CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2006
DateRun:	12/07/2006
Experimenters:	Jason Marshall
ClientType:	Lab
ProjectNumber:	Project #1
Substrates:	Aluminum
PartType:	Coupon
Contaminants:	Greases, Dirt, Oil
Cleaning Methods:	Low Pressure Spray
Analytical Methods:	Gravimetric
Purpose:	Laboratory evaluations of alternative aerosol cleaning products
Experimental Procedure:	Basic cleaning performance testing was conducted using ASTM G122 as the bases for cleaning. Seven products were selected for testing based on previous testing on the selected soil. All products were in aerosol spray cans. Twenty-one preweighed aluminum coupons were coated with a collection of brake/engine soil collected from an automobile shop. The coupons were allowed to sit for one day before a second weight was recorded. Three coupons were cleaned with each solution for 15 seconds via aerosol spray cans. Coupons were not rinsed and were air dried at room temperature for 2 minutes. Following drying, final weights were recorded and cleaning efficiencies were calculated.
Results:	Five products removed over 90% of the soil using aerosol cleaning for 15 seconds. One product, BioBrake, removed just under 80%. The remaining product, Mirachem 500 A, removed under 10%. During spraying, this product did not have a strong spray flow and did not dislodge/remove much of the soil. However, with a wipe the soil should be easily removed. The WD 40 product also did not have a strong spray flow, but was greater than the Mirachem 500 A. The Brake & Parts cleaner had the greatest spray delivery of all the aerosol products. The table below lists the amount of soil applied, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Bio Brake	0.2453	0.0417	83.00
	0.4619	0.1095	76.29
	0.5118	0.1078	78.94
Mirachem 500 A	0.4098	0.3769	8.03
	0.4042	0.3809	5.76
	0.2632	0.2250	14.51
Brakleen	0.4361	0.0214	95.09
	0.4141	0.0600	85.51
	0.2924	0.0196	93.30
Heavy Duty Cleaner Degreaser	0.3133	0.0420	86.59
	0.6793	0.0330	95.14
	0.3622	0.0260	92.82
Micro X	0.7132	0.0117	98.36
	0.7437	0.0204	97.26
	0.8229	0.0620	92.47
Non-Chlorinated Brake Cleaner	0.4152	0.0037	99.11
	0.5046	0.0099	98.04
	0.6540	0.0014	99.79
Brake & Parts Cleaner	1.3045	0.0007	99.95
	0.5256	0.0028	99.47
	0.5833	0.0027	99.54

Summary:

Substrates:	Aluminum
Contaminants:	Greases, Dirt, Oil

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Bio Chem Systems	BioBrake	100	79.41	☐	
Mirachem Corporation	Mirachem 500 A	100	9.44	☐	
CRC Industries	Brakleen Brake Aerosol	100	91.30	☑	
WD 40 Company	Heavy Duty Cleaner-Degreaser	100	91.52	☑	
LPS Laboratories	Micro X	100	96.03	☑	
Barnes	Non Chlorinated Brake Washer	100	98.98	☑	
Next Dimension	Brake & Parts Cleaner	100	99.65	☑	

Conclusion: Five of the seven products were successful in removing the soil mix. The BioBrake could have removed all of the soil with a longer cleaning time and the Mirachem 500 A would be better for long soak times followed by a wipe.