240		5.144	5.136	0.008				149.2	0.672E-04
Totals:		0.990	<--valid peaks only-->				148.97			

DETECTOR CALIBRATION

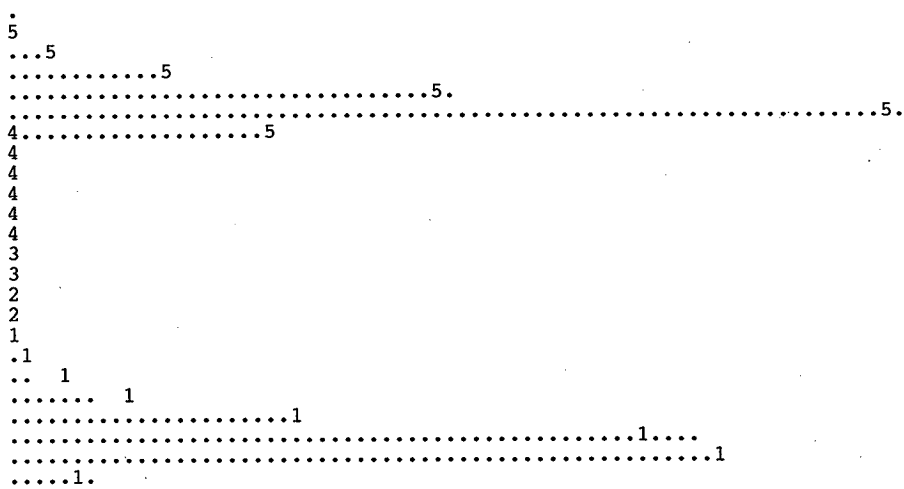
Energy (MeV) = 4.083 + (0.0046)*Channel
 Energy range (MeV): 4.083 TO 6.439
 Efficiency = 0.4765 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	72254.0	100.000
Smoothed	72254.0	100.000
Composite fit	72045.3	99.711
Residuals	208.7	0.289

Analyzed by: _____

EMB



Raw Data	Dump	for	AEA	Spectrum:	5a5155.CNF	HNF-SD-WM-DP-238	REV. 0
1	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	1.	0.	0.
21	2.	0.	2.	1.	2.	1.	1.
31	0.	0.	0.	6.	0.	5.	2.
41	1.	1.	1.	4.	4.	0.	1.
51	2.	1.	3.	0.	2.	0.	2.
61	1.	1.	1.	0.	1.	2.	2.
71	2.	2.	2.	1.	1.	1.	0.
81	2.	3.	3.	2.	0.	2.	1.
91	1.	3.	3.	1.	1.	0.	2.
101	3.	1.	2.	3.	0.	5.	3.
111	4.	1.	1.	4.	5.	1.	5.
121	2.	5.	4.	1.	2.	3.	3.
131	2.	6.	3.	5.	3.	3.	6.
141	7.	1.	3.	3.	5.	6.	4.
151	2.	8.	6.	7.	10.	3.	6.
161	8.	7.	9.	10.	14.	8.	8.
171	10.	9.	12.	15.	17.	15.	10.
181	18.	16.	23.	27.	24.	27.	31.
191	38.	26.	43.	46.	53.	47.	45.
201	99.	83.	106.	108.	166.	137.	174.
211	262.	347.	404.	442.	503.	605.	674.
221	1168.	1313.	1460.	1542.	1917.	2162.	2323.
231	2192.	1726.	1234.	776.	448.	224.	112.
241	9.	4.	4.	7.	10.	4.	3.
251	2.	2.	3.	9.	8.	7.	6.
261	6.	8.	10.	9.	10.	13.	18.
271	23.	19.	22.	16.	16.	20.	14.
281	39.	32.	45.	46.	57.	48.	59.
291	34.	31.	21.	19.	18.	18.	28.
301	31.	16.	29.	30.	27.	29.	22.
311	15.	18.	12.	15.	22.	12.	22.
321	31.	31.	33.	41.	48.	51.	57.
331	90.	85.	84.	96.	112.	139.	147.
341	235.	242.	323.	349.	424.	514.	586.
351	1070.	1161.	1292.	1450.	1533.	1525.	1684.
361	2314.	2339.	2341.	1957.	1590.	1174.	732.
371	25.	10.	13.	6.	4.	3.	2.
381	0.	0.	1.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	1.	0.
411	0.	1.	0.	0.	0.	0.	0.
421	2.	0.	0.	0.	0.	0.	1.
431	0.	2.	0.	0.	0.	2.	0.
441	0.	0.	0.	1.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.
461	0.	0.	0.	1.	0.	1.	2.
471	3.	2.	4.	4.	4.	4.	5.
481	2.	2.	2.	0.	1.	2.	0.
491	0.	0.	0.	0.	0.	0.	0.
511	0.	0.					

