

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006
DateRun: 05/09/2006
Experimenters: Jason Marshall
ClientType: General
ProjectNumber: Project #1
Substrates: Steel
PartType: Coupon
Contaminants: Paints
Cleaning Methods: Ultrasonics
Analytical Methods: Gravimetric
Purpose: To evaluate selected cleaners on second supplied paint mixture using ultrasonic cleaning

Experimental Procedure: Two products from the previous contaminant were diluted to 5% using DI water in 250 ml beakers and heated to 130 F on a hot plate. Two new products were selected from the database and also diluted to 5% and heated to 130 F. In addition two other products were used at full strength. The client's current cleaners was also used.

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 twenty-one 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 10 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: Several of the products caused the coating to start to peel off the surface. One product, Canola Gold CE110 caused the steel coupons to rust. 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 | 0.0684 | 0.0859 | -25.58 | Peeling |
| | 0.1376 | 0.1436 | -4.36 | |
| | 0.1734 | 0.1885 | -8.71 | |
| Surface Cleanse 930 | 0.1218 | 0.1331 | -9.28 | |
| | 0.1034 | 0.1103 | -6.67 | |
| | 0.0871 | 0.0981 | -12.63 | |
| SC Aircraft | 0.0798 | 0.0803 | -0.63 | |
| | 0.1620 | 0.1588 | 1.98 | |
| | 0.1432 | 0.1420 | 0.84 | |
| Citrus Burst 7 | 0.1500 | 0.1842 | -22.80 | Peeling |
| | 0.1352 | 0.1670 | -23.52 | |
| | 0.1753 | 0.2071 | -18.14 | |
| Canola Gold CE 110 | 0.1771 | 0.1859 | -4.97 | Caused coupons to rust |
| | 0.1972 | 0.1965 | 0.35 | Peeling |
| | 0.0803 | 0.0704 | 12.33 | |
| Shopmaster RC | 0.1943 | 0.2788 | -43.49 | Peeling |
| | 0.1338 | 0.1950 | -45.74 | |
| | 0.0822 | 0.1133 | -37.83 | |
| D Zolve 1012 | 0.0625 | 0.0006 | 99.04 | |

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| | 0.0597 | -0.0001 | 100.17 | |
| | 0.0676 | 0.0001 | 99.85 | |

Summary:

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|------------------------------------|---|---------------|--------------------|-------------------------------------|----------------------|--|
| Substrates: | | Steel | | | | |
| Contaminants: | | Paints | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Oakite Products | Inproclean 4000 T | 5 | -12.88 | <input type="checkbox"/> | | |
| International Products Corporation | Surface Cleanse Concentrated Neutral 930 | 5 | -9.53 | <input type="checkbox"/> | | |
| Gemtek Products | SC Aircraft & Metal Cleaner Super Concentrate | 5 | 0.73 | <input type="checkbox"/> | | |
| Florida Chemical Company | Citrus Burst 7 | 5 | -21.49 | <input type="checkbox"/> | | |
| AG Environmental Products | Canola Gold CE110 | 100 | 2.57 | <input type="checkbox"/> | | |
| Buckeye International | Shopmaster RC | 100 | -42.35 | <input type="checkbox"/> | | |
| Transene Company, Inc. | D Zolve 1012 | 100 | 99.69 | <input checked="" type="checkbox"/> | | |

Conclusion:

The products that caused the paint to peel will be tested using longer cleaning time while keeping the other conditions constant.