LA-UR- 08-50641

Approved for public release;
distribution is unlimited.

Title:	MDMC Member Update: Los Alamos National Laboratory
Author(s):	Matthew W. Lewis Partha Rangaswamy Tien Appert Beverly Aikin
Intended for:	Materials Data Management Consortium Meeting August 6-8 Cambridge, UK

Los Alamos
NATIONAL LABORATORY
EST. 1943

Form 836 (7/06)

MDMC Member Update:
Los Alamos National Laboratory

Tien Appert, Partha Rangaswamy, Beverly Aikin, and Matt Lewis, LANL

Abstract

Progress on developing and implementing a Materials and Models Information System at LANL will be presented.

MDMC Member Update: Los Alamos National Laboratory

Tien Appert, Partha Rangaswamy,
Beverly Aikin, Matt Lewis

Los Alamos National Laboratory

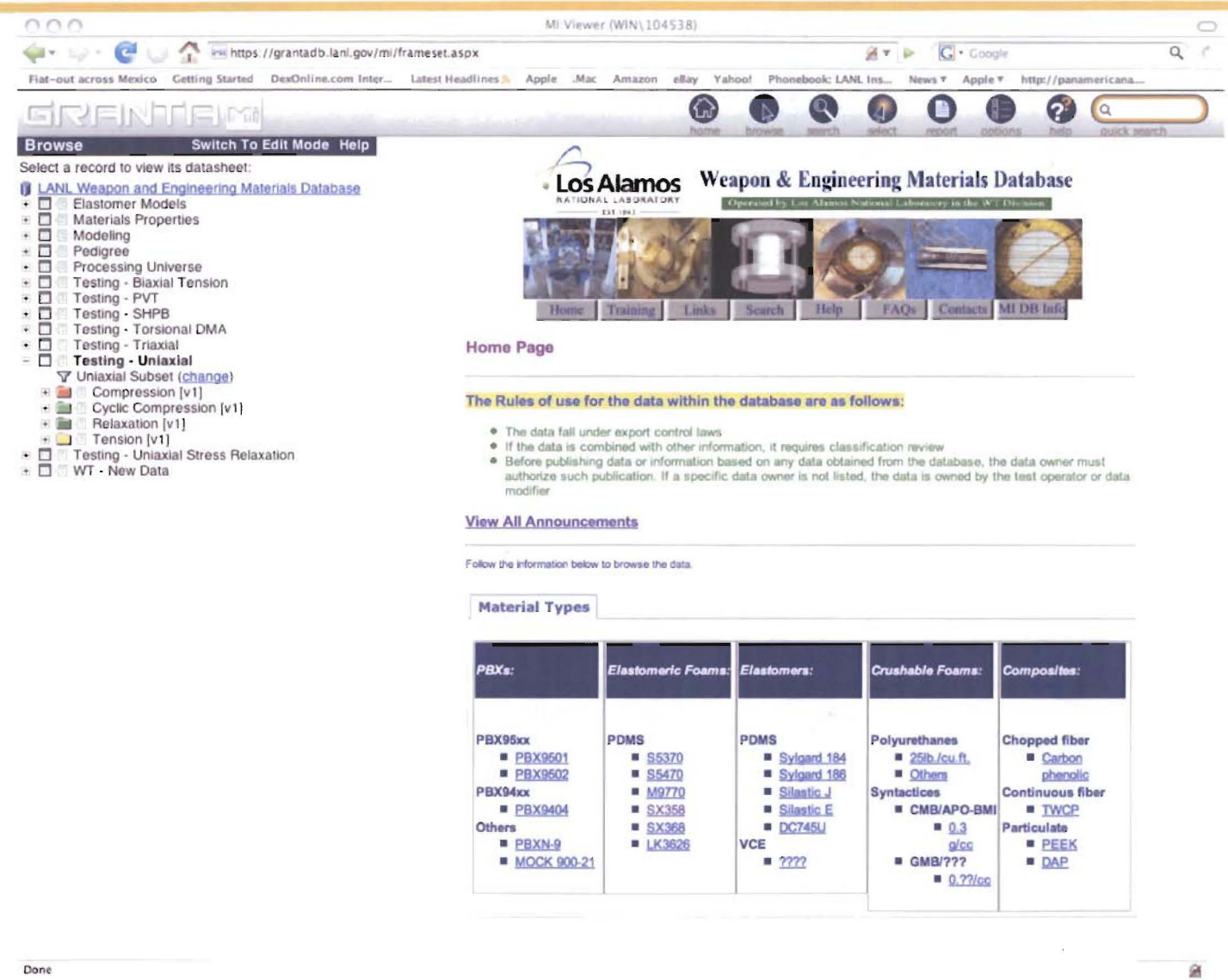
Presented at the Materials Data Management Consortium Meeting, Cambridge, UK

