

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008  
DateRun: 09/23/2008  
Experimenters: Jason Marshall  
ClientType: Machine Construction Company  
ProjectNumber: Project #2  
Substrates: Steel  
PartType: Coupon  
Contaminants: Coatings  
Cleaning Methods: Ultrasonics  
Analytical Methods: Gravimetric

Purpose: To reevaluate previously tested products using ultrasonics and heat.

Experimental Procedure: Nine products were selected from the previous four trials based on partial success on removing the supplied soils. Six 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.

Twenty-seven preweighed steel coupons were coated with the rust preventative VCI 325 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: Eight of the nine products removed over 90% of the rust preventative. The Citrus Soy was the only product not remove enough of the soil to be considered to be effective. 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			
	0.1039	0.0001	99.90
	0.1104	0.0041	96.29
	0.1373	0.0039	97.16
Grease Feast			
	0.1240	0.0056	95.48
	0.1288	0.0080	93.79
	0.1534	0.0054	96.48
SC Aircraft & Metal Cleaner			
	0.1393	0.0049	96.48
	0.1340	0.0005	99.63
	0.1587	0.0030	98.11
SC MaxiSolve			
	0.1125	0.0039	96.53
	0.1569	0.0018	98.85
	0.1163	0.0001	99.91
Ozzy Juice SW1			
	0.1678	0.0010	99.40
	0.1769	0.0028	98.42
	0.1448	0.0010	99.31
Smart Solve 605			
	0.0953	0.0007	99.27
	0.1604	0.0063	96.07
	0.1295	0.0058	95.52
Citrus Soy Solvent Cleaner & Degreaser			
	0.1257	0.0280	77.72
	0.1778	0.0361	79.70
	0.1619	0.0264	83.69
Bean-e-doo			
	0.1623	0.0001	99.94

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	0.1658	0.0075	95.48
	0.1190	0.0085	92.86
Ionox HC2			
	0.1476	0.0118	92.01
	0.0911	0.0040	95.61
	0.2087	0.0168	91.95

Summary:

<b>Substrates:</b>		Steel				
<b>Contaminants:</b>		Coatings				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>	
Brulin Corporation	Aquavantage 1400	5	97.78	<input checked="" type="checkbox"/>		
Ensolve Biosystems Inc	Grease Feast Plus	100	95.25	<input checked="" type="checkbox"/>		
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	98.07	<input checked="" type="checkbox"/>		
Gemtek Products	Safe Care (SC) Maxi Solv	5	98.43	<input checked="" type="checkbox"/>		
Chem Free Corporation	SW-1 Ozzy Juice	5	99.04	<input checked="" type="checkbox"/>		
United Laboratories International	Smart Solve 605	100	96.95	<input checked="" type="checkbox"/>		
Bi-O-Kleen Industries	Citrus Soy Solvent Cleaner & Degreaser	5	80.37	<input type="checkbox"/>		
Franmar Chemical	Bean-e-doo (Parts Washer Solvent)	100	96.09	<input checked="" type="checkbox"/>		
Kyzen Corporation	Ionox HC 2	5	93.19	<input checked="" type="checkbox"/>		

Conclusion:

The eight effective products will be tested on the second supplied contaminant using the same operating conditions.