CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2008
DateRun:	12/21/2008
Experimenters:	Jason Marshall, Junhee Cho
ClientType:	Electrical Manufacturer
ProjectNumber:	Project #1
Substrates:	Steel
PartType:	Coupon
Contaminants:	Oil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate successful products on supplied oil using manual wiping.
Experimental Procedure:	Ten products were selected from the previous two trials based on success on the supplied ink. All of the products were used at full strength at room temperature. Peweighed steel coupons were coated with the US Oil Company US Penetrant (8052-41-3, 64742-52-5, 111-76-2) contaminant using a handheld swab. The contaminant was allowed to dry for at least a day and then were weighed a second time to determine the amount of oil applied. Three coupons were placed into a Gardner Straight Line washability unit (designed for manual cleaning testing). The cleaning solutions were applied to the three coupons and allowed to sit for one minute. Simulated manual cleaning was run for 40 cycles or about one minute. Following cleaning, the coupons were dried 30 seconds using air blow off with dry compressed air at room temperature. Final weights were measured, and efficiencies were calculated for each coupon cleaned.
Results:	Seven of the ten removed over 85% of the oil using manually wiping. Three of the seven resulted in greater than 90% removal. The table lists the initial weight of the oil, the final weight and the cleaning efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Ink Zapper	0.0727	0.0214	70.56
	0.1056	0.0210	80.11
	0.1333	0.0107	91.97
Graffiti Remover SAC	0.0813	0.0355	56.33
	0.0620	0.0100	83.87
	0.0904	0.0054	94.03
Smart Solve 605	0.0762	0.0045	94.09
	0.0814	0.0102	87.47
	0.0520	0.0088	83.08
EP 921	0.0505	0.0044	91.29
	0.0526	0.0126	76.05
	0.1141	0.0159	86.06
Shopmaster RC	0.0546	0.0040	92.67
	0.0688	0.0034	95.06
	0.0764	0.0025	96.73
Solsafe 245	0.1341	0.0016	98.81
	0.0976	0.0013	98.67
	0.0526	0.0004	99.24
Soyester	0.1395	0.0145	89.61
	0.1380	0.0223	83.84
	0.1469	0.0135	90.81
Maix Solve	0.1124	0.0085	92.44
	0.0530	0.0052	90.19
	0.0938	0.0053	94.35
Green Force Ultra	0.1329	0.0069	94.81
	0.1097	0.0083	92.43
	0.0779	0.0209	73.17

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Safety Strip HT	0.1323	0.0074	94.41
	0.0990	0.0175	82.32
	0.1337	0.0124	90.73

Summary:

Substrates:	Steel
Contaminants:	Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Vertec BioSolvents	Ink Zapper	100	80.88	☐	
Spartan Chemical Company	Graffiti Remover SAC	100	78.08	☐	
United Laboratories International	Smart Solve 605	100	88.21	☑	
Inland Technologies Inc	EP 921	100	84.47	☑	
Buckeye International	Shopmaster RC	100	94.82	☑	
Bio Chem Systems	Solsafe 245	100	98.90	☑	
Gemtek Products	SC Soyester	100	88.09	☑	
Gemtek Products	Safe Care (SC) Maxi Solv	100	92.33	☑	
Alex C Ferguson Inc	Green Force Ultra	100	86.80	☑	
Brulin Corporation	Safety Strip HT	100	89.15	☑	

Conclusion:

Even though a couple of products were not as successful as the others, all ten products will be evaluated on the supplied grease following the same cleaning process. This decision was based on the success of the products on the supplied ink.