CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	10/08/2008
Experimenters:	Jason Marshall
ClientType:	Electronics Manufacturer
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Oil
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate performance of possible aqueous based cleaning products for various oil removal.
Experimental Procedure:	Eight products were selected from the lab's on-line database, www.cleanersolutions.org, based on past testing results matching client supplied information. A ninth product was requested by the client. All of these products were diluted to 5% using DI water in 400 ml beakers. All nine products were heated to 130 F on a hot plate. Peweighed aluminum coupons were coated with the Houghton Houghto Draw 7007 (64742-52-5) metal working fluid using a handheld swab. The contaminant was allowed to dry for about an hour. Once dry, the coupons were weighed a second time to determine the amount of oil applied. Three coupons were immersed into each solution and cleaned for 5 minutes using stir-bar agitation. Rinsing was performed for 15 seconds using tap water heated to 120 F and followed by 30 seconds of air blow off with dry compressed air at room temperature. Final weights were recorded, and efficiencies were calculated for each coupon cleaned.
Results:	All nine products removed over 97% of the drawing fluid from the aluminum coupons within five minutes of immersion cleaning. Seven of the products removed more than 99%. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Green Soak	0.6338	0.0022	99.65
	0.4244	0.0029	99.32
	0.3616	0.0030	99.17
Aquavantage 1400	0.5210	0.0042	99.19
	0.6362	0.0009	99.86
	0.5279	0.0051	99.03
Shopmaster LpH	0.5401	0.0052	99.04
	0.5512	0.0028	99.49
	0.4438	0.0020	99.55
FPC 100	0.5276	0.0027	99.49
	0.4234	0.0012	99.72
	0.4121	0.0011	99.73
SC Aircraft & Metal Cleaner	0.4747	0.0024	99.49
	0.5406	0.0011	99.80
	0.6116	0.0003	99.95
Amberclean L12	0.5247	0.0020	99.62
	0.4638	0.0012	99.74
	0.7256	0.0037	99.49
Metalnox M6381	0.4709	0.0075	98.41
	0.3637	0.0114	96.87
	0.3054	0.0043	98.59
Inproclean 3800	0.3949	0.0205	94.81
	0.2855	0.0003	99.89
	0.4581	0.0021	99.54
Ozzy Juice SW-3	0.5780	0.0007	99.88
	0.3330	0.0022	99.34

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	0.3834	0.0008	99.79

Summary:

Substrates:	Aluminum
Contaminants:	Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
BCS Company	Green Spray 400	5	99.38	☑	
Brulin Corporation	Aquavantage 1400	5	99.36	☑	
Buckeye International	Shopmaster LPH	5	99.36	☑	
Environmental Solution Products Inc	FPC 100	5	99.65	☑	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	99.75	☑	
Innovative Organics Inc	Amberclean L 12	5	99.62	☑	
Kyzen Corporation	Metalnox M6381	5	97.95	☑	
Oakite Products	Inproclean 3800	5	98.08	☑	
Chem Free Corporation	SW-3 Ozzy Juice (Improved Low Odor)	5	99.67	☑	

Conclusion: The top seven products will be used on the second supplied contaminant under the same cleaning conditions.