CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1999

DateRun: 03/28/1999

Experimenters: Jason Marshall

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Brass

PartType: Part

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

Cleaning Methods: Immersion/Soak

Analytical Methods: Wipe

Purpose: To find a replacement for methylene chloride vapor degreasing.

Experimental Procedure: Three cleaners were selected on vendor supplied information and from the lab's Effective Test Conditions Database. The three cleaners were made into 10% solutions by volume in 1500 mL beakers and heated to 120 F on a hot plate.
Before the parts were cleaned, a white swab was pressed into the groove and rotated along 1/4 of the cylinder. The swab was labeled with the cleaners' initials and the letter D (for dirty). The parts were also touched to determine the surface condition.
One part was submerged into a beaker and cleaned using Stir-bar-agitation for 10 minutes. Parts were rinsed in a tap water spray for 30 seconds at 120 F and dried using a Master Appliance Corp, Hot-air gun model HG-301A at 500 F for one minute. The parts were subjected to the swab wipe test again. This time the swab was labeled with the letter C (for clean). Tactile observations were made again.

SUBSTRATE MATERIAL: Brass Parts - Fin compression for missile loading
CONTAMINANTS: Oil
CONTAMINATING PROCESS USED: Parts received contaminated

Results: Upon initial touching of the parts, a tacky surface was recorded. After cleaning all three parts no longer felt tacky. The swab test revealed a vast reduction in the amount of contaminant on the parts. Table 1 lists the observations made, both tactile and wipe tests.

Chemistry	Tactile Dirty	Tactile Clean	Dirty Swab	Clean Swab
Calgon	Tacky	Smooth	Green dirty oil	Little marking
Oakite	Tacky	Smooth	Green dirty oil	Little marking
US Polychem	Tacky	Smooth	Green dirty oil	Very little marking

Parts were also observed visually after they were cleaned. The US Polychem appeared to look the best (no spotting), followed by the Oakite product. The Calgon cleaned part seemed to have many spots around the surface of the part.

Summary:

Substrates:	Brass				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Calgon Corporation	Geo Guard 2215	10	0.00	☐	
Oakite Products	Inproclean 3800	10	0.00	☑	
US Polychem Corporation	Polyspray Jet 790 P	10	0.00	☑	

Conclusion: Of the three cleaners tested, US Polychem seems to have cleaned the parts the best, followed by Oakite and then the Calgon product. Parts have been packaged along with the swab wipes, to be further analyzed by the client to determine if the parts can be plated.