

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 01/05/2000

Experimenters: Jason Marshall

ClientType: Vessel Cleaning Company

ProjectNumber: Project #2

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Adhesive, Resins/Rosins

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To identify a cleaner that will remove the contaminant when it is in the tanker trucks.

Experimental Procedure: Five cleaning solutions were selected from the lab's All Tests database based on past effective cleaning of similar contaminants. Ten percent solutions were made in 600 ml beakers using DI water. The solutions were heated to 130 F on a hot plate. Fifteen preweighed coupons were contaminated and weighed again. Three coupons were placed in each cleaner for five minutes with stir-bar agitation. Coupons were rinsed in a tap water bath for 30 seconds at 120 F and dried using a Master Appliance Corp, Hot-air gun model HG-301A. Final weights were recorded, and cleaning efficiencies calculated.
SUBSTRATE MATERIAL: Stainless Steel coupons
CONTAMINANTS Ashland Specialty Chemical Co, Acrylic Resin solution, Aroset 1872 Z 40 (CAS#s: 108-88-3, 141-78-6, 142-82-5, 67-63-0)
CONTAMINATING PROCESS USED: Coupons were coated with contaminant with a handheld swab. Coupons were then allowed to dry for one hour.

Results: None of the selected cleaners were very effective in removing the resin from the coupons. Shopmaster and All Purpose were the best of the five, removing just under 30% of the contaminant. The coupons cleaned with these two products were visible different than the other coupons. The other coupons looked shiny where the contaminant was whereas the Shopmaster and All Purpose appeared dull. Table 2 lists the results for each cleaner.

| Table 2. Cleaning Efficiency | | | | | |
|------------------------------|--------------|--------------|--------------|-----------------|--------------|
| Cleaner | Buckeye | SafeScience | Oakite | Envirosolutions | MacDermid |
| Coupon 1 | 26.18 | 23.83 | -15.15 | -11.48 | 2.95 |
| Coupon 2 | 29.83 | 28.82 | 44.46 | 3.88 | 13.48 |
| Coupon 3 | 30.75 | 21.59 | 4.70 | -2.00 | 15.03 |
| Ave | 28.92 | 24.75 | 11.34 | -3.20 | 10.49 |
| Std Dev | 2.42 | 3.70 | 30.36 | 7.75 | 6.58 |

Summary:

| Substrates: | | Stainless Steel | | | | |
|-------------------------------|---------------------------------------|-------------------------|--------------------|--------------------------|----------------------|--|
| Contaminants: | | Adhesive, Resins/Rosins | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Buckeye International | Shopmaster | 10 | 28.92 | <input type="checkbox"/> | | |
| Safe Science Inc | Safe Science All Purpose (Industrial) | 10 | 24.75 | <input type="checkbox"/> | | |
| Oakite Products | Inproclean 4000 T | 10 | 11.34 | <input type="checkbox"/> | | |
| Bio Chem Systems | Bio T Max | 10 | -3.20 | <input type="checkbox"/> | | |
| MacDermid Industrial Products | ND 17 | 10 | 10.49 | <input type="checkbox"/> | | |

Conclusion: Since none of the products selected removed the resin, additional testing will be performed using different cleaning solutions.