6-8 August, 2008

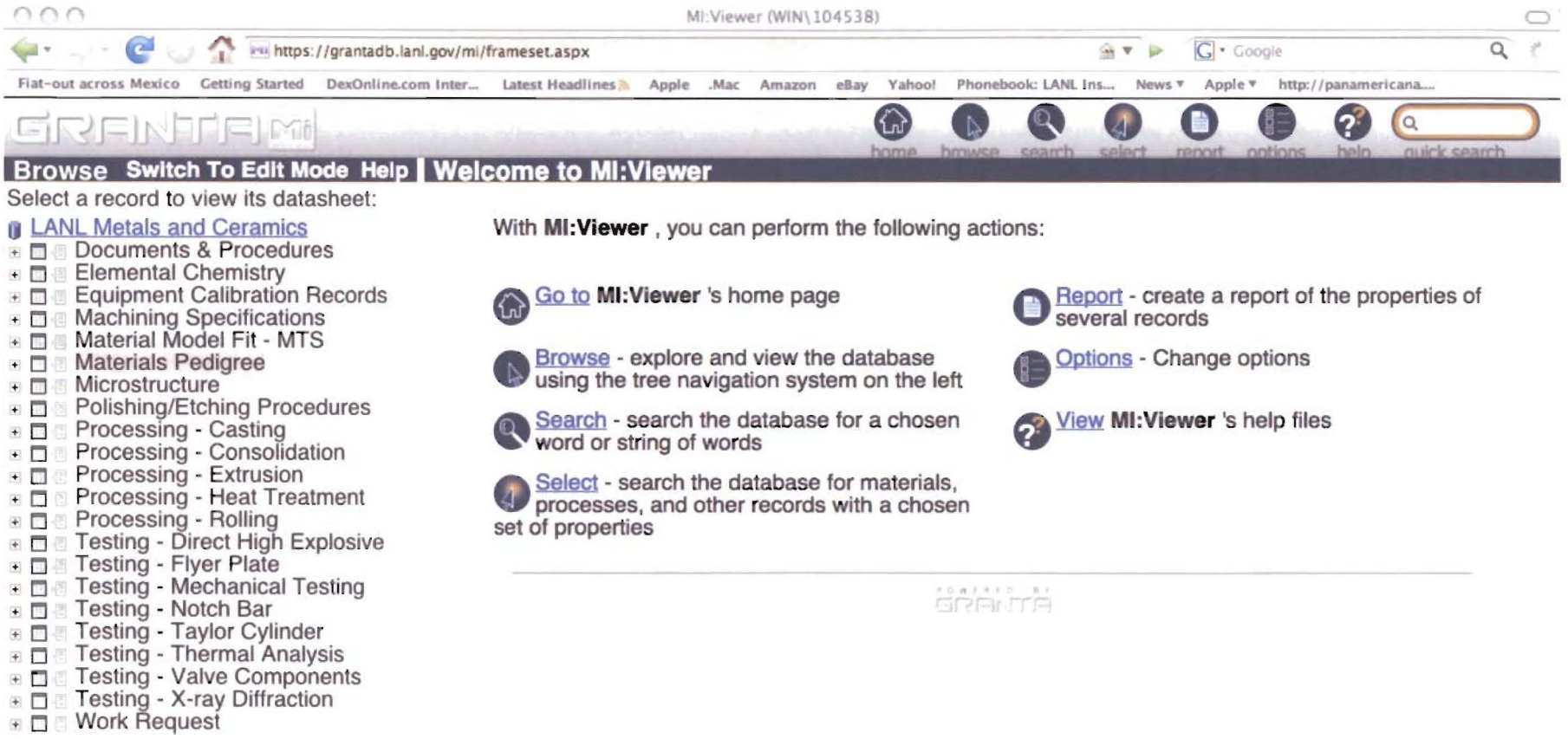
Los Alamos NATIONAL LABORATORY EST.1943

NNSA

Home Page (1)


