CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2009
DateRun:	11/15/2009
Experimenters:	Junhee Cho
ClientType:	Metal
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric
Purpose:	To identify alternative cleaner for removing the oil
Experimental Procedure:	Eight products were selected from the lab's on-line database, www.cleanersolutions.org, based on past testing results matching client supplied information. All of these products were used at full strength as recommended by the vendor. All eight products were used at room temperature. Twenty-four pre-weighed 5052 Aluminum coupons were coated with a light layer of the Speed form oil using a handheld swab. The coating was allowed to dry for about an hour. Once dry, the coupons were reweighed a second time. Three coupons were immersed into each solution and cleaned for 5 minutes using stir-bar agitation. Rinsing was not performed, and all coupons are dried at room temperature for day. Final weights were recorded and efficiencies were calculated for each coupon cleaned.
Results:	Three products were effective in removing the oil with a manual wiping action. The table lists the amount of soil initially added, the amount remaining after cleaning and the product efficiency for each coupon cleaned.

Cleaner	Initial Wt	Final wt	% Removed	Observation
Solsafe 245				
	0.0397	0.0037	90.68	
	0.0312	-0.0013	104.17	
	0.0340	-0.0007	100.99	
Smart solve 605				
	0.0244	0.0039	84.02	
	0.0351	0.0063	82.05	
	0.0317	0.0143	54.89	
D Greeze 500 L				cleaner residue remained
	0.0312	0.0518	-66.03	
	0.0422	0.0537	-27.25	
	0.0349	0.0631	-80.80	
Biorenewable Industrial Degreaser				
	0.0431	-0.0004	100.93	
	0.0237	0.0001	99.58	
	0.0275	-0.0002	100.73	
DS 108				cleaner residue remained
	0.0152	0.0123	19.08	
	0.0207	0.0088	57.49	
	0.0139	0.0274	-97.12	
Optisolv OP7171				cleaner residue remained
	0.0154	0.0558	-262.34	
	0.0155	0.035	-125.81	

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	0.0063	0.1862	-2855.56	
SC Soy ester				cleaner residue remained
	0.0110	0.0306	-178.18	
	0.0113	0.0366	-223.89	
	0.0119	0.0585	-391.60	
Maxi Solve				
	0.0170	0.0004	97.65	
	0.0136	-0.0004	102.94	
	0.0246	0.0017	93.09	

Summary:

Substrates:	Aluminum
Contaminants:	Cutting/Tapping Fluids, Lubricating/Lapping Oils

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Bio Chem Systems	Solsafe 245	100	98.35	☑	
United Laboratories International	Smart Solve 605	100	73.65	☑	
Transene Company, Inc.	D Greeze 500 LO	100	-58.03	☐	
Spartan Chemical Company	BioRenewables - Restroom Cleaner	100	100.41	☑	
Dysol	DS 108 Wipe Solvent	100	-6.85	☐	
Kyzen Corporation	Optisolv OP7171	100	-1081.00	☐	
Gemtek Products	SC Soyester	100	-264.56	☐	
Gemtek Products	Safe Care (SC) Maxi Solv	100	97.89	☑	

Conclusion:

Three products, Solsafe 245, Biorenewable Industrial Degreaser, Maxisolve, removed more than 80% of the oil from aluminum coupon. The top four products will be tested on the next supplied oil under similar conditions