CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2003

DateRun: 01/28/2003

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 evaluate successful cleaners on fifth supplied wax

Experimental Procedure: One product was selected from the laboratories database of testing results based on client supplied data. Four other products were also selected based on success in previous trial. All six products were used at full strength in 600 ml beakers. The products were heated to 130 F on a hot plate. Fifteen preweighed ceramic coupons were coated with client supplied Roger Reed 98033 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: Only one product, Opti Clear, was successful in removing a majority of the wax within the five minute soak. Two others, Citrikleen XPC and Bio T 200 A, removed over half of the wax. The other two products removed less the a third of the wax. The top three cleaners would benefit from increased cleaning time or agitation. The table below lists the amount of wax added and removed during the cleaning process.

Table 1. Wax Removal

Cleaner	Initial wt	Final wt	% Removed
Opti Clear	0.4661	0.1132	75.71
	0.4484	0.1055	76.47
	0.3463	0.0148	95.73
Citrikleen XPC	0.4824	0.1902	60.57
	0.4089	0.1445	64.66
	0.4108	0.1351	67.11
Bio T 200 A	0.4910	0.2362	51.89
	0.3588	0.1262	64.83
	0.5081	0.2195	56.80
Citrus Burst 7	0.4736	0.2723	42.50
	0.4690	0.3933	16.14
	0.6859	0.5072	26.05
Hydro Force	0.3640	0.3616	0.66
	0.4617	0.4579	0.82
	0.6121	0.6094	0.44

Summary:

Substrates:	Ceramics
Contaminants:	Waxes

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
National Diagnostic	Opti Clear	100	82.64	☑	
Pentone Corporation	Citrikleen XPC	100	64.12	☐	
Bio Chem Systems	Bio T 200 A	100	57.84	☐	
Florida Chemical Company	Citrus Burst 7	100	28.23	☐	
CRC Industries	HydroForce Butyl-Free All Purpose Cleaner	100	0.64	☐	

Conclusion: The three cleaners removing over 50% of the wax will be used in the next trial on the sixth supplied wax.