

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002
 DateRun: 02/21/2002
 Experimenters: Jason Marshall, Heidi Wilcox
 ClientType: Plating Job Shop
 ProjectNumber: Project #1
 Substrates: Stainless Steel
 PartType: Coupon
 Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric
 Purpose: To evaluate cleaners for replacing TCE in removing oil from metal.

Experimental Procedure: Eight cleaners were selected from the lab's databases of testing and vendor information. Products were selected based on client supplied data. Each solution was diluted to 5% using DI water in a 600 ml beaker and heated to 130 F on a hot plate. Twenty-four preweighed coupons were contaminated with the New England Industrial Lubricants' NEILCUT 333 using a hand held swab. Coupons were weighed again to determine the amount of oil added. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. A 30 second rinse in tap water at 120 F followed cleaning. Coupons were dried using a Master Appliance heat gun at 500 F for 1 minute. Once coupons cooled to room temperature, final weights were recorded. Product efficiencies were calculated and recorded.

Results: Only two products, Warren Chemical Sea Wash 8 and International Products Surface Cleanse 930, removed over 80% of the oil from the stainless steel coupons. The following table lists the amount of contaminant added to each coupon as well as the effectiveness of each. (Three coupons per cleaner.)

| Cleaners | Coupon 1 | Coupon 2 | Coupon 3 | Average |
|--------------------|----------|----------|----------|---------|
| Brulin | 82.90 | 64.69 | 78.63 | 75.41 |
| Buckeye | 27.31 | 37.56 | 40.43 | 35.10 |
| Heatbath | 66.97 | 54.02 | 62.23 | 61.07 |
| Safe CleanUp | 86.71 | 64.80 | 51.15 | 67.56 |
| Solvent Kleene | 49.04 | 49.41 | 70.85 | 56.43 |
| International Prod | 78.70 | 76.83 | 87.98 | 81.17 |
| Warren | 80.22 | 93.02 | 88.82 | 87.35 |
| Chem Free | 57.69 | 21.74 | 25.43 | 34.95 |

Summary:

| Substrates: | | Stainless Steel | | | | |
|------------------------------------|------------------------------------------|-------------------------------------------------------|-------------|-------------------------------------|---------------|--|
| Contaminants: | | Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Brulin Corporation | Aquavantage 1400 | 5 | 75.41 | <input type="checkbox"/> | | |
| Buckeye International | Shopmaster LPH | 5 | 35.10 | <input type="checkbox"/> | | |
| Heatbath Corporation | MultiKleen LX 1573 | 5 | 61.07 | <input type="checkbox"/> | | |
| International Products Corporation | Surface Cleanse Concentrated Neutral 930 | 5 | 81.17 | <input checked="" type="checkbox"/> | | |
| Safe CleanUp Solutions | Super Neutral | 5 | 67.56 | <input type="checkbox"/> | | |
| Transene Company, Inc. | D-Greeze GL 55 | 5 | 56.43 | <input type="checkbox"/> | | |
| Warren Chemical Company | Sea Wash 8 | 5 | 87.53 | <input checked="" type="checkbox"/> | | |
| Chem Free Corporation | SW-1 Ozzy Juice | 5 | 34.95 | <input type="checkbox"/> | | |

Conclusion: The two effective products will be reevaluated in the next trial at higher concentrations. An additional five new products will be evaluated at 5% concentrations as well.