CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003

DateRun: 01/23/2003

Experimenters: Jason Marshall

ClientType: Manufactures parts for Semi-Conductor Industry

ProjectNumber: Project #1

Substrates: Ceramics

PartType: Coupon

Contaminants: Waxes

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To identify alternative cleaners for bees wax.

Experimental Procedure: Nine cleaners were selected from the laboratories database of past testing based on supplied data from client. Six aqueous based cleaners were diluted to 5% using DI water in 600 ml beakers. Three semi-aqueous products were used at full strength also in 600 ml beakers. All nine products were heated to 130 F on a hot plate. Twenty-seven preweighed ceramic coupons were coated with client supplied bees wax. The wax was first melted using a Master Appliance heat gun in a beaker and applied to the coupons using a swab. The coupons were allowed to cool to room temperature before weighing a second time. Three coupons were cleaned in each solution for 5 minutes using stir-bar agitation. Coupons were rinsed in tap water for 15 seconds at 120 F, followed by air blow off at room temperature. Once dry, coupons were weighed a final time and efficiencies for each cleaner were calculated.

Results: Opti Clear was the only product to remove all the wax from the ceramic coupons. Some of the aqueous based products showed some signs of altering the wax (flaking at edges). The table below shows the amount of wax applied and removed for each of the nine cleaners tested.

Table 1. Wax Removals

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Table 1. Wax Removals

Summary:

Substrates:	Ceramics				
Contaminants:	Waxes				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Luminox	5	0.15	☐	
Alconox Inc	Citranox	5	0.56	☐	
International Products Corporation	Micro 90 Conc.	5	0.61	☐	
PCI of America	Hurrisafe 9010	5	-0.11	☐	
Magnaflux	Daraclean 200	5	-0.25	☐	
Valtech Corporation	Valtron SP 2250 2LF	5	-2.52	☐	
Kyzen Corporation	Ionox HC 2	100	-0.19	☐	
National Diagnostic	Opti Clear	100	100.04	☑	
Universal Photonics	Uni Clear	100	4.39	☐	

Conclusion: With only one successful product for the bees wax removal, Opti Clear, a follow up test will be conducted to identify additional products that can be used to remove this wax.