TECHNICAL TASK PLAN FOR TESTING FILTER BOX SORBENT-PAINT FILTER TEST (U)

by

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Retention: Lifetime

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Date: September 1, 93

To: S. D. Fink, 773-A

From: L. L. Kilpatrick, 676-T *LLK 9/1/93*

Technical Task Plan for Testing
Filter Box Sorbent-Paint Filter Test (U)

1.0 Introduction

High Level Waste Engineering (HLWE) asked Interim Waste Technology (IWT) to choose and test a sorbent to add to the ITP filter box that meets the EPA requirement for land disposal of containerized liquid hazardous wastes per Paint Filter Liquids (PFL) test method 9095. (See Rule Citation 40 CFR Parts 260, 264, 265 and 271.)

2.0 Description

2.1 Deliverables

2.1.1 IWT will issue report of sorbent test results.

2.1.2 The Filter Box Absorbent-Paint Filter Test-Technical Task Plan requires approval by Packaging and Transportation and by ITP Technical Oversight Committee.

2.2 Requirements

2.2.1 HLWE will review with IWT the choice of sorbent and slurry to be tested.

3.0 Activities

3.1 Tests

3.1.1 Add 100 gms 10 wt % unirradiated precipitate to beaker. Add increasing amounts of sorbent with mixing until no free liquid is observed in beaker after > 30 minutes. Pour 100 gms mixture into Conical paint filter with #60 mesh bottom. Observe for 5 minutes to see if any liquid drains into graduated cylinder. See attachment 1.

3.1.2 Repeat experiment 3.1.1 with more sorbent if liquid drains into cylinder, or less sorbent if it does not.

3.1.3 Repeat experiments 3.1.1 and 3.1.2 starting with simulated washed ITP filtrate. See attachment 2.

4.0 Documentation

4.1 Test instructions will appear in a laboratory notebook.

4.2 Activities will utilize approved procedures.

4.3 Results will appear in a laboratory notebook.

4.4 DWPT Analytical will analyze samples. The DWPT Quality Assurance Program (SRL-PMC-91-0075, Rev.2,6/15/92) governs DWPT Analytical activities.

5.0 Attachments

5.1 Attachment 1 LABORATORY PREPARATION, ITP WASHED SLURRY - 10 wt % KTPB

5.2 Attachment 2 ITP WASHED SLURRY FILTRATE - 0 Wt % KTPB

5.0 Review & Approval**5.1 Peer Review**

9/1/93
M. L. Meyer Date
Interim Waste Technology

5.2 Approval

9-10-93
S. D. Fink, Manager Date
Liquid Waste Processing Group

9-20-93
J. N. Brooke Date
Chair, ITP Technical Oversight Committee
High Level Waste Engineering

9/24/93
A. G. Eggers Date
Packaging and Transportation

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**ATTACHMENT 1
LABORATORY PREPARATION
ITP WASHED SLURRY - 10 wt% KTPB**

Assumes soluble salts dissolved in 0.9 L filtrate contained in 1 L slurry
Add chemicals in following order to 400 g H₂O. Dilute final mixture to 1 L(1038 g)

<u>CHEMICAL</u>	<u>MOLARITY</u>	<u>MOL WEIGHT (g)</u>	<u>Wt. TO ADD(g)</u>
KOH	0.290	56	16.24
Al(NO ₃) ₃ ·9H ₂ O	0.0031	375	1.17
NaNO ₃	0.0105	85	0.90
NaNO ₂	0.0693	69	4.80
Na ₂ CO ₃ ·1H ₂ O	0.0017	123	0.22
Na ₂ SO ₄	0.0014	142	0.20
NaTPB (.55M,1.045 sg)	0.290	342	551.0

Density supernate = 1.0213, Density slurry = 1.0375 g/ml

Density KTPB (Solid) = 1.21 g/ml

U-Solids (KTPB) in mixture = 0.1038 kg/l

Total Solids = 0.129 kg/l

Total Solids = 12.43 wt%

**ATTACHMENT 2
CALCULATED VALUES IN
ITP WASHED FILTRATE- 0 WT% KTPB**

Assumes soluble salts dissolved in one liter filtrate from slurry from Attachment 1

<u>CHEMICAL</u>	<u>MOLARITY</u>	<u>MOL WEIGHT (g)</u>	<u>Wt. TO ADD (g/L)</u>
NaOH	0.030	40	1.20
Al(NO ₃) ₃ ·9H ₂ O	0.0031	375	1.16
NaNO ₃	0.0105	85	0.90
NaNO ₂	0.0693	69	4.80
Na ₂ SO ₄	0.0014	142	0.20

Density supernate expected = 1.0213

**DATE
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END