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 WL17005-BLANK
 File ID: 6a6973.CNF

Counted on: 3/15/97 @11:58
 Detector: AEA6
 Geometry number: 1
 Count time: 28801. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1771.7	1771.7	360.339	360.339	16.000	9.430	8.000	3.242
2?	20.4	20.4	304.226	301.973	26.000	3.880	13.000	13.199
3	43.6	43.6	286.297	286.192	16.000	8.174	8.000	2.061
4?	15.9	15.9	228.446	228.373	16.000	7.342	8.000	2.220

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Exp.	Centroid Obs.	Diff.	FWHM	Count Rate	%err c/m @95	d/m	Activity uCi/ea	
1	Cm243	0.960	5.779	5.741	0.0380	0.04	71.78	1.1	250.7	0.113E-03	
	Pu236		5.755	5.741	0.014				186.7	0.841E-04	
2		????		5.473			0.40	22.2			
3	Th228	0.027	5.400	5.400	0.0000	0.04	2.02	7.0	7.2	0.326E-05	
4		????		5.134			0.65	11.8			
Totals:		0.987	<--valid peaks only-->					73.79			

DETECTOR CALIBRATION

Energy(MEV) = 4.084 + (0.0046)*Channel
 Energy range (MeV): 4.084 TO 6.439
 Efficiency = 0.3922 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	35874.0	100.000
Smoothed	35881.1	100.020
Composite fit	35923.9	100.139
Residuals	-49.9	-0.139

Analyzed by: _____

EMB

HNF-SD-WM-DP-238, REV. 0

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Raw Data	Dump	for	AEA	Spectrum:	6a6973.CNF					
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	2.	0.	0.	0.
21	2.	2.	0.	2.	2.	0.	2.	1.	0.	2.
31	0.	1.	0.	0.	1.	0.	0.	0.	0.	0.
41	0.	2.	1.	0.	1.	1.	0.	0.	0.	1.
51	0.	1.	2.	2.	1.	1.	2.	0.	1.	1.
61	0.	0.	0.	0.	1.	1.	1.	0.	1.	1.
71	3.	1.	3.	2.	2.	0.	2.	0.	2.	1.
81	0.	0.	0.	0.	0.	1.	0.	0.	2.	1.
91	1.	1.	0.	0.	1.	0.	2.	0.	1.	1.
101	2.	2.	0.	1.	1.	0.	2.	3.	1.	1.
111	2.	0.	1.	1.	1.	1.	1.	2.	2.	2.
121	0.	1.	0.	2.	1.	5.	0.	4.	0.	2.
131	2.	1.	1.	2.	1.	2.	1.	1.	1.	0.
141	2.	2.	2.	1.	1.	2.	0.	2.	0.	1.
151	3.	0.	0.	0.	1.	1.	1.	3.	2.	2.
161	1.	0.	1.	1.	1.	2.	3.	1.	1.	1.
171	0.	2.	2.	1.	4.	1.	1.	1.	2.	2.
181	1.	2.	1.	0.	3.	1.	2.	1.	0.	4.
191	5.	0.	2.	3.	1.	3.	2.	2.	6.	1.
201	4.	4.	0.	2.	2.	1.	3.	1.	3.	6.
211	4.	4.	5.	9.	8.	6.	7.	9.	7.	10.
221	5.	13.	17.	15.	14.	10.	15.	21.	20.	13.
231	14.	11.	15.	6.	8.	5.	3.	1.	4.	5.
241	3.	2.	0.	3.	1.	2.	1.	8.	3.	2.
251	8.	6.	1.	3.	7.	4.	8.	6.	11.	6.
261	11.	9.	18.	18.	11.	16.	11.	15.	21.	14.
271	22.	12.	21.	22.	19.	18.	26.	21.	28.	26.
281	40.	39.	44.	38.	55.	46.	51.	45.	42.	31.
291	26.	27.	25.	21.	21.	10.	20.	14.	15.	15.
301	20.	24.	20.	21.	25.	20.	23.	9.	18.	7.
311	14.	18.	12.	12.	20.	24.	21.	17.	33.	26.
321	26.	33.	39.	37.	48.	54.	60.	48.	75.	88.
331	92.	98.	106.	112.	143.	152.	178.	180.	184.	259.
341	268.	302.	350.	454.	496.	582.	657.	750.	836.	982.
351	1087.	1176.	1266.	1434.	1466.	1597.	1728.	1730.	1900.	1869.
361	1857.	1857.	1612.	1448.	1194.	955.	691.	495.	315.	199.
371	107.	50.	31.	7.	5.	3.	2.	0.	1.	0.
381	0.	0.	0.	1.	0.	0.	0.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	1.	0.	0.	0.	0.	1.	0.
421	0.	0.	0.	0.	0.	0.	0.	2.	0.	0.
431	0.	0.	0.	3.	2.	0.	1.	2.	0.	0.
441	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.
451	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
461	0.	1.	1.	0.	1.	2.	3.	1.	2.	2.
471	0.	0.	4.	1.	2.	3.	2.	3.	6.	5.
481	1.	3.	2.	2.	1.	3.	0.	0.	1.	0.
491	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
511	2.	0.								

