CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2005
DateRun:	04/03/2005
Experimenters:	Heidi Wilcox
ClientType:	Wire & Cable Mfr
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Mold Releases
Cleaning Methods:	Ultrasonics
Analytical Methods:	Gravimetric
Purpose:	To evaluate products for removing the mold release agents using ultrasonic cleaning.

Experimental Procedure:

Eight products selected from the lab's database. Two additional product were selected based on client input. Nine products were diluted to 5% by volume in 600 ml glass beakers using DI water. The remaining product was used at full strength. Products were heated to 120 F using a hot plate. Each product was suspended into a Crest 40 kHz ultrasonic tank filled with water at 120 F. The cleaning solutions were degassed for 5 minutes.

Thirty preweighed coupons were first coated with Valspar MR 225 mold release (100-41-4, 1330-20-7, 8052-41-3, 67-63-0, 108-88-3, 110-82-7, 64742-89-8), followed by a second coating with Valspar MR 225 Aerosol (75-28-5, 74-98-6, 100-41-4, 75-09-2). The coupons were placed into a convection oven at 150 F and allowed to cure overnight. After the coupons were cooled to room temperature, a second set of weights were recorded to determine the amount of contaminants were added.

Three coupons were cleaned in each product for five minutes using ultrasonic energy. After cleaning the coupons were removed and dried using compressed air at room temperature. Final weights were to be recorded after coupons were dry. Observations were made and recorded.

Results:

Cleaning the mold release agents in ultrasonic cleaning yielded marginal success with some of the products. The table below lists the amount of soil added, the amount remaining after cleaning and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Aquavantage 1400	0.0546	0.0537	1.65
	0.0400	0.0388	3.00
	0.0523	0.0520	0.57
Shopmaster LpH	0.0374	0.0358	4.28
	0.0413	0.0406	1.69
	0.0515	0.0514	0.19
Daraclean 282	0.0394	0.0399	-1.27
	0.0406	0.0403	0.74
	0.0414	0.0408	1.45
Beyond 2006	0.0349	0.0334	4.30
	0.0540	0.0531	1.67
	0.0359	0.0338	5.85
Polyspray Jet 790 XS	0.0209	0.0226	-8.13
	0.0302	0.0304	-0.66
	0.0249	0.0220	11.65
Crest 211	0.0443	0.0446	-0.68
	0.0426	0.0420	1.41
	0.0272	0.0274	-0.74
SC Aircraft 7 Metal	0.0425	0.0350	17.65
	0.0353	0.0313	11.33
	0.0310	0.0303	2.26
Amberclen L12	0.0287	0.0252	12.20
	0.0181	0.0160	11.60
	0.0255	0.0193	24.31

CLEANING LABORATORY EVALUATION SUMMARY

Crest 14	0.0376	0.0266	29.26
	0.0310	0.0191	38.39
	0.0211	0.0110	47.87
Ionox HC 2	0.0445	0.0373	16.18
	0.0402	0.0234	41.79
	0.0292	0.0084	71.23

Summary:

Substrates:	Aluminum				
Contaminants:	Mold Releases				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Brulin Corporation	Aquavantage 1400	5	1.74	☐	
Buckeye International	Shopmaster LPH	5	2.06	☐	
Magnaflux	Daraclean 282	5	0.31	☐	
Today & Beyond	Beyond 2006	5	3.94	☐	
US Polychem Corporation	Polyspray Jet 790 XS	5	0.95	☐	
Crest Ultrasonics	Crest 211	5	0.00	☐	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	10.41	☐	
Innovative Organics Inc	Amberclean L 12	5	16.04	☐	
Crest Ultrasonics	Crest 14	5	38.50	☑	
Kyzen Corporation	Ionox HC 2	100	43.07	☑	

Conclusion:

Only two of the products removed a substantial amount of soil during the ultrasonic cleaning. Further testing will be conducted on other semi-aqueous products due to the lack of success with aqueous based cleaners.