CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 10/07/2002

Experimenters: Jason Marshall

ClientType: Electromagnetic Manufacturer

ProjectNumber: Project #4

Substrates: Aluminum

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate successful cleaners at higher concentrations

Experimental Procedure: Four products from the previous trial were diluted to 10% using DI water in 600 ml beakers. Each solution was heated to 130 F on a hot plate, followed by a 5 minute degassing in a Crest 40 kHz ultrasonic tank. Twelve preweighed coupons were coated with Fuchs Lubricants Co Renodraw 12 using a hand held swab. A glass rod was then used to ensure a thin, evenly distributed layer of lubricant, more closely matching actual operating conditions. Coupons were then reweighed using a Denver Instruments A250 Balance. Three coupons were cleaned for 8 seconds in a cleaning solution, followed by an 8 second ultrasonic tap water bath rinse. Coupons were dried using air blow off at room temperature for 10 seconds. Once coupons were dry, final weights were measured and efficiencies were calculated.

Results: Three of the four products removed over 89% of the lubricant from the coupons within 8 seconds. The table below lists the amount of contaminant applied to the coupon, how much was not removed and the efficiency for each coupon cleaned.

Table 1. Contaminant Removal

Cleaner	Initial wt	Final wt	% Removed
EXP 1400	0.0406	0.0008	98.03
	0.0863	0.0036	95.83
	0.0696	0.0103	85.20
Surface Cleanse	0.1161	0.0043	96.30
	0.0790	0.0034	95.70
	0.0764	0.0012	98.43
Inproclean 3800	0.0678	0.0009	98.67
	0.0666	0.0033	95.05
	0.0667	0.0176	73.61
Beyond 2005	0.0423	0.0185	56.26
	0.0311	0.0101	67.52
	0.1148	0.0455	60.37
E3HB	0.1477	0.1117	24.37
	0.0421	0.0127	69.83
	0.0501	0.0348	30.54

Summary:

Substrates:	Aluminum				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brulin Corporation	Aquavantage 1400	10	93.02	☑	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	10	96.81	☑	
Oakite Products	Inproclean 3800	10	89.11	☑	
Today & Beyond	Beyond 2005	10	41.55	☐	

Conclusion: The three successful products will be tested again at a higher concentration.