CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	09/17/2009
Experimenters:	Junhee Cho, Scott Nadolna
ClientType:	Biomedical Device Manufacturer
ProjectNumber:	Project #1
Substrates:	Glass/Quartz
PartType:	Coupon
Contaminants:	Waxes
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric
Purpose:	To evaluate aqueous cleaners for wax removal using ultrasonic cleaning.
Experimental Procedure:	The same ten products were used again at the same temperature and concentrations. Products were degassed for 5 minutes prior to cleaning. The coupons that were used in the immersion cleaning were reused for the ultrasonic testing. (Therefore, coupons were soaked for 5 minutes and then cleaned with ultrasonics for another 5 minutes). Cleaning was followed with a tap water rinse at 120 F for 15 seconds and dried using compressed air at room temperature for 30 seconds. Final weights were measured and efficiencies calculated.
Results:	Several of the aqueous products were effective at removing the wax from the glass coupons using ultrasonic energy. Two products (one being the supplied product) removed more than 98% of the wax in less than the five minutes. The table lists the amount of wax left after the initial 5-minute soak, the amount remaining after the 5 minutes of ultrasonic cleaning and the efficiencies for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
SC Aircraft & Metal cleaner	0.3360	0.1789	46.76
	0.4463	0.2650	40.62
	0.3186	0.1527	52.07
Texolite 1734 XL	0.3165	0.2574	18.67
	0.3843	0.3672	4.45
	0.4648	0.3759	19.13
Amber clean L12	0.8293	0.3419	58.77
	0.9227	0.3323	63.99
	0.5594	0.1076	80.77
Amber clean Q3	0.7608	0.3820	49.79
	0.6961	0.3712	46.67
	1.0899	0.6595	39.49
Micro 90	0.5877	0.0637	89.16
	0.7591	0.1486	80.42
	0.9224	0.3046	66.98
Inproclean 3800	0.5201	0.0061	98.83
	0.4639	-0.0004	100.09
	0.4326	0.0100	97.69
SC 1000	1.2507	0.3213	74.31
	1.0166	0.2812	72.34
	1.1821	0.3900	67.01
Polychem 2000 P	1.2878	0.0997	92.26
	0.9644	0.2063	78.61
	0.9168	0.1095	88.06
Valtron SP2200	0.6067	0.0079	98.70
	0.7216	0.0001	99.99
	1.1765	0.0115	99.02
Contrad 70	0.1546	-0.0006	100.39
	0.0614	-0.0004	100.65

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	0.0020	0.0000	100.00

Summary:

Substrates:	Glass/Quartz
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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	46.48	☐	
Texo Corporation	Texolite 1734 XL	5	14.08	☐	
Innovative Organics Inc	Amberclean L 12	5	67.84	☐	
Innovative Organics Inc	Amberclean Q3	5	45.32	☐	
International Products Corporation	Micro 90 Conc.	5	78.85	☑	
Oakite Products	Inproclean 3800	5	98.87	☑	
Gemtek Products	SC 1000 Aqueous Cleaner Concentrate	5	71.22	☑	
US Polychem Corporation	Polychem A 2000 P	5	86.31	☑	
Valtech Corporation	Valtron SP 2200	5	99.24	☑	
Decon Laboratories Inc	Contrad 70	5	100.35	☑	

Conclusion:

The top performing products will be tested at higher temperatures in addition to ultrasonic cleaning. Concentration may be another variable to modify to improve efficiency.