CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2007
DateRun:	01/16/2007
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.

Six products were selected for testing based on previous testing on the selected soil. All six products were used at full strength at room temperature. Each product, approximately 500 mls, was then poured into an EnviroCaddie aerosol spray system and pressurized to just under 95 psi using Nitrogen. Eighteen 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 30 seconds via the aerosol spray system. Coupons were not rinsed and were air dried at room temperature for 5 minutes. Following drying, final weights were recorded and cleaning efficiencies were calculated.

Results:

Five products removed over 85% of the brake soil in under 30 seconds of spray cleaning. Most of the products took longer to dry than previous tested products and/or left a small amount of liquid at the bottom of the coupons. Wiping the off the coupons resulted in cleaning efficiencies above 90%.

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
Harvest Gold	0.1920	0.0683	64.43
	0.3320	0.1034	68.86
	0.3309	0.1212	63.37
Soy Gold 1000	0.6389	0.0247	96.13
	0.8212	0.0275	96.65
	0.7286	0.0702	90.37
Citrus Soy Solvent	0.6523	0.0154	97.64
	0.5848	0.0258	95.59
	0.6709	0.0242	96.39
Maxisolv	0.3716	0.0219	94.11
	0.1359	0.0182	86.61
	0.5639	0.0082	98.55
Soy Gold 2000	0.4519	0.0282	93.76
	0.1839	0.0287	84.39
	0.1486	0.0206	86.14
SL 100	0.1408	0.0163	88.42
	0.3792	0.0310	91.82
	0.1701	0.0222	86.95

The next table lists the average efficiencies after wiping coupons to remove cleaning residue.

	Wipe Ave Efficiency
Soy Gold 1000	97.86
Citrus Soy Solvent	97.68
Maxisolv	94.67
Soy Gold 2000	90.12
SL 100	92.64

Summary:

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Substrates:	Aluminum
Contaminants:	Greases, Dirt, Oil

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
United Laboratories International	United 2002 Harvest Gold	100	65.55	☐	
AG Environmental Products	Soy Gold 1000	100	94.38	☑	
Bi-O-Kleen Industries	Citrus Soy Solvent Cleaner & Degreaser	100	96.54	☑	
Gemtek Products	Safe Care (SC) Maxi Solv	100	93.09	☑	
AG Environmental Products	Soy Gold 2000	100	88.10	☑	
Bi-O-Kleen Industries	Soy Lube- SL 100	100	89.07	☑	

Conclusion: Some of the alternatives may need to be wiped dry. Despite the residue, all cleaners removed over 85% of the brake soil.