CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1999

DateRun: 04/20/1999

Experimenters: Jason Marshall

ClientType: Electron & Ion Technology Co

ProjectNumber: Project #1

Substrates: Alloys, Stainless Steel, Titanium

PartType: Part

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

Cleaning Methods: Ultrasonics

Analytical Methods: OSEE

Purpose: To clean client supplied parts using the three cleaners from previous testing.

Experimental Procedure: The three cleaners were diluted to 5% by volume using DI water in 600 mL beakers. These solutions were then heated to 130 F on a hot plate and then immersed into a Crest 40 kHz ultrasonic tank model 4Ht 1014-6 at the filled with water heated to 130 F.
OSEE readings were recorded prior to contamination with the metal working fluid. The parts were coated with the contaminant and readings were taken again. The parts were cleaned for three minutes, then rinsed for 30 seconds in a tap water bath at 120 F. Drying was performed using Master Appliance Corp, Hot-air gun model HG-301A at 500 F for one minute. Final OSEE readings were made.

SUBSTRATE MATERIAL: Client Supplied parts
CONTAMINANTS: Metal working fluid (Hangsterfer's S-500CF_US)

Results: From the readings made, it was determined that the OSEE readings decreased as contaminant was added to the parts. The Branson and Warren Chemical products cleaned the parts beyond the initial level of clean recorded. The Matchless product resulted in a part that was cleaned back to its original condition. The water cleaned part was not cleaned to its original condition. Table 1 lists the average OSEE readings for the three stages.

Table 1. OSEE Readings

Cleaner	Preclean	Dirty	Clean
Branson	167.5	159	188.83
Warren Chemical	179.67	170.5	186
Matchless	175.5	167	175.33
Water	175.33	171.33	173.83

Summary:

Substrates:	Alloys, Stainless Steel, Titanium				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Branson Ultrasonics	GP	5	0.00	☑	
Matchless Metal Polish Company	MC 580	5	0.00	☐	
Warren Chemical Company	Sea Wash Neutral	5	0.00	☑	
Water	Water	100	0.00	☐	

Conclusion: Two of the cleaners tested yielded cleaner parts after being subjected to three minutes of ultrasonic cleaning at 130 F. The parts have been sealed and returned to the client for further evaluation of cleanliness.