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: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate successful cleaners using ultrasonic energy

Experimental Procedure: The eight cleaners from the previous trial were used again in this trial. Each solution was diluted to 5% in 600 ml beakers and heated to 140 F in a Crest 25 kHz ultrasonic tank filled with tap water. Twenty-four preweighed coupons were coated with the Richard Apex Inc. D644 CPD Drawing compound using a hand held swab. Coupons were reweighed. Three coupons were cleaned in each solution for 20 seconds using 25 kHz ultrasonic agitation, followed by a 10 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 were very successful in removing the drawing compound from the coupons. Most of the products evaluated needed less than the 20 seconds of cleaning, requiring around 10 seconds to remove all of the contaminant. Calculated efficiencies are listed below.

Cleaner	Coupon 1	Coupon 2	Coupon 3	Average	Std Dev
EXP 1400	100.19	100.15	100.00	100.11	0.10
Green Stuff	100.06	99.97	99.26	99.76	0.44
SC AMC	92.55	100.07	100.32	97.65	4.41
Surface 930	99.05	98.69	99.26	99.00	0.29
Inproclean	99.90	99.73	100.10	99.91	0.18
Simple Green	99.63	100.00	100.00	99.88	0.22
Beyond 2005	100.06	99.95	99.89	99.97	0.08
Daraclean	97.67	99.66	100.10	99.14	1.29

Summary:

Substrates:	Aluminum				
Contaminants:	Greases, Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brulin Corporation	Aquavantage 1400	5	100.11	☑	
Bio Chem Systems	Green Stuff 6325	5	99.76	☑	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	97.65	☑	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	99.00	☑	
Oakite Products	Inproclean 3800	5	99.91	☑	
Simple Green	Crystal Simple Green Industrial Cleaner & Degreaser	5	99.88	☑	
Today & Beyond	Beyond 2005	5	99.97	☑	
Magnaflux	Daraclean 282 GF	5	99.14	☑	

Conclusion: Since the eight products worked well under these laboratory conditions, all will be used to clean the supplied silver tape under the same conditions. In addition to gravimetric analysis, two additional analysis methods will be evaluated. These are OSEE and contact angle goniometry.