

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2008

DateRun: 03/04/2008

Experimenters: Jason Marshall

ClientType: Aluminum Anodizing Job Shop

ProjectNumber: Project #2

Substrates: Aluminum

PartType: Coupon

Contaminants: Coatings

Cleaning Methods: Ultrasonics

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate promising alternatives using increased operating conditions, time, temp and agitation

Experimental Procedure: The six products that should signs of dissolving the lacquer from the previous two trials were used at full strength, heated to 130 F in 300 ml beakers suspended in a 40 kHz Branson 2510 ultrasonic unit and degassed for 5 minutes.

Eighteen reweighed 5052 aluminum coupons were coated with the Stan Chem. Inc Red Stop Off (78-93-3, 108-88-3) lacquer using a handheld swab. The coating was allowed to dry for about an hour. Once dry, the coupons were weighed a second time to determine the amount of Red Stop Off applied. Three coupons were immersed into each solution and cleaned for 10 minutes using ultrasonic energy. Rinsing was performed for 15 seconds using tap water heated to 120 F and followed by 30 seconds of air blow off with dry compressed air at room temperature. Final weights were recorded and efficiencies were calculated for each coupon cleaned.

Results: Two products, Shipmaster RC and SC Camisole, removed over 95% of the Red Stop Off lacquer within 10 minutes of ultrasonic cleaning. Additionally, D Greuze 500 Lo removed over 90% of the lacquer if an 15 second wipe was performed following the ultrasonic cleaning. The table below lists the amount of lacquer added, the amount remaining, the calculated efficiency for each coupon cleaned and observations made.

Cleaner	Initial wt	Final wt	% Removed	Observations
Ink Zapper	0.2269	0.2587	-14.01	texture different
	0.2299	0.2678	-16.49	
	0.4230	0.4544	-7.42	
Solsafe 245	0.3710	0.4256	-14.72	visual signs of removal
	0.1475	0.1861	-26.17	
	0.2364	0.2784	-17.77	
Shopmaster RC	0.3111	0.0044	98.59	complete removal
	0.2728	0.0038	98.61	
	0.2869	0.0079	97.25	
DS 144 S	0.1894	0.2305	-21.70	visual signs of removal
	0.2216	0.2630	-18.68	
	0.1526	0.1928	-26.34	
SC Actisolv	0.1414	0.0053	96.25	complete removal
	0.2530	0.0225	91.11	
	0.1385	0.0026	98.12	
D Greeze 500 LO	0.2446	0.3749	-53.27	could be peeled off
	0.2107	0.3032	-43.90	91.29% with wipe
	0.3242	0.4589	-41.55	

Summary:

Substrates:	Aluminum
Contaminants:	Coatings

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Vertec BioSolvents	Ink Zapper	100	-12.64	<input type="checkbox"/>	
Bio Chem Systems	Solsafe 245	100	-19.55	<input type="checkbox"/>	
Buckeye International	Shopmaster RC	100	98.15	<input checked="" type="checkbox"/>	
Dysol	DS 144S Wipe Solvent	100	-22.24	<input type="checkbox"/>	
Gemtek Products	SC Actisolv Safety Solvent	100	95.16	<input checked="" type="checkbox"/>	
Transene Company, Inc.	D Greeze 500 LO	100	-46.24	<input type="checkbox"/>	91.29 with wipe

Conclusion:

The top two performing products will be evaluated using room temperature immersion cleaning for an extended period of time (1 to 2 hours).