CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2002

DateRun: 06/30/2002

Experimenters: Jason Marshall

ClientType: Chemical Company

ProjectNumber: Project #1

Substrates: Aluminum

PartType: Coupon

Contaminants: Adhesive, Resins/Rosins

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric

Purpose: To evaluate successful cleaners using ultrasonic energy

Experimental Procedure: Two semi aqueous products and two aqueous products were selected based on the previous trial results. The two semi aqueous products were used at full strength and the two aqueous products were diluted to 10% using DI water in 600 ml beakers. Each solution was heated to 130F in a Crest 40 kHz Ultrasonic unit and degassed for 5 minutes prior to cleaning. Twelve preweighed coupons were coated with Emerson & Cuming Stycast 2651-1 Black, self-curing epoxy resin (1675-54-3, 330-54-1) using a hand held swab. Coupons were allowed to sit overnight and reweighed to determine the amount of resin applied. Three coupons were immersed into each solution at 130 F for 5 minutes using ultrasonic energy. Observations were made every minute during cleaning to determine the time required to achieve effective cleaning. Following cleaning, coupons were rinsed in a tap water bath for 15 seconds at 120 F and dried using a Master Appliance Heat Gun at 500 F for 30 seconds. Once coupons were at room temperature, final clean weights were recorded and cleaning efficiencies were calculated for each product.

Results: The two semi aqueous products needed less than 2 minutes to remove the epoxy resin from the aluminum coupons. The two aqueous products almost removed all of the contaminant within the five minute period. The results for each cleaner are listed below in the table.

Table 1. Cleaning Results

Cleaner	Initial wt of cont.	Final wt of cont.	%Cont Removed
Bio T Max	0.4766	0.0071	98.51
	0.4855	0.0105	97.84
	0.5100	0.0061	98.80
Solsafe	0.4399	0.0014	99.68
	0.3800	0.0021	99.45
	0.3903	0.0016	99.59
Surface Cleanse	0.5088	0.0945	81.43
	0.4182	0.0778	81.40
	0.4409	0.1059	75.98
Inproclean	0.4362	0.0231	94.70
	0.5498	0.0620	88.72
	0.3911	0.0414	89.41

Summary:

Substrates:	Aluminum				
Contaminants:	Adhesive, Resins/Rosins				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Bio Chem Systems	Bio T Max	100	98.38	☑	
Bio Chem Systems	Solsafe 245	100	99.57	☑	
International Products Corporation	Surface Cleanse Concentrated Neutral 930	10	79.60	☐	
Oakite Products	Inproclean 3800	10	90.95	☑	

Conclusion: These four products will be used with ultrasonic energy in an attempt to clean the red epoxy.