

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000  
 DateRun: 01/06/2000  
 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 F and 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, Arosset 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:

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

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.