

# CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001  
 DateRun: 09/20/2001  
 Experimenters: Jason Marshall  
 ClientType: Electronics Manufacturer  
 ProjectNumber: Project #1  
 Substrates: Ceramics  
 PartType: Coupon  
 Contaminants: Abrasive  
 Cleaning Methods: Immersion/Soak  
 Analytical Methods: Gravimetric  
 Purpose: Evaluating cleaners for removal.

**Experimental Procedure:** Ten cleaners were selected based on previous trials and lab databases. Solutions that were diluted to 5% using DI water in 250 ml beakers. All solutions were heated to 120 F on a hot plate. Twenty-one preweighed coupons were coated with the supplied slurry using a plastic eye dropper and allowed to dry for 2 hours. These coupons were then weighed again. Three coupons were immersed into each beaker to be cleaned for 15 minutes. After the cleaning, the coupons were rinsed in DI water and dried using air blow off. Coupons were then weighed a final time and percent efficiencies were calculated for each cleaner.

Nalco Chemical Co Nalco 2350 Polishing Slurry

**Results:** The increase in cleaning increased the efficiencies of all of the products. Efficiencies ranged from 99.36 to 99.88%. The following table lists the calculated efficiencies for each product tested. Safety First had the highest efficiency even with a decrease in the products concentration. In the previous trial, Safety First was at 15% by volume and in this trial, the product was further diluted to 5%.

Table 1. Cleaning Efficiencies

Cleaner	Coupon 1	Coupon 2	Coupon 3	Average	Std Dev	Rank
Amberclean	99.53	99.77	99.87	99.72	0.18	2
Micro 90	99.86	99.34	98.95	99.38	0.46	6
LPS	99.58	99.31	99.60	99.50	0.16	4
ND 17	99.84	99.57	99.46	99.62	0.19	3
Inproclean	99.53	99.28	99.26	99.36	0.15	7
Polyspray	99.26	99.27	99.72	99.42	0.26	5
Safety First	99.91	99.86	99.88	99.88	0.03	1

**Summary:**

<b>Substrates:</b>		Ceramics				
<b>Contaminants:</b>		Abrasive				
Company Name:		Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Innovative Organics Inc		Amberclean L 12	5	99.72	<input checked="" type="checkbox"/>	
International Products Corporation		Micro 90 Conc.	5	99.38	<input checked="" type="checkbox"/>	
LPS Laboratories		Precision Clean Concentrate	5	99.50	<input checked="" type="checkbox"/>	
MacDermid Industrial Products		ND 17	5	99.62	<input checked="" type="checkbox"/>	
Oakite Products		Inproclean 3800	5	99.36	<input checked="" type="checkbox"/>	
US Polychem Corporation		Polyspray Jet 790 XS	5	99.42	<input checked="" type="checkbox"/>	
Amax Corporation		Safety First	15	99.88	<input checked="" type="checkbox"/>	

**Conclusion:** These seven cleaners will be evaluated on the second supplied polishing compound, Saint-Gobain Industrial Ceramics Water Based Alumina. Operating conditions will remain the same.