

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 11/18/2008

Experimenters: Daniel Pina

ClientType: Lab

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To test nontoxic industrial cleaning solutions for oil removal.

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Products were based on the compatibility of substrate and removal of foreign substance. Used 5% concentration and heated the samples at 135F. The coupons were immersed in a product for 5 minutes, rinsed for 30 seconds in tap water at 120F and dried in 30 seconds using compressed air is room temperature. Coupons were coated with used oil. Using a handheld swab and allowed to dry for 144 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added. After cleaning process, the final weights were recorded, efficiencies were calculated and recorded.

Results:

| Cleaner | Initial wt | Final wt | % Removed |
|--|------------|----------|-----------|
| Bigenesis Enterprise inc., BG Clean 648 | | | |
| | 0.0896 | 0.0243 | 72.88 |
| | 0.2607 | 0.0117 | 95.51 |
| | 0.1315 | 0.0277 | 78.94 |
| PCL of America, Hurisafe 9100 | | | |
| | 0.2655 | 0.0587 | 77.89 |
| | 0.3303 | 0.1879 | 43.11 |
| | 0.2993 | 0.1200 | 59.91 |
| Kyzen corporation, Aquanox A4512 | | | |
| | 0.3542 | 0.1282 | 63.81 |
| | 0.3639 | 0.0872 | 76.04 |
| | 0.3925 | 0.0846 | 78.45 |
| Magnaflux, Daraclean 259 | | | |
| | 0.2975 | 0.0590 | 80.17 |
| | 0.4423 | 0.0790 | 82.14 |
| | 0.4765 | 0.0638 | 86.61 |
| Finger lakes company, Pinene all-purpose cleaner | | | |
| | 0.3743 | 0.1303 | 65.19 |
| | 0.3460 | 0.0959 | 72.28 |
| | 0.3959 | 0.1446 | 63.48 |
| Valtech corporation, Valtron sp 2270 | | | |
| | 0.3851 | 0.0767 | 80.08 |
| | 0.3701 | 0.1125 | 69.60 |
| | 0.3615 | 0.1107 | 69.38 |

Summary:

| | |
|----------------------|-----------------|
| Substrates: | Stainless Steel |
| Contaminants: | Oil |

CLEANING LABORATORY EVALUATION SUMMARY

| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
|----------------------------|------------------------------------|--------|-------------|--------------------------|--|
| BioGenesis Enterprises Inc | BG Clean 648 | 5 | 82.44 | <input type="checkbox"/> | Very close to reaching the 85% percent passing rate possibly by doubling concentration of this solution could yield the necessary passing score of 85% removal |
| PCI of America | Hurrisafe 9100 Paint Prep | 5 | 60.30 | <input type="checkbox"/> | Did not pass our effective rate of 85% removal |
| Kyzen Corporation | Aquanox A4512 | 5 | 72.76 | <input type="checkbox"/> | Did not pass our passing rate of removal of 85%. |
| Magnaflux | Daraclean 259 | 5 | 82.97 | <input type="checkbox"/> | Almost reached passing removal rate of 85% possibly doubling the concentration will give the acceptable rate of removal |
| Finger Lakes Chemical | FLSC-31 Pinene All Purpose Cleaner | 5 | 66.98 | <input type="checkbox"/> | Did not pass our acceptable rate of 85 percent. |
| Valtech Corporation | Valtron SP 2270 | 5 | 73.02 | <input type="checkbox"/> | Did not pass our acceptable rate of removal of 85% |

Conclusion:

The products tested that scored more than 72 percent will be looked at again by doubling its concentration to 10 percent to see if they reach the acceptable removal rate of 85 percent.