CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 03/26/2000

Experimenters: Jason Marshall, John Brunelle

ClientType:

ProjectNumber: Project #1

Substrates: Brass

PartType: Coupon

Contaminants: Buffing/Polishing Compounds

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To identify a replacement to Trichloroethylene in cleaning buffing compounds from brass fixtures.

Experimental Procedure: Eight cleaners were selected based on the lab's database of effective testing and Industrial Cleaning Survey: Directory of Vendors 4th edition. Seven of the chemistries were diluted to 5% in 600 ml beakers using DI water. These seven were then heated to 130 F on a hot plate. The final cleaner was used at full strength and room temperature. Twenty-four preweighed brass coupons were contaminated with the buffing compound and weighed again. Three coupons were cleaned in one solution for five minutes 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 coupons returned to room temperature, final clean weights were recorded and the percent efficiency was calculated.

SUBSTRATE MATERIAL: Brass Coupons
CONTAMINANTS: Jackson Lea, Antique Buffing Compound LM-12 (CAS#s: 9000-70-8,1344-28-1,409-21-2,1309-37-1)

Results: US Polychem Polyspray 790 P was the only cleaner to remove all of the buffing compound from the brass coupons. Oakite Inproclean 3800 removed nearly 85% of the contaminant. WR Grace Daraclean 282 GF and International Products Micro 90 both had efficiencies over 70%. Table 1 lists all of the calculated cleaning efficiencies.

Table 1. Cleaning Efficiencies

Chemistry	Pressure Wash	Micro 90	Gillite 160 X	Inproclean	Dirtex	Polyspray	Daraclean	Engine Degreaser
Coupon 1	30.53	67.35	44.16	89.41	80.96	100.80	75.00	45.99
Coupon 2	31.24	87.73	40.21	90.48	71.83	100.47	71.92	76.39
Coupon 3	16.44	60.19	41.02	73.19	55.11	100.48	72.46	56.65
Average	26.07	71.76	41.80	84.36	69.30	100.58	73.13	59.68

Summary:

Substrates:	Brass				
Contaminants:	Buffing/Polishing Compounds				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
AW Chesterton	217 Pressure wash	5	26.07	☐	
International Products Corporation	Micro 90 Conc.	5	71.76	☑	
Man Gill Chemical Company	Gillite 160 X	5	41.80	☐	
Oakite Products	Inproclean 3800	5	84.36	☑	
Savogran Company	Dirtex Prepaint Cleaner	5	69.30	☐	
US Polychem Corporation	Polyspray Jet 790 P	5	100.58	☑	
Magnaflux	Daraclean 282 GF	5	73.13	☑	
Safe Science Inc	Safe Science Engine Degreaser (Industrial)	100	59.68	☐	

Conclusion: The four products that removed over 70% of the buffing compound will be further tested using the second supplied buffing compound. Additional testing will be performed on the supplied parts as well.