

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006
 DateRun: 10/12/2006
 Experimenters: Jason Marshall
 ClientType: Lab
 ProjectNumber: Project #1
 Substrates: Aluminum
 PartType: Coupon
 Contaminants: Carbon Deposits, Greases, Oil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric
 Purpose: Laboratory evaluations of alternative aerosol cleaning products

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. One product was retested from the previous trial at a higher concentration. An additional two products also were selected for testing based on equipment compatibility and soil removal. The three products were used at full strength in 250 ml beakers. Products were used at room temperature. Nine preweighed aluminum coupons were coated with a collection of brake/engine soil collected from an automobile shop. The coupons were allowed to sit for several days before a second weight was recorded. Three coupons were cleaned in each solution for 5 minutes using minimal agitation from a magnetic stir bar. Coupons were then rinsed in tap water for 15 seconds and dried using air blow off at room temperature for 30 seconds. Following drying, final weights were recorded and cleaning efficiencies were calculated.

Results: The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|-------------------------|------------|----------|-----------|
| Inproclean 4000T | 0.6415 | 0.5512 | 14.08 |
| | 0.7043 | 0.4902 | 30.40 |
| | 0.6545 | 0.5704 | 12.85 |
| Organic Clean-Degreaser | 0.6544 | 0.5537 | 15.39 |
| | 0.4955 | 0.4327 | 12.67 |
| | 0.9758 | 0.8654 | 11.31 |
| Ionox HC 2 | 0.3976 | 0.3644 | 8.35 |
| | 0.6769 | 0.6062 | 10.44 |
| | 0.9009 | 0.8154 | 9.49 |

Summary:

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|--|--|---------------|--------------------|--------------------------|----------------------|
| Substrates: | Aluminum | | | | |
| Contaminants: | Carbon Deposits, Greases, Oil | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Oakite Products | Inproclean 4000 T | 100 | 19.11 | <input type="checkbox"/> | |
| 1st EnviroSafety Inc. - No Longer Exists | Organic Cleaner/Degreaser - For Comparison Purposes Only | 100 | 13.13 | <input type="checkbox"/> | |
| Kyzen Corporation | Ionox HC 2 | 100 | 9.43 | <input type="checkbox"/> | |

Conclusion: The products did not work well at room temperature using immersion cleaning.