# CLEANING LABORATORY EVALUATION SUMMARY

| | |
|---|---|
| SCL #: | 2008 |
| DateRun: | 09/22/2008 |
| Experimenters: | Jason Marshall |
| ClientType: | Machine Construction Company |
| ProjectNumber: | Project #2 |
| Substrates: | Steel |
| PartType: | Coupon |
| Contaminants: | Coatings |
| Cleaning Methods: | Ultrasonics |
| Analytical Methods: | Gravimetric |
| Purpose: | To reevaluate previously tested products using ultrasonics and heat. |
| Experimental Procedure: | Nine products were selected from the previous four trials based on partial success on removing the supplied soils. Six products were diluted to 5% using DI water in 400 ml beakers. The other three were used at full strength based on vendor recommendations. Beakers were immersed and heated to 130 F in a Branson 40 kHz ultrasonic tank. Solutions were degassed for five minutes.<br>Twenty-seven preweighed steel coupons were coated with the rust preventative VCI 325 using a hand held swab. Coupons were weighed again to determine the amount of soil added. Three coupons were cleaned in each solution for 10 minutes using ultrasonic energy. Coupons were rinsed for 15 seconds in tap water at 120 F and dried using compressed air at room temperature for 30 seconds. Final weights were recorded and efficiencies calculated. |
| Results: | Eight of the nine products removed over 90% of the rust preventative. The Citrus Soy was the only product not remove enough of the soil to be considered to be effective. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned. |

| Cleaner | Initial wt | Final wt | % Removed |
|---|---|---|---|
| Aquavantage 1400 GD | | | |
| | 0.1039 | 0.0001 | 99.90 |
| | 0.1104 | 0.0041 | 96.29 |
| | 0.1373 | 0.0039 | 97.16 |
| Grease Feast | | | |
| | 0.1240 | 0.0056 | 95.48 |
| | 0.1288 | 0.0080 | 93.79 |
| | 0.1534 | 0.0054 | 96.48 |
| SC Aircraft & Metal Cleaner | | | |
| | 0.1393 | 0.0049 | 96.48 |
| | 0.1340 | 0.0005 | 99.63 |
| | 0.1587 | 0.0030 | 98.11 |
| SC MaxiSolve | | | |
| | 0.1125 | 0.0039 | 96.53 |
| | 0.1569 | 0.0018 | 98.85 |
| | 0.1163 | 0.0001 | 99.91 |
| Ozzy Juice SW1 | | | |
| | 0.1678 | 0.0010 | 99.40 |
| | 0.1769 | 0.0028 | 98.42 |
| | 0.1448 | 0.0010 | 99.31 |
| Smart Solve 605 | | | |
| | 0.0953 | 0.0007 | 99.27 |
| | 0.1604 | 0.0063 | 96.07 |
| | 0.1295 | 0.0058 | 95.52 |
| Citrus Soy Solvent Cleaner & Degreaser | | | |
| | 0.1257 | 0.0280 | 77.72 |
| | 0.1778 | 0.0361 | 79.70 |
| | 0.1619 | 0.0264 | 83.69 |
| Bean-e-doo | | | |
| | 0.1623 | 0.0001 | 99.94 |

# CLEANING LABORATORY EVALUATION SUMMARY

| | | | |
|---|---|---|---|
| | 0.1658 | 0.0075 | 95.48 |
| | 0.1190 | 0.0085 | 92.86 |
| Ionox HC2 | | | |
| | 0.1476 | 0.0118 | 92.01 |
| | 0.0911 | 0.0040 | 95.61 |
| | 0.2087 | 0.0168 | 91.95 |

Summary:

| | |
|---|---|
| **Substrates:** | Steel |
| **Contaminants:** | Coatings |

| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
|---|---|---|---|---|---|
| Brulin Corporation | Aquavantage 1400 | 5 | 97.78 | ☑ | |
| Ensolve Biosystems Inc | Grease Feast Plus | 100 | 95.25 | ☑ | |
| Gemtek Products | SC Aircraft & Metal Cleaner Super Concentrate | 5 | 98.07 | ☑ | |
| Gemtek Products | Safe Care (SC) Maxi Solv | 5 | 98.43 | ☑ | |
| Chem Free Corporation | SW-1 Ozzy Juice | 5 | 99.04 | ☑ | |
| United Laboratories International | Smart Solve 605 | 100 | 96.95 | ☑ | |
| Bi-O-Kleen Industries | Citrus Soy Solvent Cleaner & Degreaser | 5 | 80.37 | ☐ | |
| Franmar Chemical | Bean-e-doo (Parts Washer Solvent) | 100 | 96.09 | ☑ | |
| Kyzen Corporation | Ionox HC 2 | 5 | 93.19 | ☑ | |

Conclusion: The eight effective products will be tested on the second supplied contaminant using the same operating conditions.