CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 09/22/2008

Experimenters: Jason Marshall

ClientType: Machine Construction Company

ProjectNumber: Project #2

Substrates: Steel

PartType: Coupon

Contaminants: Coatings

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate successful products on third supplied contaminant using heated ultrasonic cleaning.

Experimental Procedure: Six products were selected from the previous trial based on success on removing the first two supplied soils. Three products were diluted to 5% using DI water in 400 ml beakers. The other three were used at full strength based on vendor recommendations. Beakers were immersed and heated to 130 F in a Branson 40 kHz ultrasonic tank. Solutions were degassed for five minutes.

Eighteen preweighed steel coupons were coated with the rust preventative VCI 369 using a hand held swab. Coupons were weighed again to determine the amount of soil added. Three coupons were cleaned in each solution for 10 minutes using ultrasonic energy. Coupons were rinsed for 15 seconds in tap water at 120 F and dried using compressed air at room temperature for 30 seconds. Final weights were recorded and efficiencies calculated.

Results: Three products removed over 90% of the third contaminant and the other three removed over 85%. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Aquavantage 1400 GD			
	0.1576	0.0017	98.92
	0.1180	0.0144	87.80
	0.2259	0.0050	97.79
Grease Feast			
	0.2491	0.0256	89.72
	0.2017	0.0210	89.59
	0.1083	0.0137	87.35
SC Aircraft & Metal Cleaner			
	0.1215	0.0185	84.77
	0.1011	0.0052	94.86
	0.1609	0.0255	84.15
SC MaxiSolve			
	0.2304	0.0291	87.37
	0.2109	0.0155	92.65
	0.2353	0.0062	97.37
Smart Solve 605			
	0.1505	0.0183	87.84
	0.1599	0.0195	87.80
	0.1687	0.0113	93.30
Bean-e-doo			
	0.1076	0.0003	99.72
	0.1226	0.0103	91.60
	0.2734	0.0031	98.87

Summary:

Substrates:	Steel				
Contaminants:	Coatings				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brulin Corporation	Aquavantage 1400	5	94.83	☑	
Ensolve Biosystems Inc	Grease Feast Plus	100	88.89	☑	

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Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	87.93	☑	
Gemtek Products	Safe Care (SC) Maxi Solv	5	92.46	☑	
United Laboratories International	Smart Solve 605	100	89.65	☑	
Franmar Chemical	Bean-e-doo (Parts Washer Solvent)	100	96.73	☑	

Conclusion: The top three products from all three soils, Bean-e-doo, Aquavantage 1400 GD and SC Aircraft & Metal Cleaner, will be tested using heated immersion cleaning.