

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004
DateRun: 05/12/2004
Experimenters: Jason Marshall
ClientType: Tool Manufacturer
ProjectNumber: Project #1
Substrates: Steel
PartType: Coupon
Contaminants: Oil
Cleaning Methods: Vapor Degreasing
Analytical Methods: Gravimetric

Purpose: To evaluate three cleaners on second contaminant using vapor degreasing

Experimental Procedure: Three products were selected based on results from previous trials. All products were used heated to 160 F on a hot plate in 250 ml beakers. Nine preweighed steel coupons were coated with Rochester Midland RI780 rust preventative (80252-41-3, 95-63-6) using a hand held swab. The oil was then heated with a Master Appliance Heat gun at 300 F for 10 minutes. After cooling to room temperature, a second weighing was performed to determine the amount of soil that was added. Three coupons were cleaned in each solution for 15 minutes in the bench top vapor degreaser. After cooling, coupons were weighed a final time to determine the cleaning efficiency of each product.

Results: All three products removed over 99% of the oil within 15 minutes of degreasing. Observations note that most of the oil was removed within the first 5 minutes of vapor exposure. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon.

| Cleaner | Initial wt | Final wt | % Removed |
|----------------|------------|----------|-----------|
| Solvon PB | 0.0876 | -0.0004 | 100.46 |
| | 0.1147 | 0.0003 | 99.74 |
| | 0.1092 | 0.0005 | 99.54 |
| Ensolv A | 0.1206 | 0.0001 | 99.92 |
| | 0.0406 | 0.0002 | 99.51 |
| | 0.0245 | -0.0002 | 100.82 |
| Metalnox M6960 | 0.0781 | -0.0002 | 100.26 |
| | 0.0374 | -0.0003 | 100.80 |
| | 0.0338 | 0.0007 | 97.93 |

Summary:

| Substrates: | | Steel | | | | |
|-------------------------------|--|---------------------|--------|-------------|-------------------------------------|---------------|
| Contaminants: | | Oil | | | | |
| Company Name: | | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Poly Systems USA Inc | | Solvon Kreussler PB | 100 | 99.91 | <input checked="" type="checkbox"/> | |
| Enviro Tech International Inc | | Ensolv A | 100 | 100.08 | <input checked="" type="checkbox"/> | |
| Kyzem Corporation | | Metalnox M6960 | 100 | 99.66 | <input checked="" type="checkbox"/> | |

Conclusion: The same products will be evaluated under the same conditions for the varnish contaminant.