CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001

DateRun: 08/12/2001

Experimenters: Jason Marshall

ClientType: Electronics Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics

PartType: Coupon

Contaminants: Phthalates

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: To identify alternatives for second contaminant (509)

Experimental Procedure: Eight cleaners were selected based on previous testing and based on vendor information. The aqueous based products were diluted to 10% using DI water in 250 ml beakers. The other solutions were used at full strength. All products were heated to 140 F on a hot plate. Twenty-four pre-weighed ceramic coupons were coated with the Crystalbond 509. The coating was heated with a hot air gun and wiped across the coupons using a glass rod. The coating was allowed to cool to room temperature and the coupons were weighed again. Three coupons were immersed in each beaker and allowed to soak for 10 minutes. Coupons were rinsed in a DI water spray for 1 minute at room temperature and dried using air blow off.

Results: After the initial 10 minute soak, none of the solutions were effective in removing the coating. Two products, D Greeze 500 Lo and Safety First were moderately successful. The appearance of the coating was changed and the D Greeze coupons were sticky. The increased cleaning time improved the effects the cleaners had on the coating. Luminox, Polysray Jet 790 XS and SC Supersolve showed the most changes with the longer cleaning.

Cleaner	Coupon 1	Coupon 2	Coupon 3	Average	Std Dev
Bio T Max	-0.75	-1.27	-2.37	-1.46	0.83
D Greeze	12.22	0.59	35.96	16.26	18.02
Safety First	2.34	-1.02	38.52	13.28	21.92
Soy Gold	-20.47	-15.89	-13.13	-16.5	3.71
Bio T 200 A	-11.22	-16.9	-5.26	-11.13	5.82
SC Supersolve	86.46	40.87	80.23	69.19	24.72
Polyspray	12.14	89.07	65.86	55.69	39.46
Luminox	46.27	85.58	7.18	46.34	39.2

The negative cleaning efficiencies appears to be due to the absorption of the cleaning solutions into the contaminant. This process, overtime, would cause the contaminant to be removed from the substrate.

Summary:

Substrates:	Ceramics				
Contaminants:	Phthalates				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Bio Chem Systems	Bio T Max	100	-1.46	☐	
Transene Company, Inc.	D Greeze 500 LO	100	16.26	☐	
AG Environmental Products	Soy Gold 2000	100	-16.50	☐	
Bio Chem Systems	Bio T 200 A	100	-11.13	☐	
Gemtek Products	SC Supersolve Safety Solvent	10	69.19	☑	
US Polychem Corporation	Polyspray Jet 790 XS	5	55.69	☑	
Alconox Inc	Luminox	5	46.34	☑	
Amax Corporation	Safety First	100	13.28	☐	

Conclusion:

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The aqueous products at long cleaning times and elevated temperature appears to be effective in removing the coating from the ceramic coupons. The next test will be to further evaluate the diluted samples at a higher concentration to determine if their efficiencies can be increased.