CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2006
DateRun:	05/01/2006
Experimenters:	Jason Marshall
ClientType:	General
ProjectNumber:	Project #1
Substrates:	Steel
PartType:	Coupon
Contaminants:	Paints
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate selected alternatives for removal of primer coating from steel.

Experimental Procedure:

Eight cleaning alternatives were selected from the lab's database of test results and vendor supplied information based on client supplied process information. In addition, one of the current client cleaning products was included for comparative purposes.

One alternative product was used at full strength as was the client's current product. All other products were diluted to 5% using DI water in 250 ml beakers. The cleaning solutions were heated to 130 F on a hot plate.

The contaminant 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 twenty-seven 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 stir-bar agitation in an attempt to determine which products could be used with ultrasonics.
Half way through cleaning the coupons were checked to determine the status of the paint removal. Observations were recorded whether the paint was being dissolved or lifted from the metal surface.
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. Once dry, the coupons were weighed a final time and removal efficiencies were calculated.

Results:

Many of the selected alternatives resulted in the paint lifting from the surface. Only one product had a no effect on the paint. The supplied product was effective in dissolving the paint from the coupons. After the ten minutes of cleaning all of the alternatives resulted in efficiencies that were less than one. Based on the observations during cleaning, this increase in weight could signify that the cleaning products were getting under or into the paint, increasing the final weight of the coupons and lowering the effectiveness. The table below lists the amount of paint applied, the amount remaining, efficiencies and observations made.

Cleaner	Initial wt	Final wt	% Removed	Observations
Solsafe 245	0.0656	0.0698	-6.40	Some peeling
	0.0309	0.0319	-3.24	
	0.0356	0.0386	-8.43	
Aquavantage 3800 GD	0.0332	0.0339	-2.11	Some peeling
	0.0544	0.0560	-2.94	
	0.0656	0.0673	-2.59	
Shopmaster	0.0411	0.0423	-2.92	Some peeling
	0.0743	0.0762	-2.56	
	0.0539	0.0560	-3.90	
Optisolv OP7171	0.0435	0.0436	-0.23	no peeling
	0.0632	0.0632	0.00	
	0.0367	0.0383	-4.36	
Inproclean 4000 T	0.0603	0.0089	85.24	Lots of peeling
	0.0416	0.0058	86.06	Paint lifting off

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	0.0610	0.0066	89.18	
Beyond 2006	0.0397	0.0400	-0.76	Some peeling
	0.0743	0.0744	-0.13	
	0.0777	0.0781	-0.51	
A 2000 XS	0.0602	0.0607	-0.83	Peeling
	0.0366	0.0371	-1.37	
	0.0480	0.0485	-1.04	
Surface Cleanse 930	0.0453	0.0473	-4.42	Peeling
	0.0464	0.0474	-2.16	
	0.0587	0.0598	-1.87	
D-Zolve 1012	0.0417	0.0024	94.24	Dissolving
	0.0375	0.0008	97.87	White film left
	0.0387	0.0005	98.71	on surface

Summary:

Substrates:	Steel
Contaminants:	Paints

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Bio Chem Systems	Solsafe 245	100	-6.02	☐	
Brulin Corporation	Aquavantage 3800 GD	5	-2.55	☐	
Buckeye International	Shopmaster	5	-3.12	☐	
Kyzen Corporation	Optisolv OP7171	5	-1.53	☐	
Oakite Products	Inproclean 4000 T	5	86.83	☑	
Today & Beyond	Beyond 2006	5	-0.47	☐	
US Polychem Corporation	Polychem A 2000 XS	5	-1.08	☐	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	-2.81	☐	
Transene Company, Inc.	D Zolve 1012	100	96.90	☑	

Conclusion: Each of the alternative products, except Optisolv, will be evaluated using ultrasonic cleaning to aid in the removal of the primer.