CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2012
DateRun:	09/05/2012
Experimenters:	Junhee Cho
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Steel
PartType:	Coupon
Contaminants:	Greases, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Colorimeter
Purpose:	To evaluate supplied product for grease removal from floor surfaces following CSPA DCC 17

Experimental Procedure:

Floor cleaning for the supplied product was tested using the CSPA DCC 17 - Greasy Soil Test Method for Evaluating Spray-and-Wipe Cleaners Used On Hard, Non-Glossy Surfaces standard. A few minor deviations from the standard were incorporated into the test conducted.

The Greasy Soil Test Method is a standard method that evaluates the cleaning performance of products intended for use on washable walls or other hard, non-glossy surfaces. This method provides instructions for soil application, cleaning and evaluation of spray-and-wipe cleaners under controlled cleaning conditions. This method can be used to assess product performance for cleaning a fabricated greasy soil blend applied to painted wallboard tiles. It is not inclusive of all soil or substrates typically encountered by a consumer while using these products.

Latex painted vinyl composite tiles were substituted for masonite wallboard tiles. These tiles were soiled with a mixture of melted, oily soils containing a small amount of carbon black. The tiles were dried overnight at room temperature. A measured amount of spray-and-wipe cleaner is applied to a reinforced paper towel was used in place of the sponge. The soaked towels were used to scrub a portion of the soiled substrate using a straight-line washability apparatus. The tile was rinsed after cleaning to remove loosened soil. Separate soiled coupons were cleaned with the other products being evaluated instead of using the same soiled coupon as another product. This was done to eliminate any possible cross contamination of the cleaning process. Three coupons were cleaned by each cleaning product being evaluated. Cleaning performance was taken as a linear function of reflectance value, and visually evaluated by a panel of judges.

Coupon preparation:
Two coats of white paint solution were applied to the slightly rough side of the tiles, waiting 15 minutes between each coat. Coupons were allowed to dry overnight at room temperature, and then cure them at 50°C and 50% humidity for 24 hours. Five reflectance readings were taken for each of three separate tiles to obtain a baseline value.

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. Five reflectance readings were made for each of three soiled tiles to obtain a soiled reference value.

Cleaning Test
Place a soiled tile in the tray of the abrasion tester such that the direction of the soiling is perpendicular to the direction of the sponge. In place of using a sponge and pouring solution into dish for application, products were applied to the coated surfaces using a 3-5 sprays from manual spray pump and 4-7 sprays onto the reinforced Wypal X60 paper towel attached to the cleaning instrument. The cleaning was performed using Gardner Straightline washability unit and conducted for the prescribed 5 cycles (10 strokes). Following the initial cycle, there was no discernible difference between the products and an additional 15 cycles were run. The coupons were immediately rinsed with tap water only the surface which was scrubbed.

Cleaning data can be calculated as percent detergency in the following equation:
% DET = R(cleaned) - R(soiled) / R(unsoiled) - R(soiled) X 100

Results:

Based on light meter reading comparisons (L values), the Alpha Chemical D-B product outperformed other cleaners (Alpha Chemical –EB and Alpha Chemical – TPM) in cleaning painted VCT tiles. The Alpha Chemical D-B product resulted in the light readings to return to 88% of the original reading. Alpha Chemical – EB and Alpha Chemical – TPM resulted in light readings returning to 76% and 74% of the original, respectively. For steel substrates, all three Alpha Chemical products were effective cleaners. Alpha Chemical – TPM outperformed the other products resulting in light readings returning to 99% of the original reading.

Product	Substrate	Initial	Dirty	Final	% DET	Overal % DET

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Alpha Chemical - EB	VCT	91.22	26.56	75.89	76.29	75.90
		91.67	26.24	77.04	77.64	
		91.53	24.87	74.05	73.78	
Alpha Chemical - TPM	VCT	90.90	25.50	74.94	75.60	74.38
		91.03	26.02	79.00	81.50	
		90.91	27.56	69.40	66.05	
Alpha Chemical – D-B	VCT	91.68	24.78	82.85	86.80	88.33
		91.16	23.48	84.77	90.56	
		91.13	24.62	82.91	87.64	
Alpha Chemical - EB	Steel	91.35	35.31	82.34	83.94	89.42
		91.37	36.87	86.61	91.27	
		91.37	30.54	87.15	93.06	
Alpha Chemical - TPM	Steel	91.37	33.77	90.02	97.66	98.53
		91.36	31.60	91.02	99.43	
		91.50	29.44	90.58	98.52	
Alpha Chemical – D-B	Steel	91.19	28.95	88.63	95.89	94.80
		90.88	30.72	87.42	94.25	
		91.22	29.83	87.69	94.25	

Average %DET

Cleaner	VCT	Steel	Combined Ave
Alpha Chemical - EB	75.90	89.42	82.66
Alpha Chemical - TPM	74.38	98.53	86.46
Alpha Chemical - D-B	88.33	94.80	91.56

Summary:

Conclusion: Alpha Chemical - D-B had the highest overall average for the three products supplied for testing on kitchen soil removal.