MI Viewer (WIN\104538)
https://grantadb.lani.gov/mi/frameset.aspx
Browse
Switch To Edit Mode
Help
Select a record to view its datasheet:
LANL Weapon and Engineering Materials Database
Elastomer Models
Materials Properties
Modeling
Pedigree
Processing Universe
Testing - Biaxial Tension
Testing - PVT
Testing - SHPB
Testing - Torsional DMA
Testing - Triaxial
Testing - Uniaxial
Uniaxial Subset (change)
Compression [v1]
Cyclic Compression [v1]
Relaxation [v1]
Tension [v1]
Testing - Uniaxial Stress Relaxation
WT - New Data
Los Alamos
NATIONAL LABORATORY
Weapon & Engineering Materials Database
Home
Training
Links
Search
Help
FAQs
Contacts
MI DB Info
Home Page
The Rules of use for the data within the database are as follows:
The data fall under export control laws
If the data is combined with other information, it requires classification review
Before publishing data or information based on any data obtained from the database, the data owner must authorize such publication. If a specific data owner is not listed, the data is owned by the test operator or data modifier
View All Announcements
Follow the information below to browse the data.
Material Types
PBXs:
PBX95xx
PBX9501
PBX9502
PBX94xx
PBX9404
Others
PBXN-9
MOCK 900-21
Elastomeric Foams:
PDMS
S5370
S5470
M9770
SX358
SX368
LK3626
Elastomers:
PDMS
Sylgard 184
Sylgard 186
Silastic J
Silastic E
DC745U
VCE
????
Crushable Foams:
Polyurethanes
25lb./cu.ft.
Others
Syntactices
CMB/APO-BMI
0.3 g/cc
GMB/???
0.??/cc
Composites:
Chopped fiber
Carbon phenolic
Continuous fiber
TWCP
Particulate
PEEK
DAP
Done

Home Page (2)



