

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003
 DateRun: 02/27/2003
 Experimenters: Jason Marshall
 ClientType: Medical Instrument Mfr
 ProjectNumber: Project #1
 Substrates: Plastic
 PartType: Coupon
 Contaminants: Hucker's Soil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric
 Purpose: To evaluate alternative cleaners to supplied current cleaners for Hucker's Soil removal from plastic substrates.

Experimental Procedure: Six cleaners were selected from the laboratory's database of testing based on supplied client information. All six were diluted to 5% using DI water in 600 ml beakers. The two supplied cleaners were diluted to concentrations used by client in 600 ml beakers. All eight cleaners were heated to 130 F on a hot plate. Twenty-four preweighed plastic coupons were coated with the supplied Hucker' Soil (Creamy Peanut Butter, Salted Butter, Wheat gluten, Egg Yolk, Evaporated milk, DI water, Printer's ink with boiled linseed oil, India Ink, Saline Solution) using a hand held swab and allowed to dry. Coupons were weighed again to determine the amount of soil added. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation at 130 F. Rinsing was performed for 15 seconds in tap water at 120 F and followed by drying with a Master Appliance heat gun for 30 seconds at 500 F. Once coupons cooled to room temperature, final weights were recorded and efficiencies were calculated.

Results: Five of the six selected products performed better than the two supplied products. Four of these products removed over 90% of the Hucker's soil from the plastic coupons. The table below lists the amount of soil applied and removed for each coupon.

| Cleaner | Initial wt | Final wt | % Removed |
|----------------------|------------|----------|-----------|
| Sea Wash 8 | 0.5427 | 0.0675 | 87.56 |
| | 0.2955 | 0.0288 | 90.25 |
| | 0.4932 | 0.0362 | 92.66 |
| Ozzy Juice SW3 | 0.3075 | 0.0534 | 82.63 |
| | 0.2673 | 0.0313 | 88.29 |
| | 0.1937 | 0.0425 | 78.06 |
| SC Aircraft & Metal | 0.4544 | 0.0554 | 87.81 |
| | 0.1820 | 0.0326 | 82.09 |
| | 0.2821 | 0.0147 | 94.79 |
| United 450 All Clear | 0.2877 | 0.0063 | 97.81 |
| | 0.5779 | 0.0185 | 96.80 |
| | 0.4547 | 0.0293 | 93.56 |
| Micro 90 | 0.2512 | 0.0008 | 99.68 |
| | 0.3372 | 0.0194 | 94.25 |
| | 0.1741 | 0.0183 | 89.49 |
| Aluminum Aerowash | 0.3133 | 0.0170 | 94.57 |
| | 0.3219 | 0.0259 | 91.95 |
| | 1.0261 | 0.0140 | 98.64 |
| Simple Green D | 0.1571 | 0.0269 | 82.88 |
| | 0.2494 | 0.0396 | 84.12 |
| | 0.3770 | 0.0551 | 85.38 |
| Lestoil | 0.3413 | 0.0444 | 86.99 |
| | 0.2609 | 0.0385 | 85.24 |
| | 0.3718 | 0.0617 | 83.41 |

Summary:

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| Substrates: | Plastic |
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| Contaminants: | | Hucker's Soil | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Warren Chemical Company | Sea Wash 8 No Force | 5 | 90.16 | <input checked="" type="checkbox"/> | |
| Chem Free Corporation | SW-3 Ozzy Juice (Improved Low Odor) | 5 | 82.99 | <input type="checkbox"/> | |
| Gemtek Products | SC Aircraft & Metal Cleaner Super Concentrate | 5 | 88.23 | <input checked="" type="checkbox"/> | |
| United Laboratories International | United 450 All Clear | 5 | 96.06 | <input checked="" type="checkbox"/> | |
| International Products Corporation | Micro 90 Conc. | 5 | 94.47 | <input checked="" type="checkbox"/> | |
| Magnum Research Corporation | Aluminum Aerowash | 5 | 95.05 | <input checked="" type="checkbox"/> | |
| Simple Green | Simple Green D | 10 | 84.13 | <input type="checkbox"/> | |
| Clorox Company | Lestoil | 2 | 85.21 | <input checked="" type="checkbox"/> | |

Conclusion:

The five successful products (United 450 All Clear, Aluminum Aerowash, Micro 90, Sea Wash 8, SC Aircraft & Metal) will be used in the next trial on supplied tubing. The two client supplied products will also be tested.