CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004

DateRun: 05/27/2004

Experimenters: Jason Marshall

ClientType: Lab

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Vapor Degreasing

Analytical Methods: Gravimetric

Purpose: Laboratory evaluations of alternative cleaning products

Experimental Procedure: Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning.

Two hundred fifty milliliters of each product wereused at full strength in a 4000 ml beaker and heated to its boiling point on a hot plate. Preweighed aluminum coupons were coated with the Soltex Polybutene 32 (9003-29-6) using a handheld swab. Coupons were weighed a second time to determine the amount of soil added to each coupon. Three coupons were cleaned in each solution for 5 minutes using vapor degreasing. After cooling to room temperature, the coupons were weighed a final time and efficiencies were calculated.

Results:

Cleaner	Initial wt	Final wt	% Removed
AK 225	0.6015	0.0455	92.44
	0.4551	0.0183	95.98
	0.3043	0.0135	95.56
CCA	0.6504	0.0345	94.70
	0.3536	0.0182	94.85
	0.4704	0.0330	92.98
MCA	0.4626	0.0298	93.56
	0.6492	0.0359	94.47
	0.2118	0.0128	93.96
HD DC	0.3554	0.0315	91.14
	0.3873	0.0304	92.15
	0.5912	0.0563	90.48
FR C	0.8269	0.1593	80.74
	0.5288	0.0595	88.75
	0.2053	0.0172	91.62
HFE 7100	0.3715	0.2366	36.31
	1.0457	0.2498	76.11
	0.4852	0.1828	62.32
HFE 7200	0.8601	0.1825	78.78
	0.7228	0.1392	80.74
	0.5693	0.1561	72.58
Ensolv A	0.7580	0.0003	99.96
	0.6845	-0.0003	100.04
	0.5019	0.0000	100.00
Metalnox	0.9434	0.0009	99.90
	0.4670	-0.0021	100.45
	0.6442	0.0039	99.39
Solvon PB	1.0079	0.0040	99.60
	0.3972	0.0005	99.87
	0.5900	0.0017	99.71

Summary:

Substrates:	Aluminum				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
AGA Chemical	AK 225	100	94.66	☑	

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DuPont	Vertrel CCA	100	94.18	☑	
DuPont	Vertrel MCA	100	93.99	☑	
Micro Care	Heavy Duty Degreaser C	100	91.25	☑	
Micro Care	Flux Remover C	100	87.04	☑	
3M	HFE 7100	100	58.25	☐	
3M	HFE 7200	100	77.37	☐	
Enviro Tech International Inc	Ensolv A	100	100.00	☑	
Kyzen Corporation	Metalnox M6960	100	99.20	☑	
Poly Systems USA Inc	Solvon Kreussler PB	100	99.73	☑	
Poly Systems USA Inc	Solvon Kreussler IP	100	98.89	☑	
Dow Chemical Company	OS 10	100	99.95	☑	
Dow Chemical Company	OS 20	100	89.86	☑	
Dow Chemical Company	OS 30	100	51.72	☐	

Conclusion: Eleven of the fourteen products removed over 85%