CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003

DateRun: 06/02/2003

Experimenters: Jason Marshall

ClientType: Medical Instrument Mfr

ProjectNumber: Project #1

Substrates: Copper, Nickel

PartType: Coupon

Contaminants: Carbon Deposits, Lubricating/Lapping Oils

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate cleaners using ultrasonic energy

Experimental Procedure: Three products from the previous trial and two additional products were diluted to 5% using DI water in a 600 ml beaker. All five products were heated to 130 F on a hot plate and then immersed into a Crest 40 kHz ultrasonic tank filled with water heated to 130 F. The products were degassed for five minutes. Fifteen preweighed coupons were contaminated with the Metalube Corp ML-119.2 dry lubricant using a hand held swab. After the coupons sat for 30 minutes a second weight was recorded to determine the amount of soil added to the coupons. Three coupons were immersed into each solution and cleaned for five minutes using ultrasonic energy. Coupons were then rinsed in tap water at 120 F for 15 seconds and dried using a Master Appliance Heat Gun at 500 F for 30 seconds. The coupons were then allowed to cool to room temperature and weighed again. Efficiencies for the five cleaners were calculated and recorded.

Results: All five cleaners were successful in removing over 95% of the lubricant using ultrasonic energy. The table below shows the amount of soil added and removed for each coupon.

Cleaner	Initial wt	Final wt	% Removed
Formulat 815 GD	0.0158	0.0006	96.20
	0.0088	0.0010	88.64
	0.0076	0.0000	100.00
SC Aircraft	0.0084	0.0003	96.43
	0.0161	0.0002	98.76
	0.0243	0.0006	97.53
Polyspray Jet 790 P	0.0098	0.0003	96.94
	0.0340	0.0003	99.12
	0.0233	0.0007	97.00
Inproclean 3800	0.0045	-0.0001	102.22
	0.0142	0.0004	97.18
	0.0066	0.0002	96.97
Micro 90	0.0120	0.0003	97.50
	0.0084	0.0007	91.67
	0.0088	-0.0002	102.27

Summary:

Substrates:	Copper, Nickel
Contaminants:	Carbon Deposits, Lubricating/Lapping Oils

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Brulin Corporation	Formula 815 GD	5	94.95	☑	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	97.57	☑	
US Polychem Corporation	Polyspray Jet 790 P	5	97.68	☑	
Oakite Products	Inproclean 3800	5	98.79	☑	
International Products Corporation	Micro 90 Conc.	5	97.15	☑	

Conclusion: Two client requested products will be evaluated using immersion and ultrasonic energy.