CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 01/22/2002

Experimenters: Jason Marshall

ClientType: Electromagnetic Manufacturer

ProjectNumber: Project #2

Substrates: Aluminum

PartType: Coupon

Contaminants: Greases, Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To identify possible cleaner for removal of lubricant/grease from silver

Experimental Procedure: Eight cleaners were selected from the lab's databases based on client supplied information. Each product was diluted to 5% in a 600 ml beaker using DI water and heated to 140 F on a hot plate. Twenty-four preweighed coupons were coated with Richard Apex Inc. D644 CPD Drawing compound using a hand held swab. Coupons were reweighed. Three coupons were cleaned in each solution for 1 minute using stir-bar agitation, followed by a 15 second rinse in tap water at 120 F and a 30 second drying using a heat gun at 500 F. Coupons were allowed to cool to room temperature and weighed again. Effectiveness of each product was calculated and recorded.

Results: All eight cleaners worked fairly well in the one minute of cleaning. Average cleaning efficiencies ranged from 84 to 99%. The results for each coupon are listed below.

	Coupon 1	Coupon 2	Coupon 3	Average	Std Dev
EXP 1400	96.03	90.48	82.63	89.71	6.73
Green Stuff	99.81	98.86	97.53	98.73	1.15
SC AMC	89.13	82.89	94.65	88.89	5.88
Surface 930	88.75	81.92	82.96	84.54	3.68
Inproclean	88.33	86.90	88.05	87.76	0.75
Simple Green	86.36	86.96	83.70	85.67	1.74
Beyond 2005	91.71	91.74	94.51	92.65	1.61
Daraclean	89.99	91.36	84.66	88.67	3.54

The coupons that were cleaned in this trial were over contaminated so that a worst case scenario could be evaluated.

Summary:

Substrates:	Aluminum				
Contaminants:	Greases, Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Today & Beyond	Beyond 2005	5	92.65	☑	
Simple Green	Crystal Simple Green Industrial Cleaner & Degreaser	5	85.67	☑	
Magnaflux	Daraclean 282 GF	5	88.67	☑	
Brulin Corporation	Aquavantage 1400	5	89.71	☑	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	88.89	☑	
Bio Chem Systems	Green Stuff 6325	5	98.73	☑	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	84.54	☑	
Oakite Products	Inproclean 3800	5	87.76	☑	

Conclusion: All eight cleaners will be evaluated using 25 kHz ultrasonic cleaning.