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 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:

Substrates:	Steel
Contaminants:	Paints

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Oakite Products	Inproclean 4000 T	5	-12.88	☐	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	-9.53	☐	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	0.73	☐	
Florida Chemical Company	Citrus Burst 7	5	-21.49	☐	
AG Environmental Products	Canola Gold CE110	100	2.57	☐	
Buckeye International	Shopmaster RC	100	-42.35	☐	
Transene Company, Inc.	D Zolve 1012	100	99.69	☑	

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