Los Alamos NATIONAL LABORATORY EST. 1943

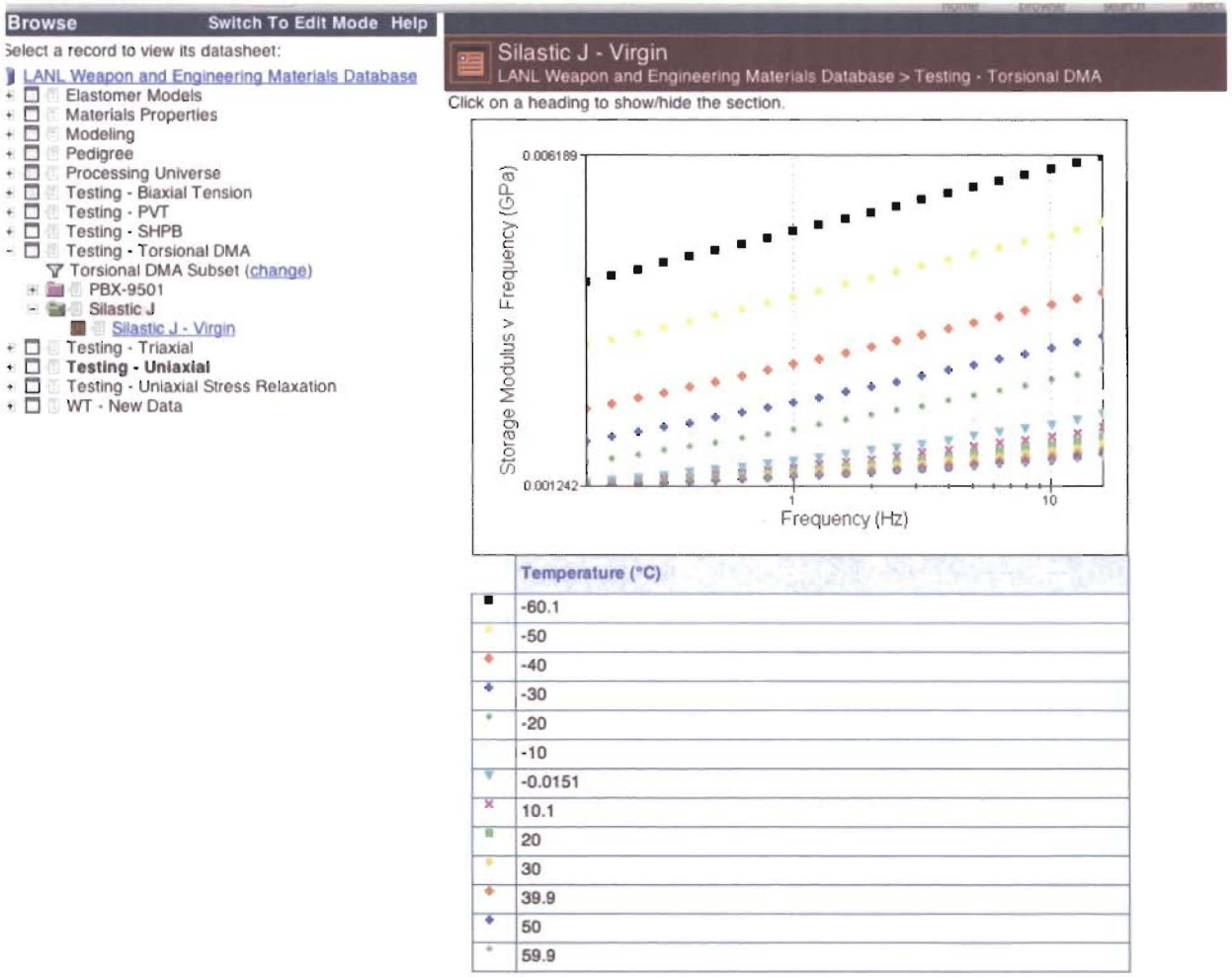
NNSA

Real LANL Status

- Currently small, separate databases (Metals & Ceramics; Polymers, Foams & Composites)
- Yellow (fire-walled network) server and red (isolated network) server
- Installed 2.0 and testing on yellow server (July 2008)
- Bringing in new data (including SHPB test as uniaxial compression data)
- Starting foam model table
- Significant funding expected in FY09 (start October 1):
  - Goal: LANL Materials and Models Information System
  - Enough funding for approximately 2 FTEs plus licensing costs
  - Two steering committees
    - Analyst-centric
    - Characterization-centric
  - Merge both databases likely
  - Purchase of perpetual license expected

Data Examples

Dynamic Modulus Data---Storage Modulus vs. Frequency & Temperature



Data Examples(2)

Dynamic Modulus Data---tan(δ) vs. Frequency & Temperature

Browse Switch To Edit Mode Help

Select a record to view its datasheet:

- LANL Weapon and Engineering Materials Database
  - Elastomer Models
  - Materials Properties
  - Modeling
  - Pedigree
  - Processing Universe
  - Testing - Biaxial Tension
  - Testing - PVT
  - Testing - SHPB
  - Testing - Torsional DMA
    - Torsional DMA Subset (change)
      - PBX-9501
      - Silastic J
        - Silastic J - Virgin
  - Testing - Triaxial
  - **Testing - Uniaxial**
  - Testing - Uniaxial Stress Relaxation
  - WT - New Data

Silastic J - Virgin

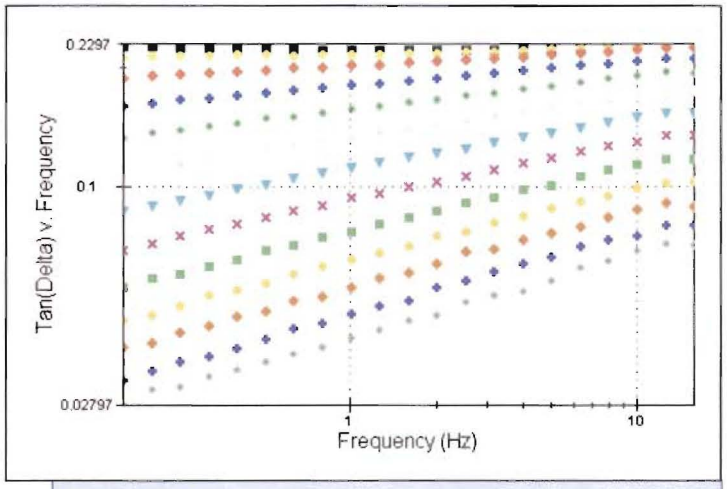
LANL Weapon and Engineering Materials Database > Testing - Torsional DMA

Click on a heading to show/hide the section.

