

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000
 DateRun: 02/01/2000
 Experimenters: Jason Marshall
 ClientType: Mfr Boating Accessories
 ProjectNumber: Project #2
 Substrates: Brass
 PartType: Coupon
 Contaminants: Lubricating/Lapping Oils
 Cleaning Methods:
 Analytical Methods: Gravimetric

Purpose: To identify a low or non voc cleaner for the removal of oil from brass materials.

Experimental Procedure: Eight cleaners were selected the lab's database of effective testing and Industrial Cleaning Survey: Directory of Vendors 4th edition. Six solutions were diluted with DI water to five percent by volume in a 600 ml beaker. The other two products were diluted to 10% as suggested by the vendor. Twenty-four preweighed coupons were coated with the supplied oil and weighed again. Three coupons were cleaned in a solution for five minutes at room temperature using stir-bar agitation. After cleaning the coupons were rinsed for 15 second in tap water at 120 F and allowed to air dry for two hours. Following the drying, final clean weights were recorded and efficiencies were calculated.

SUBSTRATE MATERIAL: Brass Coupons

CONTAMINANTS: Oil-Texaco Lubricant Company Cleartex D (CAS#: 64742-65-0, 68527-02-6)

CONTAMINATING PROCESS USED: Coupons were coated with oil using a hand held swab.

Results: Three cleaners, Chrisal, SWR Corp & Oakite, were capable of removing over 70% of the oil from the brass coupons at room temperature. Two solutions, Valtech and Envirosolutions, removed about 67% and the remaining solutions cleaned less than 55% of the contaminant. Table 2 lists the calculated efficiencies for each solutions evaluated.

Table 2. Room Temperature Cleaning

| Cleaner | Alconox | Chrisal | Savogran | SWR Corp | Valtech | C&D | Oakite | Envirosolutions |
|----------|---------|---------|----------|----------|---------|-------|--------|-----------------|
| Coupon 1 | 53.18 | 87.69 | 52.58 | 73.79 | 66.42 | 45.85 | 83.32 | 60.72 |
| Coupon 2 | 58.18 | 87.42 | 40.81 | 71.67 | 63.08 | 56.24 | 71.19 | 65.98 |
| Coupon 3 | 44.70 | 73.58 | 50.42 | 68.30 | 70.15 | 60.67 | 80.71 | 76.39 |
| Average | 52.02 | 82.90 | 47.94 | 71.25 | 66.55 | 54.25 | 78.41 | 67.70 |

Summary:

| Substrates: | | Brass | | | | |
|-------------------------|-------------------------|--------------------------|-------------|-------------------------------------|---------------|--|
| Contaminants: | | Lubricating/Lapping Oils | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Church & Dwight Co Inc. | Armakleen E 2002 | 5 | 54.25 | <input type="checkbox"/> | | |
| Bio Chem Systems | Bio T Max | 10 | 67.70 | <input type="checkbox"/> | | |
| Oakite Products | Inproclean 4000 T | 10 | 78.41 | <input checked="" type="checkbox"/> | | |
| Valtech Corporation | Valtron SP 2250 2LF | 5 | 66.55 | <input type="checkbox"/> | | |
| SWR Corporation | SWR One | 5 | 71.25 | <input checked="" type="checkbox"/> | | |
| Chrisal USA Inc | Super CMF 240 | 5 | 82.90 | <input checked="" type="checkbox"/> | | |
| Alconox Inc | Luminox | 5 | 52.02 | <input type="checkbox"/> | | |
| Savogran Company | Dirtex Prepaint Cleaner | 5 | 47.94 | <input type="checkbox"/> | | |

Conclusion: Since most of the cleaners selected removed a majority of the contaminant while at room temperature, an additional test will be performed using all cleaners heated to 130 F.