

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006  
 DateRun: 09/11/2006  
 Experimenters: Jason Marshall  
 ClientType: Jewelry Mfr  
 ProjectNumber: Project #1  
 Substrates: Brass  
 PartType: Coupon  
 Contaminants: Oil  
 Cleaning Methods: Ultrasonics  
 Analytical Methods: Gravimetric

Purpose: To evaluate selected products at shorter cleaning time with ultrasonics

Experimental Procedure: The six alternative products from the previous trial were diluted to 5% in 250 ml beakers using DI water and heated to 130 F in a Branson 3510 ultrasonic unit and degassed for 5 minutes.  
 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 40 kHz ultrasonic 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: Five of the six products removed over 98% of the oil in one minute using ultrasonic energy. The sixth product removed around 90% of the oil. 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	0.1251	0.0031	97.52
	0.2104	0.0008	99.62
	0.1860	0.0001	99.95
Surface Cleanse 930	0.1653	0.0032	98.06
	0.1324	0.0003	99.77
	0.1578	0.0037	97.66
SeaWash Blue	0.1121	-0.0002	100.18
	0.1669	0.0002	99.88
	0.1043	0.0003	99.71
Inproclean 3800	0.1788	0.0011	99.38
	0.1258	0.0012	99.05
	0.1301	0.0008	99.39
Polyspray Jet 790 XS	0.1035	0.0026	97.49
	0.1487	0.0023	98.45
	0.1160	0.0022	98.10
Daraclean 283	0.1611	0.0164	89.82
	0.1238	0.0172	86.11
	0.1691	0.0107	93.67

Summary:

<b>Substrates:</b>	Brass				
<b>Contaminants:</b>	Oil				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Brulin Corporation	Aquavantage 1400	5	99.03	<input checked="" type="checkbox"/>	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	5	98.50	<input checked="" type="checkbox"/>	
Warren Chemical Company	Sea Wash Blue	5	99.92	<input checked="" type="checkbox"/>	
Oakite Products	Inproclean 3800	5	99.27	<input checked="" type="checkbox"/>	

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US Polychem Corporation	Polyspray Jet 790 XS	5	98.01	<input checked="" type="checkbox"/>	
Magnaflux	Daraclean 283	5	89.87	<input checked="" type="checkbox"/>	

**Conclusion:**

Five of the six products were found to work on the supplied oil using ultrasonic energy. With the products successful on the oil, the next step will be to evaluate these cleaners on supplied additional parts at or after workshop.