

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 1999  
 DateRun: 03/29/1999  
 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. Prewighed 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:

<b>Substrates:</b>	Brass				
<b>Contaminants:</b>	Buffing/Polishing Compounds				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Calgon Corporation	Geo Guard 2215	10	100.28	<input checked="" type="checkbox"/>	
Oakite Products	Inproclean 3800	10	100.76	<input checked="" type="checkbox"/>	
US Polychem Corporation	Polyspray Jet 790 P	10	94.25	<input checked="" type="checkbox"/>	
Chrisal USA Inc	Super CMF 240	10	96.72	<input checked="" type="checkbox"/>	

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.