CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 10/08/2002

Experimenters: Jason Marshall

ClientType: Manufacturing

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: Te evaluate successful cleaners from previous trial using ultrasonic energy

Experimental Procedure: Three products from the previous trial were diluted to 5% and one was diluted to 3% (Citranox) in 600 ml beakers using DI water. Products were heated to 130 F in a Crest 40 kHz ultrasonic tank and degassed for 5 minutes.
Twelve preweighed coupons were coated with Milacron Marketing Company CIMTECH® 310 metal working fluid concentrate (102-71-6, 78-96-6, 26896-20-8) using a hand held swab. Coupons were then reweighed using a Denver Instruments A250 balance to determine the amount of contaminant added. Three coupons were immersed into each solution and cleaned for 5 minutes using ultrasonics. Coupons were rinsed for 15 seconds in a tap water bath at 120 F and finally dried using a Master Appliance Hot Air gun at 500 F for 30 seconds. After the coupons were dried, final weights were recorded and efficiencies calculated for each cleaning solution.

Results: Three of the products removed over 99.5% of the machining fluid after the 5 minute ultrasonic cleaning. The fourth cleaner removed over 98%. The table below lists the amount of contaminant applied, the amount remaining and the efficiency for each coupon cleaned.

Table 1. Cleaning Efficiencies

Cleaner	Initial wt	Final wt	% Removed
Citrinox	0.4035	0.0000	100.00
	0.4448	0.0002	99.96
	0.3102	-0.0001	100.03
EXP 1400	0.1648	0.0030	98.18
	0.3373	0.0066	98.04
	0.3734	0.0034	99.09
SC A&M	0.2300	0.0001	99.96
	0.3866	-0.0002	100.05
	0.4697	-0.0002	100.04
Daraclean	0.1286	0.0013	98.99
	0.4267	-0.0001	100.02
	0.2787	0.0005	99.82

Summary:

Substrates:	Aluminum				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Citranox	3	100.00	☑	
Brulin Corporation	Aquavantage 1400	5	98.44	☐	
Gemtek Products	SC Supersolve Safety Solvent	5	100.02	☑	
Magnaflux	Daraclean 282	5	99.61	☑	

Conclusion: The three successful products will be used in the next phase of testing on supplied parts.