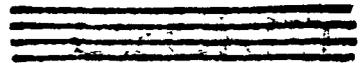


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Group CMR-1 Monthly Report - - - C. F. Metz, Group Leader July 20, 1949

Reference: CMR-1-139

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General Remarks

Personnel vacations and a large amount of service work halted most research that was in progress. Only three research projects received attention. CMR-8 requested routine isotopic analyses by the spectrographic method. Careful investigation showed that the present method probably has a precision no better than $\pm 1\%$. Improvements in the method will be sought.

Report LA-739 entitled, "Effect of Plutonium on Colorimetric Iron Analysis", was issued.

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Systematic samples of fused sand and some specimens of partially fused steel were collected at the site of the Trinity shot. These will be used in an attempt to learn something of the temperatures reached at various distances from zero point.

Service Work

A total of 1,475 analyses was completed and reported. The breakdown is as follows:

<u>Source</u>	<u>Analyses Completed</u>
CMR-1	156
CMR-4	7
CMR-5	30
CMR-6	120
CMR-8	527
CMR-11	566
CMR-12	17
Miscellaneous	52
Total	1,475

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Research

Project and Personnel

Progress

CMR-1-6

Part A
Analysis of Bi-Pu Solutions
K. S. Bergstresser, E. H. Rex

This work was moved to a laboratory that was not equipped for plutonium work. It was necessary to delay experimental work on the precipitation of bismuth from plutonium-containing solutions until suitable equipment can be obtained. However, work was done on the titration of $\text{BiCr}(\text{CNS})_3$ by dissolving this precipitate in an alkaline tartrate solution, acidifying, adding an excess of KBrO_3 and bromide and back-titrating this excess with $\text{Na}_2\text{S}_2\text{O}_3$ using iodide indicator. Three series of analyses were made, using in each case about 20 mg. of bismuth. The results were all less than the known amount of bismuth by 3 to 7%. At this time this procedure does not look too promising.

CMR-1-6

Part B
Analysis of Cd-Pu Solutions
K. S. Bergstresser, E. H. Rex

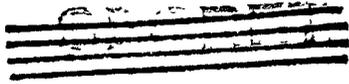
Inactive. Work will be resumed when equipment for handling plutonium-containing solutions becomes available.

CMR-1-12

The Determination of Small Amounts of Carbon and Oxygen in Metals by the Vacuum Fusion Technique.
Wm. G. Smiley, C. G. Warren

The oxygen apparatus previously described has been partially rebuilt to include the following:
(1) Replacement of the platinum crucible by a quartz tube and quartz liner.
(2) Replacement of induction heating by a conventional electric furnace. Some of the possible advantages are, elimination of blank trouble since the system could be kept hot at all times, saving of expense of platinum crucibles and elimination of cooling water. The latter is desirable from a safety standpoint in case of breakage of the heating tube. Under change incorporated was

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Project and Personnel

Progress

CMR-1-12 continued

the use of silica gel to remove water and SO₂ in the combustion gases. The modified apparatus remains to be tried. It is hoped it will be possible to determine both oxygen and carbon in the same apparatus.

CMR-1-16

Chemical Microscopy of
Plutonium Compounds
E. Staritzky, A. L. Truitt

Work was done on the preparation and photomicrography of uranium and plutonium compounds for inclusion in LA reports which are in preparation. Optical properties of americium oxalate, uranium (IV) di-oxalate and di-caesium uranyl tetra-chloride were determined.

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C. F. Metz

Charles F. Metz
Group Leader
Analytical Group.

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