

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 05/02/2006

Experimenters: Jason Marshall

ClientType: General

ProjectNumber: Project #1

Substrates: Steel

PartType: Coupon

Contaminants: Paints

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate selected alternatives using ultrasonic cleaning.

Experimental Procedure: The selected products were diluted to 5% using DI water in 250 ml beakers and heated to 130 F on a hot plate.

The contaminant again consisted of two components from RPM Wood Finishes Group. The first, MS2664 Catalyst White (108-10-1, 28182-81-2, 822-06-0) was used at three parts. The second, MS2669 Primer (108-10-1, 28182-81-2, 822-06-0) was used at one part. The mixed paint/primer was applied to eighteen 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: Three of the alternatives resulted in efficiencies over 90% when ultrasonics and wiping were used. Two other products removed over 80% of the paint. One product removed less than 60%. The table below lists the amount of paint applied, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Solsafe 245	0.0698	0.0010	98.57
	0.0319	0.0083	73.98
	0.0386	0.0094	75.65
Aquavantage 3800 GD	0.0339	0.0031	90.86
	0.0560	0.0207	63.04
	0.0673	0.0040	94.06
Shopmaster	0.0423	0.0225	46.81
	0.0762	0.0194	74.54
	0.0560	0.0245	56.25
Inproclean 4000 T	0.0436	0.0048	88.99
	0.0632	0.0004	99.37
	0.0383	0.0001	99.74
Beyond 2006	0.0400	0.0007	98.25
	0.0744	0.0032	95.70
	0.0781	0.0021	97.31
A 2000 XS	0.0607	0.0004	99.34
	0.0371	0.0033	91.11
	0.0485	0.0009	98.14
Surface Cleanse 930	0.0473	0.0038	91.97
	0.0474	0.0039	91.77
	0.0598	0.0078	86.96

Summary:

Substrates:	Steel				
Contaminants:	Paints				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:

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Bio Chem Systems	Solsafe 245	100	82.73	<input checked="" type="checkbox"/>	with peeling
Brulin Corporation	Aquavantage 3800 GD	5	82.65	<input checked="" type="checkbox"/>	with peeling
Buckeye International	Shopmaster	5	59.20	<input type="checkbox"/>	with peeling
Oakite Products	Inproclean 4000 T	5	96.03	<input checked="" type="checkbox"/>	with peeling
Today & Beyond	Beyond 2006	5	97.09	<input checked="" type="checkbox"/>	with peeling
US Polychem Corporation	Polychem A 2000 XS	5	96.20	<input checked="" type="checkbox"/>	with peeling
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	90.23	<input checked="" type="checkbox"/>	with peeling

Conclusion:

The six successful (above 80%) products will be used in the next trial using ultrasonics to remove the top coat paint formulation.