Westinghouse Hanford Co.
 GENERAL ALPHA ENERGY ANALYSIS
 Rev. 2.02

DATA REDUCTION REPORT

SAMPLE
 S97T0381-SAM
 File ID: 7a7738.CNF

Counted on: 3/15/97 @11:58
 Detector: AEA7
 Geometry number: 1
 Count time: 28800. Sec

PEAK ANALYSIS

Peak ID	Peak height		Peak center		FWHM		Tau	
	Initial	Final	Initial	Final	Initial	Final	Initial	Final
1	1488.8	1488.8	362.390	362.390	22.000	17.194	11.000	6.763
2	40.6	40.6	290.247	290.188	22.000	23.126	11.000	6.467
3?	12.0	12.0	228.406	228.348	18.000	15.558	9.000	5.552

PEAK RESULTS

Peak Error Limit: 30%

Peak ID	Isotope	AEA Frac	Peak Centroid			Count Rate	%err @95	d/m	Activity uCi/ea	
			Exp.	Obs.	Diff.					
1	Cm243	0.961	5.779	5.755	0.0240.08	69.14	1.1	1241.3	0.559E-03	
	Pu236		5.755	5.755	0.000			924.7	0.417E-03	
2	Th228	0.032	5.400	5.416	-0.0160.11	2.33	6.3	42.9	0.193E-04	
	Am241		5.479	5.416	0.063			32.4	0.146E-04	
3		????		5.125		0.55	12.8			
Totals:		0.993	<--valid peaks only-->			71.47				

DETECTOR CALIBRATION

Energy (MEV) = 4.052 + (0.0047)*Channel
 Energy range (MeV): 4.052 TO 6.459
 Efficiency = 0.0763 CPM/DPM

TOTAL COUNT DATA:

Item	Total	% Recovery
Raw spectrum	34552.0	100.000
Smoothed	34553.3	100.004
Composite fit	34570.3	100.053
Residuals	-18.3	-0.053

