CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001

DateRun: 09/19/2001

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:

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

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.