Parameters: Frequency = 1 Hz, Temperature = 22.9 °C

Tan(Delta) v. Frequency

Parameters: Frequency = 1 Hz, Temperature = 22.9 °C



	Temperature (°C)
■	-60.1
◆	-50
◆	-40
◆	-30
◆	-20
◆	-10
▼	-0.0151
×	10.1
■	20
◆	30

Los Alamos NATIONAL LABORATORY EST. 1943

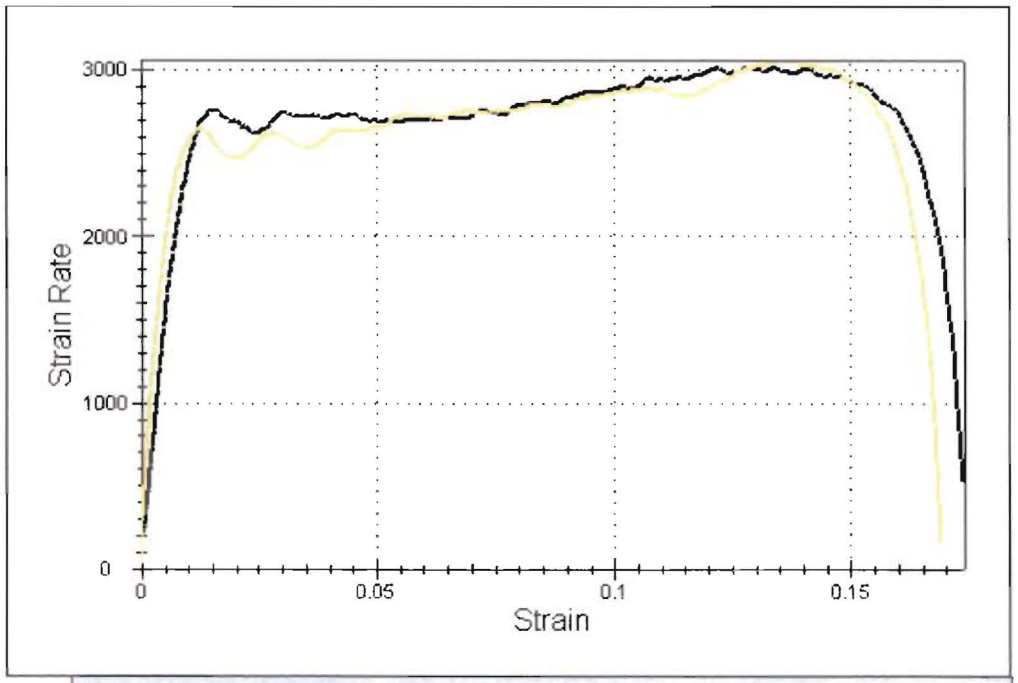
NNSA

Data Examples(3)

SHPB Compression Data---Strain Rate vs. Strain

StrainRate vs Strain (1W vs 2W) 171

Parameters: Strain = 0.0002, Temperature = 22.9 °C



	Temperature (°C)
—	23
	23

Data Examples(4)

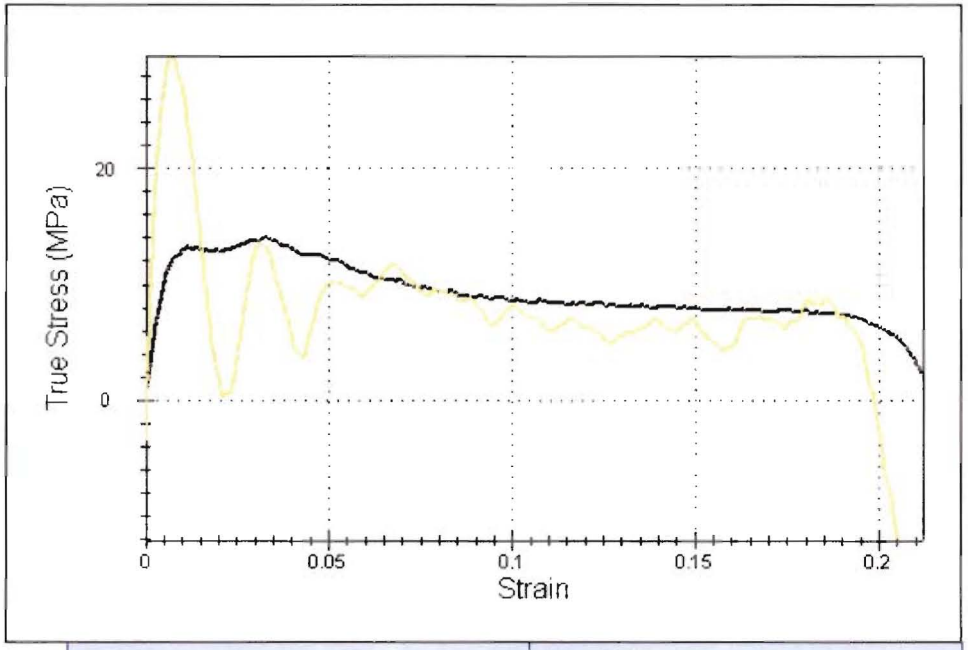
SHPB Compression Data---Stress vs. Strain

