CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2006
DateRun:	08/16/2006
Experimenters:	Jason Marshall
ClientType:	Metal Working
ProjectNumber:	Project #1
Substrates:	Copper
PartType:	Coupon
Contaminants:	Buffing/Polishing Compounds
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate selected products for replacing TCE for removing buffing compound.
Experimental Procedure:	Eight alternative products were selected from the lab's database of testing results based on supplied client information. Products were selected based on buffing compound and oil removal potential and compatibility with copper and brass metal substrates. Each product was diluted to 5% in 250 ml beakers using DI water and heated to 130 F on a hot plate. Twenty-four preweighed coupons were coated with the red buffing compound using a hand held swab after heating to its melting point with a heat gun. Coupons were weighed a second time to determine the amount of buffing compound 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:	Three products removed over 60% of the buffing compound from the copper coupons after five minutes of immersion cleaning. 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
Daraclean 283	0.2223	0.0635	71.43
	0.5394	0.3643	32.46
	0.1759	0.0234	86.70
Inproclean 3800	1.1193	0.8928	20.24
	0.7376	0.5366	27.25
	0.9516	0.6233	34.50
Beyond 2001	0.9658	0.7572	21.60
	0.5583	0.3948	29.29
	0.8133	0.5594	31.22
Polyspray Jet 790 XS	0.6940	0.2108	69.63
	1.2507	0.0104	99.17
	0.8299	0.4237	48.95
Aquavantage 1400	0.5957	0.4241	28.81
	1.4571	1.2716	12.73
	0.9873	0.8591	12.98
Crystal Simple Green	0.9235	0.8357	9.51
	1.0745	0.8782	18.27
	0.5366	0.4141	22.83
Cleaner #10	1.0131	0.8020	20.84
	1.1350	0.8656	23.74
	0.8690	0.6697	22.93
XL 100	0.5371	0.0600	88.83
	0.3029	0.0120	96.04
	0.5201	0.2061	60.37

Summary:

Substrates:	Copper

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Contaminants:	Buffing/Polishing Compounds				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Magnaflux	Daraclean 283	5	63.53	☑	
Oakite Products	Inproclean 3800	5	27.33	☐	
Today & Beyond	Beyond 2001	5	27.37	☐	
US Polychem Corporation	Polyspray Jet 790 XS	5	72.58	☑	
Brulin Corporation	Aquavantage 1400	5	18.17	☐	
Simple Green	Crystal Simple Green Industrial Cleaner & Degreaser	5	16.87	☐	
Sky Products Company Inc	Cleaner #10	5	22.50	☐	
Buckeye International	XL 100 Cleaner & Degreaser	5	81.75	☑	

Conclusion: The three effective products will be retested using ultrasonics and a higher temperature in an effort to increase the efficiencies of the products.