

# 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 performed. 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:

<b>Substrates:</b>	Ceramics				
<b>Contaminants:</b>	Abrasive, Coatings, Waxes, Phthalates				
<b>Company Name:</b>	<b>Product Name:</b>	<b>Conc.:</b>	<b>Efficiency:</b>	<b>Effective:</b>	<b>Observations:</b>
Innovative Organics Inc	Amberclean 527 L	5	97.37	<input checked="" type="checkbox"/>	nalco
Innovative Organics Inc	Amberclean 527 L	5	99.87	<input checked="" type="checkbox"/>	alumina
Innovative Organics Inc	Amberclean 527 L	5	0.77	<input type="checkbox"/>	wax
Innovative Organics Inc	Amberclean 527 L	5	-0.11	<input type="checkbox"/>	509
Innovative Organics Inc	Amberclean 527 L	5	4.03	<input type="checkbox"/>	590
Universal Photonics	Uni Clear II	100	99.64	<input checked="" type="checkbox"/>	wax
Universal Photonics	Uni Clear II	100	-0.76	<input type="checkbox"/>	509

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Universal Photonics	Uni Clear II	100	-1.25	<input type="checkbox"/>	590
Universal Photonics	Uni Clear II	100	63.29	<input type="checkbox"/>	nalco
Universal Photonics	Uni Clear II	100	80.51	<input type="checkbox"/>	alumina

**Conclusion:**

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