CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2010
DateRun:	10/14/2010
Experimenters:	Jason Marshall, Junhee Cho, Timothy Weil, Chris Damp
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 selected products effectiveness to remove selected soils from selected substrates.
Experimental Procedure:	Four products were evaluated for their effectiveness to remove soil from Painted Steel, Plastic and Ceramic. Three (DFC-14000 @ 2%, DFC-14000 @ 3% and Trader Joe's Multi-Purpose Cleaner RTU) were provided by the client and the fourth was M.D. Stetson Company's 3R's and was selected as a conventional product for comparative purposes. For this evaluation a total of 36 coupons were soiled with Hucker soil, 12 Stainless Steel and 12 Plastic coupons and 12 Ceramic coupons were weighed and coated with Hucker's soil. After allowing 24 hours to dry, coupons were weighed a second time to determine the amount of soil added. Each set of three coupons were cleaned using abrasion testing using the following application and testing procedure. First the cleaning solution was applied to the coupon and the cleaning pad and allowed to set for 1 minute (60 seconds) and then cleaned with 20 cycles each of abrasion cleaning using an inline abrasion tester machine. After allowing time for the coupons ton dry final weights were recorded and efficiencies were calculated.
Results:	Visually there was streaking and staining across the board by all cleaners on all substrates with the exception of the ceramic tiles. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon cleaned.

Cleaner	Initial wt	Final wt	% Removed
Trader Joe's - Plastic			
	0.0898	0.0061	93.21
	0.0539	0.0035	93.51
	0.1007	0.0097	90.37
Trader Joe's - Painted Steel			
	0.0766	0.0448	41.51
	0.0936	0.0076	91.88
	0.1125	0.0157	86.04
Trader Joe's - Ceramic			
	0.2242	0.0029	98.71
	0.0830	0.0254	69.40
	0.1951	0.0045	97.69
3R All Purpose - Plastic			
	0.1028	0.0380	63.04
	0.0766	0.0105	86.29
	0.0731	0.0223	69.49
3R All Purpose - Painted Steel			
	0.0702	0.0170	75.78
	0.0820	0.0012	98.54
	0.1045	0.0232	77.80
3R All Purpose - Ceramic			
	0.2316	0.0260	88.77

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	0.2129	0.0194	90.89
	0.1038	0.0081	92.20
DFC 14000 2% - Plastic			
	0.0502	0.0189	62.35
	0.0487	0.0066	86.45
	0.0628	0.0043	93.15
DFC 14000 2% - Painted Steel			
	0.0729	0.0061	91.63
	0.0830	0.0146	82.41
	0.0607	0.0100	83.53
DFC 14000 2% - Ceramic			
	0.1084	0.0115	89.39
	0.0892	0.0030	96.64
	0.0380	0.0154	59.47
DFC 14000 3% - Plastic			
	0.0831	0.0038	95.43
	0.1335	0.0137	89.74
	0.1477	0.0185	87.47
DFC 14000 3% - Painted Steel			
	0.1205	0.0073	93.94
	0.1179	0.0383	67.51
	0.1074	0.0107	90.04
DFC 14000 3% - Ceramic			
	0.1121	0.0121	89.21
	0.2216	0.0181	91.83
	0.1256	0.0133	89.41

Summary:

Substrates:	Ceramics, Plastic, Steel				
Contaminants:	Hucker's Soil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Chemspec	DFC 14000	2	82.78	☐	
Chemspec	DFC 14000	3	88.29	☑	
Next-Gen Supply Group	3R All Purpose Cleaner	2	82.53	☐	

Conclusion: The only product to remove over 85% of the Hucker's soil was the DFC 14000 at the 3% dilution. However, all of the green products performed as well or better than the conventional product.