CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	08/04/2008
Experimenters:	Jason Marshall, Shweta Bansal
ClientType:	Machine Construction Company
ProjectNumber:	Project #2
Substrates:	Steel
PartType:	Coupon
Contaminants:	Coatings
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric
Purpose:	To evaluate past products using ultrasonic cleaning on first supplied rust preventative
Experimental Procedure:	Nine products were selected for testing. Some of these products were chosen based on the previous trials and others based on vendor recommended information. Two products were diluted to 20% using DI water in 600 ml beakers. The other seven were used at full strength. Each product was immersed in a Branson 40 kHz ultrasonic tank and degassed for 5 minutes. Twenty-seven preweighed steel coupons were coated with rust preventative VCI 325 using a hand held swab. Dirty weights were recorded. Three coupons were cleaned in each product for five minutes using ultrasonic agitation. No rinse was used and coupons were air dried at room temperature. Once dry, final weights were recorded and efficiencies calculated.
Results:	One of the nine products removed 81% of the rust preventative. The coupons cleaned with Smart Solve 605 all gained weight during cleaning. A follow up will be performed to determine why this may have happened. The table lists the amount of soil added, the amount remaining and the efficiency of each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Smart Solve 605			
	0.0312	0.1069	-242.63
	0.0497	0.0963	-93.76
	0.0657	0.0990	-50.68
Ionox HC2			
	0.1658	0.0668	59.71
	0.1080	0.0457	57.69
	0.1426	0.0563	60.52
Shopmaster RC			
	0.0935	0.0762	18.5
	0.2735	0.0796	70.9
	0.2618	0.0633	75.82
Citrus Soy Solvent Cleaner & Degreaser			
	0.1673	0.1313	21.52
	0.2071	0.0981	52.63
	0.1304	0.1103	15.41
Bean-e-doo			
	0.1112	0.0526	52.70
	0.1799	0.1190	33.85
	0.1132	0.0606	46.47
Bio T 300 B			
	0.0992	0.0288	70.97
	0.1093	0.0830	24.06
	0.0868	0.0489	43.66
Maxi Solv			
	0.1044	0.0435	58.33
	0.0917	0.0590	35.66
	0.1363	0.0417	69.41
SC Aircraft & Metal Cleaner			
	0.0960	0.0623	35.10

CLEANING LABORATORY EVALUATION SUMMARY

	0.0841	0.0468	44.35
	0.1234	0.0294	76.18
Aquavantage 1400			
	0.1495	0.0394	73.65
	0.1554	0.0218	85.97
	0.1249	0.0189	84.87

Summary:

Substrates:	Steel
Contaminants:	Coatings

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
United Laboratories International	Smart Solve 605	100	-129.03	☐	
Kyzen Corporation	Ionox HC 2	20	59.30	☐	
Buckeye International	Shopmaster RC	100	55.07	☐	
Bi-O-Kleen Industries	Citrus Soy Solvent Cleaner & Degreaser	100	29.85	☐	
Franmar Chemical	Bean-e-doo (Parts Washer Solvent)	100	44.34	☐	
Bio Chem Systems	Bio T 300 B	100	46.23	☐	
Gemtek Products	Safe Care (SC) Maxi Solv	100	54.47	☐	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	20	51.88	☐	
Brulin Corporation	Aquavantage 1400	20	81.50	☑	

Conclusion:

So far none of the selected products have matched the performance of the current cleaning product using no rinsing and no drying. Additional testing will be conducted to identify other alternatives that will more closely match performance while improving the EHS.