roperties

I Universe
iaxial Tension
VT
HPB
orsional DMA
iaxial
Iniaxial
ubset (change)
ession [v1]
CK [v1]
(-9501 [v1]
(-9502 [v1]
(N-9 [v1]
+00 deg C [v1]
+21 deg C [v1]
+22 deg C [v1]
+23 deg C [v1]
Strain Rate (SHPB) 2500 - 7500 [v1]
2952500N906 [v2]
2952500N930 [v2]
2953000N911 [v2]
2954500N907 [v2]
2956000N910 [v2]
Strain Rate 0.001 [v1]
+55 deg C [v1]
-15 deg C [v1]
-20 deg C [v1]
-40 deg C [v1]
-55 deg C [v1]
stic J [v1]
58 Foam [v1]
tactic Foams [v1]

View all data for StrainRate vs Strain (1W vs 2W)

True Stress vs Strain (1W vs 2W)



	Temperature (°C)	Strain Rate (1/s)
—	23	3400
—	23	3400

View all data for True Stress vs Strain (1W vs 2W)

True Stress vs Strain (1-wave) MPa

Los Alamos NATIONAL LABORATORY EST.1943

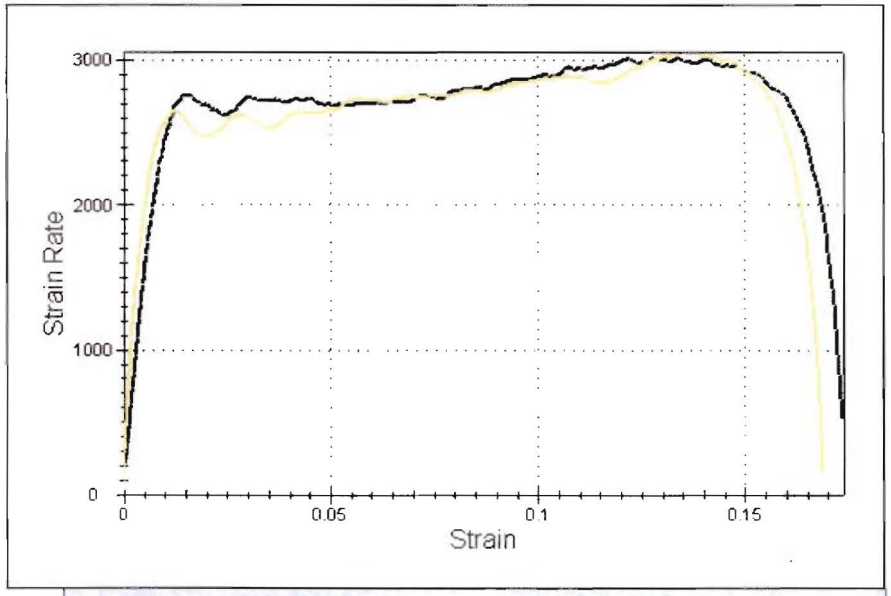
NNSA

Issues

- Out-of-range annoyance for updated version (of MI) (need to create special file)
- Kudos to Craig and software engineer (change color of lines in plots--less yellow!) Q: 2.1 release?

StrainRate vs Strain (1W vs 2W) 171

Parameters: Strain = 0.0002, Temperature = 22.9 °C



	Temperature (°C)
—	23
—	23

Issues

- Initial quality rating by system (can be over-ruled by admin or highlighted because of anomalies by software) This currently involves a lot of time to review each record upon entry/release. Initial quality ratings that flag anomalies or extreme value quality scores would help in this process.
- We need to know when the "change color on all the folders, or record within a table" will be released.
- We need a method for incremental one-way updates from CD or file(s) pushed onto isolated network.