

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008
 DateRun: 10/16/2008
 Experimenters: Jason Marshall
 ClientType: Machine Construction Company
 ProjectNumber: Project #2
 Substrates: Steel
 PartType: Coupon
 Contaminants: Coatings
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric

Purpose: To evaluate top cleaning products without rinsing.

Experimental Procedure: The top two products were selected from the previous trials based on success on removing tithe supplied soils using heated immersion cleaning. Both were used at full strength based on vendor recommendations. Beakers were heated to 130 F on a hot plate. Prewieghed steel coupons were coated with the three supplied soils, VCI 369, VCI 368 and 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 stir bar agitation. Coupons were not rinsed but were dried using compressed air at room temperature for 30 seconds. Final weights were recorded and efficiencies calculated.

Results: Both products were able to remove over 85% of the three soils using immersion cleaning without rinsing. The Bean-e-doo removed over 92%. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|---------------------------|------------|----------|-----------|
| Smart Solve 605 - VCI 639 | | | |
| | 0.2647 | 0.0107 | 95.96 |
| | 0.1136 | 0.0167 | 85.30 |
| | 0.2171 | 0.0239 | 88.99 |
| Bean-e-doo - VCI 639 | | | |
| | 0.1711 | 0.0294 | 82.82 |
| | 0.2043 | 0.0062 | 96.97 |
| | 0.3304 | 0.0157 | 95.25 |
| Smart Solve 605 - VCI 638 | | | |
| | 0.3001 | 0.0334 | 88.87 |
| | 0.2444 | 0.0210 | 91.41 |
| | 0.2038 | 0.0222 | 89.11 |
| Bean-e-doo - VCI 638 | | | |
| | 0.2324 | 0.0186 | 92.00 |
| | 0.2690 | 0.0170 | 93.68 |
| | 0.3066 | 0.0094 | 96.93 |
| Smart Solve 605 - VCI 325 | | | |
| | 0.1093 | 0.0239 | 78.13 |
| | 0.0749 | 0.0211 | 71.83 |
| | 0.1013 | 0.0186 | 81.64 |
| Bean-e-doo - VCI 325 | | | |
| | 0.1266 | 0.0097 | 92.34 |
| | 0.1121 | 0.0101 | 90.99 |
| | 0.1542 | 0.0136 | 91.18 |

Summary:

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|-----------------------------------|-----------------------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Steel | | | | |
| Contaminants: | Coatings | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| United Laboratories International | Smart Solve 605 | 100 | 85.69 | <input checked="" type="checkbox"/> | |
| Franmar Chemical | Bean-e-doo (Parts Washer Solvent) | 100 | 92.46 | <input checked="" type="checkbox"/> | |

Conclusion:

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Piloting of the two cleaning products should be arranged as the next step.