CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 08/15/2000

Experimenters: Jason Marshall, John Brunelle

ClientType: Metal Finishing

ProjectNumber: Project #1

Substrates: Steel

PartType: Part

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

Cleaning Methods: Ultrasonics

Analytical Methods: Visual, Wipe

Purpose: To identify alternative cleaners for removing oil and smut from parts prior to plating.

Experimental Procedure: Three chemistries were selected based on vendor supplied information and searching the lab's Effective Test Conditions Database. The two aqueous products were diluted to 5% in a VWR Scientific Products Aquasonic 150 HT ultrasonic tank using tap water at 115 F. The semi-aqueous cleaner was diluted to 10% as recommended by the vendor. One dirty part was cleaned in each solution for 5 minutes, followed by a 30 second tap water spray at 120 F. The clean parts were then dried using a Master Appliance Corp, Hot-air gun model HG-301A at 500 F for one minute. Parts were then visually compared to the supplied cleaned parts and the other cleaners. The 3 parts were then ranked from cleanest to dirtiest. Following the visual inspection, parts were wiped 3 times with a white swab to determine the level of smut remaining on the parts. The swabs were then compared and ranked again.

SUBSTRATE MATERIAL: Steel
CONTAMINANTS: Oil, dirt, smut
CONTAMINATING PROCESS USED: Parts received contaminated

Results: Of the three cleaners tested, the Oakite product had the best ranking visually and from the wipe test. Envirosolutions was the second cleanest looking part but was third in the wipe test. Table 2 displays the rankings for the 3 cleaned parts and one of the supplied cleaned parts.

Table 2. Cleaning Rankings

Test Method	Envirosolutions	Hazwell Int.	Oakite Products	Supplied Part
Visual Ranking	2	3	1	4
Wipe Ranking	3	2	1	4
Observations	Good cleaning, some drying streaks	Okay/ good cleaning, drying streaks	Good/ excellent cleaning, some spots	Poor smut removal

A more uniform drying field (oven or air knives) could be used in order to correct the drying streaks observed during the trial.

Summary:

Substrates:	Steel				
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils, Dirt, Films, Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Bio Chem Systems	Bio T Max	10	0.00	☑	
Warren Chemical Company	Sea Wash 700 New	5	0.00	☑	
Oakite Products	Inproclean 3800	5	0.00	☑	

Conclusion: Oakite Inproclean 3800 out performed the other two cleaners and all three products yielded cleaner parts than the current cleaning system.