CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003

DateRun: 06/12/2003

Experimenters: Jason Marshall

ClientType: Medical Instrument Mfr

ProjectNumber: Project #1

Substrates: Copper, Nickel

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate client supplied cleaners using ultrasonic energy

Experimental Procedure: The two products from the previous trial were diluted to 5% using DI water in a 600 ml beaker. Both 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. Six 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: Ultrasonic cleaning improved the efficiency of both cleaners. The SP 2500 need less than 1 minute to remove nearly all the lubricant from the coupons. The MD 6000 removed most of the lubricant in 2 minutes but left residual amounts around the edges were the soil loading was the highest. The table below lists the soil amount added and remaining for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
MD 6000 US	0.0156	0.0007	95.51
	0.0122	-0.0001	100.82
	0.0164	0.0002	98.78
SP 2500 US	0.0087	0.0000	100.00
	0.0077	-0.0001	101.30
	0.0103	0.0001	99.03

Summary:

Substrates:	Copper, Nickel				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Valtech Corporation	Valtron SP 2500	5	100.11	☑	
Valtech Corporation	MD 6000	5	98.37	☑	

Conclusion: Both products will be used to clean supplied tubing.