CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 09/10/2006

Experimenters: Jason Marshall

ClientType: Jewelry Mfr

ProjectNumber: Project #1

Substrates: Brass

PartType: Coupon

Contaminants: Oil

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To evaluate selected alternatives to TCE for removing oil from brass using immersion cleaning.

Experimental Procedure: Six alternative products were selected from the lab's database of testing results based on supplied client information. Products were selected based on oil removal potential and compatibility with brass metal substrate. Each product was diluted to 5% in 250 ml beakers using DI water and heated to 130 F on a hot plate.

Eighteen preweighed coupons were coated with the supplied oil using a handheld swab after. Coupons were weighed a second time to determine the amount of oil added. Three coupons were cleaned in each solution for five minutes using minimal stir bar agitation. Coupons were rinsed for 15 seconds in a tap water bath at 120 F and dried using a dry compressed air for 30 seconds. Once dry coupons were weighed a final time and product efficiencies were calculated.

Results: All six products selected removed over 90% of the oil within 5 minutes of immersion cleaning. One product, Sea Wash Blue removed over 99%. It was noted that this product may have tarnished the brass coupons. The following table lists the amount of buffing compound applied, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Aquavantage 1400	0.0721	0.0008	98.89
	0.2329	0.0052	97.77
	0.1109	0.0066	94.05
Surface Cleanse 930	0.1750	0.0134	92.34
	0.2261	0.0103	95.44
	0.2013	0.0086	95.73
SeaWash Blue	0.1913	0.0021	98.90
	0.1011	0.0015	98.52
	0.1031	0.0003	99.71
Inproclean 3800	0.2779	0.0108	96.11
	0.1860	0.0146	92.15
	0.2444	0.0168	93.13
Polyspray Jet 790 XS	0.1899	0.0128	93.26
	0.2839	0.0148	94.79
	0.1220	0.0121	90.08
Daraclean 283	0.1923	0.0081	95.79
	0.1953	0.0070	96.42
	0.2723	0.0100	96.33

Summary:

Substrates:	Brass				
Contaminants:	Oil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brulin Corporation	Aquavantage 1400	5	96.90	☑	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	94.50	☑	
	Sea Wash Blue	5	99.04	☑	

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Warren Chemical Company					Possibly tarnishing coupons
Oakite Products	Inproclean 3800	5	93.80	☑	
US Polychem Corporation	Polyspray Jet 790 XS	5	92.70	☑	
Magnaflux	Daraclean 283	5	96.18	☑	

Conclusion: The six products will be retested at shorter cleaning time using ultrasonic energy.