Analyzed by: _____

EMB

1 Legend: Raw = Modeled Peaks = 1,2,..., etc Display Max.: 11054.7

3
3
3
3
3

2
2
2
2
2
2
2

1
.. 1
..... 1
.....1...
.....1..
.....1
..... 1
.....1

Raw	Data	Dump	for	AEA	Spectrum:	7a7738.CNF						
1	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.	1.	1.	0.	0.	1.	0.	0.
21	0.	1.	1.	0.	0.	0.	2.	1.	0.	1.	0.	0.
31	1.	1.	1.	1.	1.	1.	0.	2.	0.	1.	1.	1.
41	1.	0.	2.	0.	0.	0.	3.	0.	0.	0.	0.	0.
51	0.	0.	0.	2.	0.	0.	0.	1.	0.	0.	0.	3.
61	1.	0.	1.	0.	1.	0.	0.	0.	0.	0.	0.	1.
71	0.	0.	0.	1.	1.	0.	0.	0.	0.	1.	1.	1.
81	0.	0.	0.	0.	0.	0.	2.	0.	0.	0.	0.	2.
91	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	1.
101	0.	2.	0.	0.	0.	0.	1.	0.	1.	0.	0.	1.
111	0.	0.	1.	1.	0.	2.	0.	0.	1.	0.	0.	1.
121	0.	1.	0.	0.	1.	2.	4.	0.	0.	0.	0.	1.
131	0.	0.	0.	0.	0.	0.	0.	1.	2.	4.	0.	0.
141	0.	1.	0.	0.	3.	2.	1.	2.	0.	0.	1.	0.
151	2.	2.	3.	0.	3.	0.	2.	0.	1.	0.	0.	0.
161	1.	3.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
171	1.	1.	0.	1.	2.	3.	4.	0.	1.	0.	0.	0.
181	1.	1.	1.	0.	3.	1.	1.	2.	3.	1.	1.	1.
191	2.	1.	2.	0.	3.	1.	1.	4.	2.	4.	4.	4.
201	3.	3.	2.	1.	4.	1.	1.	3.	1.	3.	3.	3.
211	4.	2.	4.	6.	1.	5.	4.	4.	2.	5.	5.	5.
221	8.	11.	8.	6.	11.	10.	18.	10.	14.	15.	15.	15.
231	8.	8.	13.	9.	10.	6.	4.	6.	4.	4.	4.	4.
241	4.	3.	6.	6.	4.	6.	0.	7.	3.	5.	5.	5.
251	2.	4.	2.	5.	5.	2.	9.	3.	8.	13.	13.	13.
261	6.	9.	2.	11.	15.	13.	8.	7.	14.	7.	7.	7.
271	12.	14.	14.	11.	15.	18.	14.	19.	21.	21.	21.	21.
281	28.	21.	30.	43.	35.	33.	30.	36.	44.	40.	40.	40.
291	54.	35.	33.	31.	25.	20.	35.	20.	18.	25.	25.	25.
301	23.	19.	11.	23.	21.	13.	19.	12.	20.	16.	16.	16.
311	18.	14.	17.	7.	13.	15.	8.	18.	16.	13.	13.	13.
321	31.	17.	25.	23.	26.	29.	43.	43.	44.	50.	50.	50.
331	45.	72.	61.	65.	60.	78.	80.	121.	147.	141.	141.	141.
341	216.	207.	241.	311.	384.	382.	476.	534.	602.	674.	674.	674.
351	753.	867.	954.	1041.	1134.	1232.	1314.	1391.	1435.	1493.	1493.	1493.
361	1545.	1584.	1555.	1473.	1413.	1353.	1203.	1124.	938.	817.	817.	817.
371	624.	559.	452.	344.	270.	196.	128.	106.	79.	37.	37.	37.
381	24.	25.	14.	12.	7.	3.	0.	0.	1.	0.	0.	0.
391	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
401	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
411	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
421	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.
431	0.	0.	0.	1.	1.	0.	0.	0.	0.	0.	0.	1.
441	0.	2.	2.	1.	0.	0.	0.	0.	0.	0.	0.	0.
451	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	1.	1.
461	0.	1.	0.	0.	0.	2.	2.	2.	3.	0.	0.	0.
471	4.	1.	2.	1.	3.	3.	3.	7.	3.	3.	3.	3.
481	1.	3.	1.	4.	1.	1.	2.	1.	0.	1.	1.	1.
491	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.
511	1.	0.										

