CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 01/05/2000

Experimenters: Jason Marshall, Nicole Vayo

ClientType: Vessel Cleaning Company

ProjectNumber: Project #2

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Adhesive, Resins/Rosins

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

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

Experimental Procedure: Three solutions were selected from the previous test and three new products were identified by the lab's All Tests database based on past effective cleaning of similar contaminants. The aqueous products were diluted to 20% in 600 ml beakers using DI water. The three other products were used at 100%. 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 Fand dried using a Master Appliance Corp, Hot-air gun model HG-301A. Final weights were recorded, and cleaning efficiencies calculated. The coupons were then re-immersed into the cleaning solutions and soaked at room temperature for 30 minutes, rinsed observed, wiped clean and weighed.
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: Cleaning at five minutes was unsuccessful again, however the semi-aqueous products did show signs of dissolving the contaminant from the coupon. The 30-minute cleaning followed by a wipe with a paper towel did have some success. Table 2 lists the observations for both cleaning times and calculated efficiencies for the 30-minute wipe.

Table 2. Cleaning Observations

5 MIN 130F					
Shopmaster	All Purpose	Soy Gold	Ship Shape	HTF 50	Bio T Max
cloudy	cloudy	no longer sticky	not hard but sticky	not hard	not hard
30min w/wipe					
31.29	72.99	32.41	100.83	49.29	83.76
very sticky once cleaner wiped away	a little sticky, could be rubbed off	a lot of cleaner residue	easily wiped off	easily wiped off, some residue	easily wiped off

Summary:

Substrates:	Stainless Steel				
Contaminants:	Adhesive, Resins/Rosins				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Buckeye International	Shopmaster	20	31.29	☐	
Safe Science Inc	Safe Science All Purpose (Industrial)	20	72.99	☐	
AG Environmental Products	Soy Gold 2000	100	32.41	☐	
ISP Technologies	Ship Shape Resin Cleaner	100	100.83	☑	
Tarksol Inc	Tarksol HTF-50	100	49.29	☐	
Bio Chem Systems	Bio T Max	100	83.76	☑	

Conclusion:

CLEANING LABORATORY EVALUATION SUMMARY

Ship Shape Resin Cleaner was the only solution to remove all of the resin from the coupons. Bio T Max was moderately capable of removing the contaminant. The All-Purpose cleaner from SafeScience removed a majority of the resin. Two coupons were soaked in the aqueous solutions for 18 hours. Both removed over 90% of the contaminant after this extended soaking time.