

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 08/03/2008

Experimenters: Jason Marshall, Shweta Bansal

ClientType: Machine Construction Company

ProjectNumber: Project #2

Substrates: Steel

PartType: Coupon

Contaminants: Coatings

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate selected products on second supplied rust preventative using immersion cleaning at room temperature.

Experimental Procedure: The top two products from the previous testing results were selected for further testing. Three other products were included based on vendor recommended information. Two products were diluted to 5% using DI water in 600 ml beakers. One was diluted to 20% and the remaining products were used at full strength. The client's current cleaning solvent was included for comparative purposes.

Twenty-one preweighed steel coupons were coated with rust preventative VCI 369 using a hand held swab. Dirty weights were recorded. Three coupons were cleaned in each product for five minutes using minimal agitation. No rinse was used and coupons were air dried at room temperature. Once dry, final weights were recorded and efficiencies calculated.

Results: Only one of the alternative cleaning products removed over 70% of the rust preventative using minimal agitation at room temperature. A second product removed just below 60%. The current solvent again removed over 90%. The table lists the amount of soil added, the amount remaining and the efficiency of each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Aquavantage 1400			
	0.0770	0.0785	-1.95
	0.0818	0.0604	26.16
	0.1874	0.1117	40.39
Grease Feast			
	0.1505	0.1018	32.36
	0.1611	0.0873	45.81
	0.1999	0.0763	61.83
Degreasol Formula 99R			
	0.2810	0.0209	92.56
	0.2548	0.0174	93.17
	0.1527	0.0199	86.97
SC Aircraft & Metal cleaner			
	0.2076	0.0915	55.92
	0.2615	0.1180	54.88
	0.2724	0.1002	63.22
Metalnox M6310 DT			
	0.1496	0.0726	51.47
	0.1421	0.0855	39.83
	0.2500	0.0988	60.48
Smart Solve 605			
	0.1545	0.0437	71.72
	0.2585	0.0461	82.17
	0.1824	0.0442	75.77
Green Works Natural All Purpose			
	0.2417	0.1128	53.33

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	0.2050	0.1134	44.68
	0.2878	0.1259	56.25

Summary:

Substrates:		Steel			
Contaminants:		Coatings			
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Brulin Corporation	Aquavantage 1400	5	21.54	☐	
Ensolve Biosystems Inc	Grease Feast Plus	100	46.67	☐	
Kleer Flo Company	Degreasol Formula 99-R	100	90.90	☒	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	20	58.01	☒	
Kyzen Corporation	Metalnox M6310 DT	5	50.59	☐	
United Laboratories International	Smart Solve 605	100	76.55	☒	
Clorox Company	Green Works Multi-Surface Cleaner	100	51.42	☐	

Conclusion:

Due to the limited success of cleaning products, a new batch of alternative cleaning products will be selected and evaluated on the first two rust preventative. These alternatives will not be aqueous based products. However, the aqueous based products may be successful if some form of agitation or heat is introduced to the cleaning process.