CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2015
DateRun:	04/26/2015
Experimenters:	Loc Nguyen, George Liang
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Ceramics, Plastic, Steel
PartType:	Coupon
Contaminants:	Greases, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gravimetric
Purpose:	To evaluate the supplied product for all purpose cleaning

Experimental Procedure:

Soil Preparation:
A mixture of three cooking oils/greases was made. A melt blend of 33% vegetable shortening, 33% lard, 33% vegetable oil and 1% carbon lampblack was made up fresh for the testing. Care was taken in the application of the soil onto the coupons so that light and heavy areas were avoided. Allow the soiled tiles 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 1 spray of cleaning solution. Each coupon was sprayed 1 time with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). Final weights were recorded, efficiencies were calculated and recorded.

Chemistries Evaluated: E-50, Formula 409, Water

Results:

Cleaner_Substrate	Initial wt	Final wt	% Removed	% Avg. Removed
E50 _Ceramic	0.4829	0.1313	72.81	
	0.5603	0.1623	71.03	
	0.4783	0.0836	82.52	75.45
E50 _plastic	0.4953	0.0292	94.10	
	0.5174	0.0289	94.41	
	0.4912	0.0295	93.99	94.17
E50 _painted steel	0.5313	0.1276	75.98	
	0.4680	0.1517	67.59	
	0.4649	0.0917	80.28	74.61
Formula 409 _Ceramic	0.4688	0.1180	74.83	
	0.4647	0.1268	72.71	
	0.4761	0.0360	92.44	79.99
Formula 409 _plastic	0.4736	0.0238	94.97	
	0.4691	0.0226	95.18	
	0.5048	0.0199	96.06	95.40
Formula 409_painted	0.4777	0.1109	76.78	
	0.4695	0.0659	85.96	
	0.4749	0.0633	86.67	83.14
Water _Ceramic	0.4669	0.0995	78.69	
	0.4706	0.1253	73.37	
	0.4662	0.1696	63.62	71.89
Water _plastic	0.4858	0.0272	94.40	
	0.4732	0.0631	86.67	
	0.4645	0.0432	90.70	90.59
Water _painted steel	0.4723	0.0903	80.88	
	0.4608	0.2208	52.08	

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	0.4613	0.1291	72.01	68.33

Summary Table:

Cleaner:	% Avg. Removed
E-50	81.4
Forumla 409	86.2
Water	79.5

Summary:

Substrates:	Ceramics, Plastic, Steel
Contaminants:	Greases, Food

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
EcoLogic Solutions, Inc.	Deodorizing Cleaner E-50	100	81.40	☑	
Clorox Company	Formula 409 All Purpose Cleaner	100	86.20	☑	
Water	Water	100	79.50	☐	

Conclusion:

The most effective cleaner was Formula 409. It had a rating of 86.2%. In addition to that E-50 had a rating of 81.4% removal rate. Even though E-50 was not considered to be an effective cleaner, it was still partially effective at removing most of the soil from the substrate. For all three cleaners, plastic substrates had the most contaminant removed from its surface. Overall, the best cleaner at removing grease soil contaminant from its surface is in the order of Formula 409, E-50 and Water.