CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2001
DateRun:	10/15/2001
Experimenters:	Jason Marshall
ClientType:	Electronics Manufacturer
ProjectNumber:	Project #1
Substrates:	Ceramics
PartType:	Coupon
Contaminants:	Abrasive, Coatings, Waxes, Phthalates
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To evaluate to additional cleaners on all five contaminants
Experimental Procedure:	The aqueous based cleaner was diluted to 5% with DI water in five separate 250 ml beakers. The hydrocarbon based product was used at 100%. Each beaker was heated to 120 F on a hot plate. Thirty preweighed coupons were coated with each contaminant in sets of three. After the contaminants dried, a second weighing was preformed. Three coupons with the same contaminant were immersed into a heated beaker and allowed to soak for 10 minutes. Once the time expired, coupons were rinsed in tap water at 120 F for 30 seconds and dried using a heat gun for 1 minute. Final clean weights were recorded once the coupons were completely dried. A-Wax B-Aremco Crystalbond 509 Phthalate; coating C-Aremco Crystalbond 590 D-Nalco Chemical Co Nalco 2350 Polishing Slurry E-Saint Gobain Industrial Ceramics Water Based Alumina (1344-28-1, 102-71-6)
Results:	The Amberclean solution was successful in removing the two slurries, removing over 97%. Limited cleaning was observed for the wax and the 509 coating. Even though the efficiency was only 4% for the Crystalbond 590, the Amberclean product did start to dissolve the contaminant, causing the clear amberclean to become a brown and cloudy. Uni Clear II was very successful in cleaning the wax from the coupons, 99.6%, and only moderately successful on the two slurries, removing between 60 and 80%. This product was did not remove any of the two Crystalbond contaminants. Table 1 lists the efficiencies for the two cleaners evaluated during this trial.

Table 1. Efficiencies

Cleaner	Amberclean 527 L			Average	Std Dev
Wax	2.99	-0.21	-0.46	0.77	1.92
509	-0.79	0.35	0.11	-0.11	0.60
590	5.64	3.90	2.54	4.03	1.55
Nalco	97.22	97.27	97.61	97.37	0.22
Alumina	99.87	99.79	99.87	99.85	0.04
Cleaner	Uni Clear II			Average	Std Dev
Wax	99.60	99.57	99.75	99.64	0.10
509	-0.66	-0.57	-1.05	-0.76	0.26
590	-0.59	-1.43	-1.74	-1.25	0.59
Nalco	55.30	46.98	87.58	63.29	21.45
Alumina	76.86	81.26	83.42	80.51	3.34

Summary:

Substrates:	Ceramics
Contaminants:	Abrasive, Coatings, Waxes, Phthalates

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Innovative Organics Inc	Amberclean 527 L	5	97.37	☑	nalco
Innovative Organics Inc	Amberclean 527 L	5	99.87	☑	alumina
Innovative Organics Inc	Amberclean 527 L	5	0.77	☐	wax
Innovative Organics Inc	Amberclean 527 L	5	-0.11	☐	509
Innovative Organics Inc	Amberclean 527 L	5	4.03	☐	590
Universal Photonics	Uni Clear II	100	99.64	☑	wax
Universal Photonics	Uni Clear II	100	-0.76	☐	509

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Universal Photonics	Uni Clear II	100	-1.25	☐	590
Universal Photonics	Uni Clear II	100	63.29	☐	nalco
Universal Photonics	Uni Clear II	100	80.51	☐	alumina

Conclusion: Neither product was capable of cleaning all of the contaminants. One product, Uni Clear IIwas successful on the wax and the other solution, Amberclean 527 L was successful on the two slurries.