CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2011
DateRun:	10/26/2011
Experimenters:	Jason Marshall, Johnny Le, Mahima Tank
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Steel, Chrome
PartType:	Coupon
Contaminants:	Greases, Films, Soaps, Hucker's Soil, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To compare original formulation of product with newer product for all purpose cleaning tasks

Experimental Procedure:

The two cleaning products were diluted with tap water at room temperature to vendor recommended concentration for all purpose cleaning (1:8).

Preweighed painted steel coupons were coated with Hucker's Soil Formulation (Jif Creamy Peanut Butter, Salted Butter, Arrowhead Mills stone ground wheat flour, Egg Yolk, Evaporated milk, distilled water, Printer's ink with boiled linseed oil, Shaws saline solution) 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. A second set of painted steel coupons were coated with DCC 17 Greasy Soil (mixture of three cooking oils/greases: 33% vegetable shortening, 33% lard, 33% vegetable oil and 1% carbon lampblack). A final set of preweighed chrome coupons were coated with a SSL Soil 1 Bathroom soap scum (Bathroom soap scum: All-in-one shampoo and conditioner 28.6%, Dry skin lotion 21.4%, Liquid hand soap 21.4%, Liquid body wash 14.3%, Deodorant bar soap 7.2% and water 7.1%).

Three coupons of each soil 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 surface using manual wiping. The Original formulation resulted in the lowest efficiency, removing about 80% of the Hucker’s soil. The new formulation removed more than 90%. A similar result was found for the DCC 17 Grease Mix, with the new formulation removing more than the original formulations, but both products removed more than 92% of the grease. The bathroom soil resulted in both products removing more than 85% of the bathroom soap scum soil from the surfaces using manual cleaning. For this soil, the original formulation was marginally better than the new formulation.

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
PT Original Hucker's			
	0.0111	0.0021	81.08
	0.0168	0.0023	86.31
	0.0141	0.0036	74.47
PT New Hucker's			
	0.0191	0.0012	93.72
	0.0192	0.0016	91.67
	0.0172	0.0026	84.88
PT Original DCC 17			
	0.0340	0.0027	92.06
	0.0167	0.0013	92.22
	0.0407	0.0032	92.14
PT New DCC 17			
	0.0495	0.0026	94.75
	0.0706	0.0022	96.88
	0.0636	0.0015	97.64

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PT Original Bathroom			
	0.0500	0.0016	96.80
	0.0546	0.0014	97.44
	0.0552	0.0029	94.75
PT New Bathroom			
	0.0375	0.0031	91.73
	0.0221	0.0022	90.05
	0.0424	0.0014	96.70

Summary:

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Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Chemco	Purple Tiger All purpose cleaner	11	89.69	☑	Original formulation
Chemco	Purple Tiger All purpose cleaner	11	93.11	☑	New formulation

Conclusion: In two of three soils, the new formulation of the supplied product worked better than the original version of the cleaning product.