CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	10/18/2009
Experimenters:	Heidi Wilcox, Junhee Cho, Scott Nadolna
ClientType:	Ceramic Coating Company
ProjectNumber:	Project #2
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Waxes
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To identify possible alternatives to toluene for manual wax removal.
Experimental Procedure:	Nine products were selected from the lab's on-line database, www.cleanersolutions.org, based on client supplied information. All were used at room temperature. Five alkaline aqueous cleaners were diluted to 5% using DI water in 300 ml beakers. Four cleaners were used at full strength. Twenty-four preweighed aluminum coupons were coated with wax manually without heat gun and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added. Each cleaner tested with three coupons. Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly Clark Reinforced paper towel was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 3 times with the same cleaning solution. Coupon was cleaned for 18 cycles (~30 seconds) straightly. At the end of the cleaning, coupons were dried at room temperature naturally. Final weights were recorded and efficiencies were calculated and recorded.
Results:	Three products were effective in removing the wax with a manual wiping action. The table lists the amount of soil initially added and the amount remaining after cleaning and the product efficiency for each coupon cleaned.

Product	Initial wt	Final wt	% Removed
Buckeye Shopmaster RC 100%			
	0.0245	0.0009	96.32
	0.0360	0.0008	97.77
	0.0257	0.0015	94.16
Gemtek SC Aircraft metal cleaner 5%			
	0.0244	0.0029	88.11
	0.0257	0.0036	85.99
	0.0444	0.0089	79.95
Biochem Solsafe 245 100%			
	0.0425	0.0037	91.29
	0.0381	0.006	84.25
	0.0483	0.0106	78.05
AG Environment Soy Clear 1500 100%			
	0.0524	0.0181	65.45
	0.0587	0.018	69.33
	0.0405	0.0198	51.11
MacDemid ND LF Supreme 5%			
	0.0547	0.0163	70.20
	0.0468	0.0184	60.68
	0.0496	0.0185	62.70
Alconox Detergent 8 5%			
	0.0329	0.0052	84.19
	0.0265	0.0116	56.22

CLEANING LABORATORY EVALUATION SUMMARY

	0.0340	0.0040	88.23
Hurrisafe Hurrisafe 9100 5%			
	0.0449	0.0121	73.05
	0.0397	0.0112	71.78
	0.0362	0.0150	58.56
Activion			
	0.0494	0.0141	71.45
	0.0449	0.0086	80.84
	0.0387	0.0193	50.12
Hurrisafe Hurrisafe S-910 5%			
	0.0315	0.0162	48.57
	0.0318	0.0125	60.69
	0.0592	0.0109	81.58

Summary:

Substrates:	Aluminum
Contaminants:	Waxes

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Buckeye International	Shopmaster RC	100	95.08	☑	
Gemtek Products	SC Aircraft & Metal Cleaner Super Concentrate	5	84.68	☑	
Bio Chem Systems	Solsafe 245	100	84.53	☑	
AG Environmental Products	Soy Clear 1500	100	61.96	☐	
MacDermid Industrial Products	New Dimensions LF Supreme	5	64.53	☐	
Alconox Inc	Detergent 8	5	76.21	☐	
PCI of America	Hurrisafe 9100 Paint Prep	5	67.80	☐	
Activeion Cleaning Solutions LLC	Activeion Pro	100	67.47	☐	

Conclusion:

Three products (Shopmaster RC, SC Aircraft metal cleaner, Solsafe 245) removed more than 85% of the wax from aluminum coupon. A follow up test will be conducted using longer cleaning times.