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Qualification of Reserve RTF Pd/Z - Task Technical Plan (U)

by

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DOE Contract No. **DE-AC09-89SR18035**

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**WESTINGHOUSE SAVANNAH RIVER COMPANY
SAVANNAH RIVER TECHNOLOGY CENTER**

Keywords

Palladium

Zeolite

Stripper

Tritium Facilities

Retention: 5 years

QUALIFICATION OF RESERVE RTF Pd/Z

TASK TECHNICAL PLAN (U)

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QUALIFICATION OF RESERVE RTF Pd/Z

TASK TECHNICAL PLAN (U)

INTRODUCTION

Palladium deposited on zeolite (Pd/Z) used in the Purge Stripper System in the Replacement Tritium Facility (RTF) was produced by the Environmental Technology Section (ETS) using tetraamminepalladium (II) nitrate and 4X8 mesh beads of Type 4A zeolite procured by the Hydrogen Technology Section (HTS).[1] In March 1991, RTF requested that HTS procure an additional 100 liters of Pd/Z as reserve material.[2] Half was to be prepared by ETS and half was to be procured from an offsite supplier. Purchase Order AA98117A for 35 kilograms of Pd/Z was placed with Ionex Research Corporation in April 1992.

Task Definition

The objective of this activity is to confirm that Reserve RTF Pd/Z prepared by both ETS and Ionex Research Corporation meets the Technical Requirements of the Specification WCM-4 for Procurement of Pd/Z.[3]

Requester

The requester is J. M. Schappell of the RTF.

Task Responsibilities

The activities required to accomplish the Task will be performed by the Process Technology Group of the Chemical and Hydrogen Technology Section under the direction of the Task Leader, W. C. Mosley.

Task Deliverables

- (1) Reserve Pd/Z suitable for use in the RTF Purge Stripper System, and
- (2) Documentation on qualification of the Reserve RTF Pd/Z and information on how the Pd/Z is packaged, labeled and stored.

TEST ACCEPTANCE CRITERIA

The Reserve RTF Pd/Z shall have the following properties:

- (1) Palladium content shall be between 1.5 and 2.5 weight percent.
NOTE: An error analysis of the hydrogen absorption method used to determine palladium content of Pd/Z indicated the overall error to be about ± 0.1 weight percent.[4]
- (2) Chlorine content shall be less than 250 ppm.
NOTE: The detection limit for chlorine by neutron activation analysis is about 50 ppm.[5]

TASK ACTIVITIES

The Activities required to meet the Task objective are:

- (1) The Task Leader will submit a representative sample from each lot of Reserve RTF Pd/Z for analysis of palladium content.[4]
- (2) The Task Leader will submit a representative sample from each lot of Reserve RTF Pd/Z for analysis of chlorine content.[5]
- (3) The Task Leader will document the results of palladium and chlorine analyses on the Reserve RTF Pd/Z and include information on how the Pd/Z is packaged, labeled and stored.

TASK SCHEDULE

There is a Level 4 Milestone to qualify Reserve RTF Pd/Z for use and issue a report by the end of September 1994. Every effort is being made to meet this Milestone. However, completion of this Task could be delayed if facilities and personnel needed to perform the Task Activities become unavailable.

REFERENCES

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3. W. C. Mosley, Specification WCM-4 for Procurement of Pd/Z (U), SRL-HTS-91-0167, August 12, 1991.
4. R. T. Walters, Determination of Weight Percent Palladium on Palladium/Substrate (Pd/S), DPST-88-898, October 17, 1988.
5. Analytical Development Section Analytical Operating Procedures Manual L16.1, "Californium Neutron Activation Analysis", ADS-2407.

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