CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1999

DateRun: 03/28/1999

Experimenters: Jason Marshall

ClientType: Metal Working

ProjectNumber: Project #1

Substrates: Brass

PartType: Coupon

Contaminants: Buffing/Polishing Compounds

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate the effectiveness of four cleaners at an increased concentrations in the removal of the buffing compound.

Experimental Procedure: The four cleaners from the previous trial were made into 10% solutions by volume in 400 mL glass beakers and heated to 130 F on a hot plate.
Preweighed coupons were contaminated with a buffing compound and weighed again. Three coupons were cleaned for 5 minutes in a beaker using stir bar agitation. Coupons were rinsed in tap water at 120 F for 30 seconds and dried using a Master Appliance Corp, Hot-air gun model HG-301A at 500 F for one minute. After the coupons cooled to room temperature, a final clean weight was recorded and cleaning efficiencies were calculated.

SUBSTRATE MATERIAL: Brass Coupons
CONTAMINANTS: Buffing Compound (Anchor Chemical Co, Anchor Spin G-10)
CONTAMINATING PROCESS USED: Compound rubbed onto coupons

Results: All four chemistries were determined to remove the buffing compound from the coupons using the increased cleaner concentration. Table 1 lists the cleaning efficiencies for each cleaner.

Table 1. Cleaning Efficiencies

Cleaner	Calgon	Oakite	US Polychem	Chrisal
Coupon 1	100.24	100.9	94.1	94.2
Coupon 2	100.4	100	91.47	100.87
Coupon 3	100.21	101.38	97.18	95.08
Ave	100.28	100.76	94.25	96.72
Std Dev	0.1	0.7	2.86	3.63

Table 2 compares the average cleaning efficiencies from the previous trial with the average cleaning efficiencies from this trial.
Table 2. Comparison of 5% and 10% Cleaning Solutions

Cleaner	Calgon	Oakite	US Polychem	Chrisal
5% Ave	99.76	98.39	55.89	71.51
10% Ave	100.28	100.76	94.25	96.72

Summary:

Substrates:	Brass				
Contaminants:	Buffing/Polishing Compounds				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Calgon Corporation	Geo Guard 2215	10	100.28	☑	
Oakite Products	Inproclean 3800	10	100.76	☑	
US Polychem Corporation	Polyspray Jet 790 P	10	94.25	☑	
Chrisal USA Inc	Super CMF 240	10	96.72	☑	

Conclusion: Increasing the concentration of the cleaners was found to improve the cleaning efficiencies of all four cleaners tested. An additional study will be conducted using the 5% solutions and ultrasonic energy.