

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2005
 DateRun: 09/22/2005
 Experimenters: Jason Marshall
 ClientType: Lab
 ProjectNumber: Project #1
 Substrates: Aluminum
 PartType: Coupon
 Contaminants: Oil
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric, Visual

Purpose: Laboratory evaluations of alternative cleaning products

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Eight products were evaluated for the removal of C-Eblis cutting oil from aluminum coupons using immersion cleaning. The products were diluted to 5% using DI water in 600 ml beakers. Water was also evaluated as a control. Twenty-seven preweighed aluminum coupons were coated with the oil using a handheld swab. Coupons were weighed again to determine the amount of oil added. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation at room temperature. Coupons were rinsed in a tap water bath for 15 seconds at room temperature and rinsed for 2 minutes using a Master Appliance Heat Gun at 300 F. Final weights were measured and efficiencies were calculated.

Results:

Cleaner	Initial	wt Final wt	% Removed
KPC 820 N	0.1827	0.0601	67.10
	0.4339	0.0680	84.33
	0.2917	0.0748	74.36
Formula 815 GD	0.2720	0.0916	66.32
	0.2457	0.0696	71.67
	0.2759	0.0981	64.44
Shopmaster	0.3328	0.0689	79.3
	0.2751	0.0728	73.54
	0.3290	0.0381	88.42
SC Aircraft & Metal	0.3580	0.0897	74.94
	0.3046	0.0889	70.81
	0.1934	0.0800	58.63
Surface Cleanse 930	0.1396	0.0681	51.22
	0.2323	0.0346	85.11
	0.3384	0.0728	78.49
Daraclean 283	0.4045	0.1203	70.26
	0.2523	0.0981	61.12
	0.2198	0.0804	63.42
Inproclean 3800	0.2446	0.0759	68.97
	0.3051	0.0719	76.43
	0.2476	0.0908	63.33
Beyond 2001	0.2125	0.0765	64.00
	0.2463	0.1090	55.75
	0.2582	0.1639	36.52
Water	0.2184	0.1686	22.8
	0.2743	0.1591	42.00
	0.1990	0.1443	27.49

Prior to weighing, coupons were inspected to rank the products for performance based on visual observations. The table below lists the calculated ranking from gravimetric analysis and compares to two visual observation rankings.

	Ranking
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Product	Gravimetric	Visual 1	Visual 2
KPC 820 N	2	1	1
Formula 815 GD	6	3	2
Shopmaster	1	2	3
SC Aircraft & Metal	5	4	4
Surface Cleanse 930	3	5	5
Daraclean 283	7	7	8
Inproclean 3800	4	6	6
Beyond 2001	8	8	9
Water	9	9	7

Summary:

Substrates:	Aluminum				
Contaminants:	Oil				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
AW Chesterton	KPC 820 N	5	75.26	<input type="checkbox"/>	
Brulin Corporation	Formula 815 GD	5	67.48	<input type="checkbox"/>	
Buckeye International	Shopmaster	5	80.42	<input type="checkbox"/>	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	68.13	<input type="checkbox"/>	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	71.60	<input type="checkbox"/>	
Magnaflux	Daraclean 283	5	64.93	<input type="checkbox"/>	
Oakite Products	Inproclean 3800	5	69.58	<input type="checkbox"/>	
Today & Beyond	Beyond 2001	5	52.09	<input type="checkbox"/>	
Water	Water	100	30.76	<input type="checkbox"/>	

Conclusion:

No product removed over 85% of the oil under the conditions tested.