CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2000

DateRun: 01/31/2000

Experimenters: Jason Marshall

ClientType: Mfr Boating Accessories

ProjectNumber: Project #2

Substrates: Brass

PartType: Coupon

Contaminants: Lubricating/Lapping Oils

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To reevaluate selected cleaners under heated conditions.

Experimental Procedure: Eight cleaners were selected from the previous trial. The same six solutions were diluted with DI water to five percent by volume in a 600 ml beaker. The other two products were diluted to 10% as suggested by the vendor. All eight solutions were heated to 130 F on a hot plate. Twenty-four preweighed coupons were coated with the supplied oil and weighed again. Three couponswere cleaned in a solution for five minutes at room temperature using stir-bar agitation. After cleaning the coupons were rinsed for 15 second in tap water at 120 F and allowed to air dry for two hours. Following the drying, final clean weights were recorded and efficiencies were calculated.

SUBSTRATE MATERIAL: Brass Coupons
CONTAMINANTS: Oil-Texaco Lubricant Company Cleartex D (CAS#: 64742-65-0, 68527-02-6)
CONTAMINATING PROCESS USED: Coupons were coated with oil using a hand held swab.

Results: Heating the solutions improved the cleaning efficiencies for all eight cleaning solutions. Chrisal, SWR Corp, Oakite and Envirosolutions each removed over 90% of the contaminant from the coupons. Table 2 lists the calculated efficiencies for each trial and compares them to the results form Trial 2.

Table 2. Heated Cleaning

Cleaner	Alconox	Chrisal	Savorgran	SWR Corp	Valtech	C&D	Oakite	Envirosolutions
Coupon 1	60.87	97.78	61.66	97.04	76.92	79.64	96.93	83.62
Coupon 2	66.03	98.72	63.27	97.26	94.19	76.02	97.71	96.48
Coupon 3	47.72	98.36	64.56	99.01	83.89	82.81	96.85	97.81
Average	58.21	98.29	63.17	97.77	85.00	79.49	97.16	92.64
Trial 2	52.02	82.90	47.94	71.25	66.55	54.25	78.41	67.70

Summary:

Substrates:	Brass				
Contaminants:	Lubricating/Lapping Oils				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Luminox	5	58.21	☐	
Chrisal USA Inc	Super CMF 240	5	98.29	☑	
Savogran Company	Dirtex Prepaint Cleaner	5	63.17	☐	
SWR Corporation	SWR One	5	97.77	☑	
Valtech Corporation	Valtron SP 2250 2LF	5	85.00	☑	
Church & Dwight Co Inc.	Armakleen E 2002	5	79.49	☐	
Oakite Products	Inproclean 4000 T	10	97.16	☑	
Bio Chem Systems	Bio T Max	10	92.64	☑	

Conclusion: Heating the solutions improve the removal of the oil from the brass coupons. The solutions with efficiencies over 70% will be evaluated next for removing the rosin solder flux.