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CASE STUDY

DEBULKING OF ASPHALT STORAGE TANKS UP FOR DEMOLITION AT PETROCHEMICAL PLANT

S.T.AR. TEAM

ISO 9001:2015

Scope

Debulking of asphalt storage tanks up for demolition at petrochemical plant using **PENETONE 4022PS.**

The *Problem*

A major southern US petrochemical producer planned a large-scale demolition and removal of several asphalt storage tanks. The project first required the removal of the remaining asphalt content through the process of debulking by high-temperature, liquid circulation. The resulting asphalt solution was then slated for transfer to temporary bins and transport to a coker unit for re-processing. During transport, a reduction in temperature of the asphalt solution would lead to a dramatic increase in viscosity creating an immobile and unpumpable liquid. This fluid therefore required treatment prior to transfer from the tanks with a flow assurance aid (FAA) to ensure the liquid could be pumped for re-processing well after transfer.

Our *Solution*

The number of tanks totalled sixteen (16) of various dimensions containing a total combined volume of 200,000 gal (757 m^3) of various asphalt material. Subsequent laboratory characterization and fluidization of tank samples provided to West Penetone indicated at least three (3) distinct asphalt materials of different viscosity and rheology that were responsive to flow assurance treatment with **PENETONE 4022PS** in diluent. Results showed over 80%w/w fluidization of ***Material 1*** with FAA, 94% with FAA vs 91% without FAA for ***Material 2***, and 94% with FAA vs 67% without FAA for ***Material 3***.

Material 1

Material 2

Material 3

The operator of the facility indicated the necessity of keeping within schedule and budget while having no downstream impacts post re-processing. ***Material 1*** required manual removal and external treatment in mix tanks at high temperature (150°F/66°C) for preparation on removing entrained rubber shreds prior to re-processing. ***Material 3*** also required manual removal for external fluidization.

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Our *SOLUTION* *(continued)*

West Penetone worked with the client's industrial cleaning contractor to confirm the most efficient chemical treatment program, based upon fluidizing the material at high temperature (150-160°F/ 66-71°C) with various ratios of diluent to asphalt to flow assurance aid. Subsequent debulking from fluidization on-site confirmed that optimum removal and flow assurance was attained at a diluent to asphalt ratio of 1:1 using **PENETONE 4022PS** at concentrations ranging from 0.5 to 1% by volume of diluent.

Figure 1

RESULTS ACHIEVED

- 200,000 gal (757 m^3) of asphalt was successfully removed from the storage tanks and re-processed utilizing a total of 2585 gal (9785 L) of **PENETONE 4022PS** in over 200,000 gal of diesel. All solids (***Figure 1***) were successfully extracted and sent out for disposal as nonhazardous waste.

- The chemical treatment program allowed the industrial cleaning contractor to successfully debulk the tanks and remain under budget while also meeting all schedule deadlines.

A comprehensive and
integrated approach

With over 100 years of product development, manufacturing and application experience, the West Penetone family of companies has designed and patented many products to satisfy the needs of our clients world wide.

Our technical group provides customers effective support to ensure that contaminents are paired with the right chemistry for any task.

Establishing and maintaining a collaborative approach with our customers in tackling their operational and maintenance challenges is key to realizing efficiencies and cost savings.

Questions? solution@westpenetone.com

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