CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1997

DateRun: 09/30/1997

Experimenters: Jason Marshall, Prashant Trivedi

ClientType: Manufacturer of Computer Parts

ProjectNumber: Project #1

Substrates: Stainless Steel

PartType: Part

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

Cleaning Methods: Immersion/Soak

Analytical Methods: Visual

Purpose: Find safer cleaning alternatives for oil removal

Experimental Procedure: Five aqueous cleaners were selected based on previous laboratory trials. Five percent solution were made for each of the cleaners in beakers using DI water. The solutions were then heated to 130 F on a hot plate. Two parts were submerged into the solutions and stir bar agitation was used. The parts were cleaned for two minutes. At the end of the cleaning cycle, the parts were rinsed in DI water at 130 F in beakers. After rinsing, an infrared heat lamp was used to dry the parts for three minutes. After the parts were dried, they were inspected visually for cleanliness.
SUBSTRATE MATERIAL: Stainless steel
CONTAMINANTS: Client supplied oil

Results: Each of the cleaners left a substantial amount of oil on the parts under these experimental conditions. Despite the incomplete removal of the oil, the cleaners were ranked according to the amount that they did remove. The rankings were based using the following range: excellent > good > okay > fair > poor. Table-1 shows the rankings for the test.
Table 1 Cleaner Rankings

LPS	FAIR
FINE ORGANICS	OKAY
OAKITE	POOR
POLYCHEM	FAIR
W.R. GRACE	GOOD/OKAY

From the test, the best two cleaners were selected to be run in the next trial; W.R. Grace Daraclean 282GF and Fine Organics F020805M.

Summary:

Substrates:	Stainless Steel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
LPS Laboratories	Precision Clean Concentrate	5	0.00	☐	
Fine Organic Corporation	FO 2085 M	5	0.00	☑	
Oakite Products	Inproclean 2500	5	0.00	☐	
US Polychem Corporation	Polyspray Jet 790 P	5	0.00	☐	
Magnaflux	Daraclean 282 GF	5	0.00	☑	

Conclusion: After cleaning the parts using only stir bar agitation, two cleaners were selected to be tested in the next step of cleaning. This next phase will employ Ultrasonic cleaning at 40 KHz in place of the stir bar agitation. This will determine if the cleaner(s) can be used to clean the oil from the parts completely.