

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006
 DateRun: 05/08/2006
 Experimenters: Jason Marshall
 ClientType: General
 ProjectNumber: Project #1
 Substrates: Steel
 PartType: Coupon
 Contaminants: Paints
 Cleaning Methods: Ultrasonics
 Analytical Methods: Gravimetric

Purpose: To reevaluate selected products at longer cleaning times.

Experimental Procedure: Three products from the previous trial were selected for testing at longer temperatures. An additional product from the first contaminant was also included. Two of the products were diluted to 5% using DI water in 250 ml beakers and heated to 130 F on a hot plate. In addition two other products were used at full strength.

The contaminant consisted of two components from Westfield Coatings Company. The first, ARC Fast Dry Catalyst (123-86-4, 110-43-0, 108-65-6), was used at one part. The second, ARC Fast Dry (108-10-1) was used at two parts. The mixed paint/primer was applied to twelve preweighed steel coupons and allowed to dry. A second weight was recorded to determine the amount of paint applied.

Three painted coupons were immersed in a cleaning product and cleaned for 30 minutes using a 40 kHz ultrasonic tank. After the cleaning, coupons were rinsed in a tap water bath for 15 seconds at 120 F and air dried for 30 seconds at room temperature. The coupons were then rubbed with a gloved hand to determine how easily the paint could be removed. Once dry, the coupons were weighed a final time and removal efficiencies were calculated.

Results: Two products removed over 95% of the paint. One of these, Citrus Burst 7, was used at full strength instead of the original 5% concentration. After cleaning and rinsing, the coupon still had a slight residue. The Solsafe 245 allowed the coating to be removed with some rubbing effort. The table below lists the amount of paint applied, the amount remaining and the effectiveness of the products.

| Cleaner | Initial wt | Final wt | % Removed | Observations |
|-------------------|------------|----------|-----------|------------------|
| Inproclean 4000 T | 0.0859 | 0.0031 | 96.39 | Easily wiped off |
| | 0.1436 | 0.0058 | 95.96 | |
| | 0.1885 | 0.0147 | 92.20 | |
| Solsafe 245 | 0.0803 | 0.0141 | 82.44 | Rubbed off |
| | 0.1588 | 0.0259 | 83.69 | |
| | 0.1420 | 0.0443 | 68.80 | |
| Citrus Burst 7 | 0.1842 | 0.0024 | 98.70 | Easily wiped off |
| | 0.1670 | 0.0120 | 92.81 | |
| | 0.2071 | 0.0205 | 90.10 | |
| Shopmaster RC | 0.2788 | 0.2774 | 0.50 | No removal |
| | 0.1950 | 0.1784 | 8.51 | |
| | 0.1133 | 0.1010 | 10.86 | |

Summary:

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|--------------------------|----------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Steel | | | | |
| Contaminants: | Paints | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Oakite Products | Inproclean 4000 T | 5 | 94.85 | <input checked="" type="checkbox"/> | |
| Bio Chem Systems | Solsafe 245 | 100 | 78.31 | <input type="checkbox"/> | |
| Florida Chemical Company | Citrus Burst 7 | 100 | 93.87 | <input checked="" type="checkbox"/> | |
| Buckeye International | Shopmaster RC | 100 | 6.62 | <input type="checkbox"/> | |

Conclusion: Two products, Inproclean 4000 T and Citrus Burst 7, were effective at removing this coating from the coupons after 30 minutes of ultrasonic cleaning and will be used on the supplied parts.

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