CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	04/15/2010
Experimenters:	Jason Marshall, Junhee Cho
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Ceramics, Plastic, Steel
PartType:	Coupon
Contaminants:	Hucker's Soil
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate the supplied products for all purpose cleaning using manual cleaning.

Experimental Procedure:

The supplied cleaning products was diluted with DI water to vendor recommended concentration for all purpose cleaning (3%). A second product was prepared to a 2% dilution.

Preweighed ceramic, plastic G-10 and painted steel coupons were coated with Hucker's Soil Formulation (Jif Creamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%) using a handheld swab and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added.

Three coupons were placed into a Gardner Straight Line Washability unit. A Kimberly-Clark Wypal reinforced paper towel was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 times with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded.

Results:

Both products were effective at removing the Hucker’s soil from the three surfaces using manual wiping. The Product 1 resulted in the higher efficiency, removing more than 90% of the Hucker’s soil. The table lists the amount of soil added, the amount remaining after cleaning and the calculated efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
DeltaGreen - ceramic			
	0.6378	0.0166	97.40
	0.5169	0.0161	96.89
	2.9337	0.0023	99.92
DeltaGreen - painted steel			
	0.0656	0.0083	87.35
	0.2530	0.0089	96.48
	0.0565	0.0101	82.12
DeltaGreen - plastic			
	0.0648	0.0014	97.84
	0.0362	0.0036	90.06
	0.0312	-0.0001	100.32
3Rs - ceramic			
	3.9951	0.2482	93.79
	3.1257	0.2251	92.80
	0.6473	0.0025	99.61
3Rs - painted steel			
	0.0455	0.0102	77.58
	0.0346	0.0087	74.86
	0.0332	0.0034	89.76
3Rs - plastic			
	0.0374	0.0002	99.47
	0.0670	0.0134	80.00

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	0.0746	0.0080	89.28

Summary:

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
DeltaGreen LLC	DeltaGreen Concentrate All Purpose and Degreaser	3	94.26	☑	
Next-Gen Supply Group	3R All Purpose Cleaner	2	88.57	☑	

Conclusion: The supplied product had an overall average efficiency over 85% and performed as well as the conventional cleaning product.