CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2017
DateRun:	09/05/2017
Experimenters:	George Liang, Carla De La Cruz, Vinh Tran
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Vinyl Composite Tiles
PartType:	Coupon
Contaminants:	Greases, Oil, Food
Cleaning Methods:	Manual Wipe
Analytical Methods:	Gloss-Color Meter
Purpose:	To evaluate a supplied product for efficacy on cleaning DCC-17 soil as compared to an industry standard product.
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 On Hard, Non-Glossy Surfaces standards. 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 DCC-17 soil was prepared with a mixture of three cooking oils/greases. A melt blend of 33% vegetable shortening, 33% lard, 33% vegetable oil and 1% carbon lampblack was made up fresh for the soiling of the coupons. Soiling Process: A set consisting of 3 vinyl composite tiles was used to evaluate each cleaner. The coupons were prepared by applying two coats of white paint solution to the slightly rough side of the vinyl composites tiles, with a wait time of 15 minutes between each coating. The coupons were allowed to dry before curing them at 50^{O}C and 50% humidity for 24 hours. Five reflectance readings were taken for each of the tiles to obtain a baseline value for the initial reflectance value () using a gloss meter. Afterwards, the coupons were soiled with DCC-17 using a manual hand-held swab, with 0.5 grams of soil added directly onto the center of each vinyl composite tile. The soiled tiles were allowed to dry for 24 hours at room temperature, before getting five reflectance readings to obtain the soiled reflectance reference value (). Cleaning Process: A set of vinyl composite tiles were placed into the Gardner Straight Line Washability Unit. Instead of using a sponge for the cleaning process, a reinforced Wypal 60X paper towel was used instead. The respective product was sprayed directly onto the coated surfaces using 1 spray from a manual spray pump and 1 spray was used on the reinforced Wypal 60X paper towel that was attached to a cleaning sled on the instrument. The Gardner Straight Line Washability Unit was set to run for 5 cycles (10 strokes). Following the initial cycle, if there is no discernable difference between the products, an additional 5 cycles was run on the coupons. The coupons were immediately rinsed with tap water only on the surface that was scrubbed with the sled to remove any loosened soils. Efficacy Process: The carpet was removed from the manual wipe unit and allowed to dry overnight. A final five reflectance readings was recorded for each coupon to obtain the cleaned reflectance reading (L_{Clean}). A % detergency was calculated using the following formula: $\%DET = (L_{Clean} - L_{Dirty})/(L_{Initial} - L_{Dirty})*100$ The % detergency indicates the ability of a cleaner to lift soil (dirt and grease) from a surface. A set of three panelists were used to visually rank the most effective to least effective cleaner from 1 being the most effective to the n^{th} cleaner as the least effective cleaner.
Results:	The sampled cleaner: Real Clean Floors was just as effective as the comparative cleaner: Bona Hardwood Floor Cleaner, with respective % detergency of 59.16% as compared to 53.67%. The sampled cleaner was observed to be slightly more effective than the sampled cleaner with a difference of 5.49% greater in average % detergency than the comparative cleaner. The visual ranking also matched with the %-detergency result values obtained from the gloss meter; with the least effective cleaner being Bona Hardwood Floor Cleaner as compared to Real Clean Floors.

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Light Meter Results					
Cleaner	Initial L	Dirty L	Clean L	% det.	Avg. % det.
Bona Hardwood Floor Cleaner	93.51	23.39	57.72	48.96	53.67
	94.99	23.83	63.98	56.42	
	94.74	23.90	63.31	55.63	
Real Clean Floors	95.30	26.18	66.67	58.58	59.16
	94.65	25.98	66.61	59.17	
	94.67	25.59	66.85	59.73	

Summary:

Substrates:	Vinyl Composite Tiles				
Contaminants:	Greases, Oil, Food				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Bona US	Hardwood Floor Cleaner	100	53.67	☐	
Real Wood Floors	Real Clean Floors	100	59.16	☑	

Conclusion: The comparative cleaner: Real Clean Floors was observed to be just as effective as the comparative cleaner, Bona Hardwood Floor Cleaner.