

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002  
 DateRun: 04/01/2002  
 Experimenters: Jason Marshall  
 ClientType: Optical Manufacturer  
 ProjectNumber: Project #1  
 Substrates: Aluminum  
 PartType: Coupon  
 Contaminants: Waxes  
 Cleaning Methods: Ultrasonics  
 Analytical Methods: Gravimetric

Purpose: To evaluate five cleaners using ultrasonics

Experimental Procedure: The five cleaners from the previous trial that caused a weight increase of the wax were used at the same dilutions, temperature and time. Each solution was de-gased in a Crest 40 kHz ultrasonic tank heated to 110 F. Fifteen preweighed coupons were coated with beeswax and allowed to cool before taking a dirty weight. Three coupons were cleaned in each solution for 5 minutes using ultrasonic energy. Coupons were rinsed at 110 F for 15 seconds using tap water and dried for 1 minute at 300 F using the Master Appliance heat gun. Final weights were recored and efficiencies were calculated for each solution.

Results: Three of the products showed significant improvement with the addition of ultrasonic energy in the cleaning process. Texolite jumped to a 95% efficiency, Polyspray increased to 73.5% and Inproclean averaged 62.52%. The other two removed less than 10% of the wax. The table below lists the results for each product.

Cleaner	Coupon 1	Coupon 2	Coupon 3	Average	Std Dev
EXP 1400	-0.60	10.90	5.09	5.13	5.75
Inproclean	63.08	67.65	56.84	62.52	5.43
Texolite	90.59	94.63	99.79	95.00	4.61
Polyspray	75.19	68.75	76.55	73.50	4.16
Uni Clear	0.63	13.31	-8.51	1.81	10.96

Summary:

<b>Substrates:</b>	Aluminum				
<b>Contaminants:</b>	Waxes				
<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	5.13	<input type="checkbox"/>	
Oakite Products	Inproclean 3800	5	62.52	<input type="checkbox"/>	
Texo Corporation	Texolite 1734 XL	5	95.00	<input checked="" type="checkbox"/>	
US Polychem Corporation	Polyspray Jet 790 P	5	73.50	<input type="checkbox"/>	
Universal Photonics	Uni Clear	100	1.81	<input type="checkbox"/>	

Conclusion: The three products that improved with ultrasonics will be evaluated again at increased concentrations and cleaning times.