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 cleaners on third supplied wax

Experimental Procedure: Two products were selected from the laboratories database of testing results based on client supplied data. Four other products were also selected based on success in previous trials. All six semi-aqueous products were used at full strength in 600 ml beakers. The products were heated to 130 F on a hot plate. Eighteen preweighed ceramic coupons were coated with client supplied Roger Reed 6816 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: Three of the six products removed over 89% of the wax from the ceramic coupons within 5 minutes. Two other products removed over 76% of the wax. These five products would remove all the wax in an extended cleaning time. Only one product was not successful in removing a majority of the wax, removing just over 28%. The table below lists the amount of wax applied and removed.

Table 1. Wax Removal

Cleaner	Initial wt	Final wt	% Removed
Opti Clear	0.4842	0.0349	92.79
	0.3319	0.0135	95.93
	0.2640	0.0039	98.52
Citrikleen XPC	0.3635	0.1034	71.55
	0.4748	0.1237	73.95
	0.3579	0.0470	86.87
Bio T 200 A	0.4089	0.0266	93.49
	0.4108	0.0296	92.79
	0.4497	0.0209	95.35
Citriburst 7	0.4956	0.0555	88.80
	0.5371	0.1094	79.63
	0.3894	0.0033	99.15
Canola Gold CE110	0.5110	0.2635	48.43
	0.4200	0.2943	29.93
	0.3751	0.3528	5.95
D Greeze 500 Lo	0.4606	0.1175	74.49
	0.4950	0.1397	71.78
	0.4872	0.0759	84.42

Summary:

Substrates:	Ceramics				
Contaminants:	Waxes				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
National Diagnostic	Opti Clear	100	95.75	☑	
Pentone Corporation	Citrikleen XPC	100	77.46	☐	
Bio Chem Systems	Bio T 200 A	100	93.88	☑	
AG Environmental Products	Canola Gold CE110	100	28.10	☐	

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Transene Company, Inc.	D Greeze 500 LO	100	76.90	☐	
Florida Chemical Company	Citrus Burst 7	100	89.20	☑	

Conclusion: The three products that removed over 89% and the two that removed over 76% will be used in the next trial on the fourth wax.