CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2001

DateRun: 08/22/2001

Experimenters: Jason Marshall

ClientType: Electronics Manufacturer

ProjectNumber: Project #1

Substrates: Ceramics

PartType: Coupon

Contaminants: Adhesive

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric

Purpose: Evaluating cleaners for removal of 590 adhesive.

Experimental Procedure: Five cleaners were selected based on the previous trials. A sixth cleaner was also evaluated based on client request (590 Stripper). Luminox was used diluted to 30% with DI water in a 250 ml beaker. The 590 Stripper was made up according to client specifications, 5 oz into 1000 ml beaker. The remaining four cleaners were used at full strength. DS 108 was heated to 100 F and the other five were heated to 140 F on a hot plate. Eighteen preweighed ceramic coupons were coated with the Crystalbond 590 by heating the adhesive with a heat gun. After cooling to room temperature, "dirty" weights were measured. Three coupons were cleaned in each solution for 60 minutes. Observations were made after 10, 40 and 60 minutes.

Results: Two products, Buckeye Shopmaster and Ecolink Safe Strip, removed nearly all of the Crystalbond 590. Two other products, Dynamold DS 108 and Aremco 590 S Stripper removed over 80% of the contaminant. See Table 1 below
for the efficiencies for each cleaner.

Table 1 Calculated Effectiveness

Cleaner	Coupon 1	Coupon 2	Coupon 3	Std Dev
Luminox	-18.08	-2.59	2.57	10.75
DS 108	95.32	85.73	82.62	6.62
Shopmaster RC	96.08	97.88	99.08	1.51
Safe Strip	100.03	99.89	99.98	0.07
DBE-4	18.83	18.91	20.55	0.97
590 S	81.25	98.15	81.44	9.71

Observations made at the three cleaning intervals are listed below in Table 2.

Table 2. Observations

Time Interval	10	30	60
Luminox	little dissolving	no change	no change
DS 108	turning tan	softened-cloudy tan	same
Shopmaster RC	soft-light yellow color	dark yellow-bulk has fallen off cloudy dark yellow	
Safe Strip	turned cloudy brown	all clean	
DBE-4	soft-light yellow color	soft-yellow	same
590 S	soft-turned red	dark red-1 coupon nearly clean cloudy	dark red-1 completely cleaned

Summary:

Substrates:	Ceramics

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Contaminants:	Adhesive				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Alconox Inc	Luminox	30	-6.03	☐	
Dysol	DS 108 Wipe Solvent	100	87.89	☑	
Buckeye International	Shopmaster RC	100	97.68	☑	
EcoLink	Safe Strip	100	99.97	☑	
Invista S.a.r.l	Flexisolv DBE 4 ester	100	19.43	☐	
Aremco Products Inc	Crystalbond 590 S		86.95	☑	

Conclusion: The four effective products, Shopmaster RC, Safe Strip, DS 108 and Crystalbond 590 S Stripper will be evaluated in removing reed wax.