CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2007
DateRun:	06/24/2007
Experimenters:	Jason Marshall
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #1
Substrates:	Textile
PartType:	Coupon
Contaminants:	Dirt
Cleaning Methods:	Mechanical Agitation
Analytical Methods:	Light Meter
Purpose:	To evaluate supplied product using cleaning pad typically used in carpet cleaning.

Experimental Procedure:

The procedure followed is a modified version of the Institute of Inspection Cleaning and Restoration Certification (IICRC) Standard and Reference Guide S100. Much of the testing was modeled after Appendix D, IICRC Carpet Cleaning Methods Testing Protocol. The carpet substrate was donated by Shaw Industries of Dalton, GA. This carpet type is specifically designated in the IICRC Appendix method. An AATCC (Research Triangle Park, NC) soil was obtained from Textile Innovators, a division of SDL Atlas of Charlotte, NC, as suggested by DuPont Antron® of Kennesaw, GA.

Prior to soiling, a SPER Scientific Light Meter 840021 was used to measure Foot Candles from the surface of the carpet. Each carpet was marked-off into 6 sections measuring 3.5" (w) and 6" (l). (The carpeting was not cut into individual pieces as it would be too difficult to physically soil and clean smaller carpet sections.) Six readings were taken in each grid area to obtain baseline readings.

Modifications to the above-mentioned standard included: (1) omitting the use of milling stones and (2) replacing the Zytel® Type 6,6 nylon pellets with Nalgene® tubing cut into 1/8" pieces, or 'pellets'. According to the standard, approximately 1000 grams of pellets should be used for every 12 grams of soil. Or, 83 grams of pellets used per gram of soil. S100 also suggests using 500 grams of pellets for each soil under investigation (in this case, one) for carpet measuring 10.375" x 39.375" (408.5 sq. in.). This equals 1.22 (500/408.5 = 1.22) grams of pellets per square inch of carpet. Since the Lab had 174 grams of tubing/ pellets at its disposal, two (2) grams of the AATCC soil were needed to artificially contaminate the carpet.

The carpet was cut into 7.375" x 19.6" (144.54 sq. in.) pieces. The carpet pieces were soiled by placing one piece of carpet into a 1-gallon can, making sure the carpet lined the inner wall of the can. The plastic-tubing pieces were poured into the bucket and the soil was distributed along the width of the can. The can was lidded and placed into a harness attached to a crank shaft. The crank was turned at an average rate of 42 rpm by hand for 5 minutes in one direction, followed by 5 minutes of rotation in the opposite direction.

At the end of the 10-minute soiling regimen, the carpet was placed onto a carpet template and vacuumed with a Eureka SuperBroom (Brush-Up, Motor-Driven/Brush-Roll) vacuum for 3 strokes in the forward direction followed by 3 strokes in the backward direction. The carpet pieces were evaluated again for Foot Candles.

The carpet sections were then cut down the middle, lengthwise to allow carpet samples to fit into the Gardner Straight Line Washability Unit. Each piece was marked-off into three sections.

Each section was saturated with the cleaning product and allowed to soak for five minutes. A supplied carpet cleaning bonnet was cut into three-inch pieces and attached to a drill. The bonnet was also sprayed with the same cleaning product until it was saturated.
After soaking, the drill and carpet bonnet attachment were sent to rotate at 175 rpm, simulating cleaning conditions in the field. Each carpet section was cleaned for 5 minutes. Halfway through the cleaning, the carpet piece and bonnet attachment were again sprayed with the cleaning solution. After cleaning was complete, a third and final series of light meter readings were recorded for each cleaned section.

Three dilutions were used: 1:64 and 1:128. An industry standard product was used at its recommended concentration of 1:640.

Results:

The two dilutions of the supplied cleaning product did not clean as well as the industry standard. Both products had a section of the carpet that became dirtier after the cleaning process. This occurrence was determined to result from the cleaning pad to transfer dirt from a heavier soiled area to a lesser soiled area, resulting in the carpet being dirtier than it started. The dirt was more evenly distributed across the carpet substrate.

When eliminating the dirtier end of the carpet from the average readings, the higher concentration of the supplied product worked almost as well as the industry standard.

The average value for the two dilutions of the supplied product and the industry standard are listed in the table below.

Product	Ave Value	Ave w/o dirtier section

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PC 120 64:1	-53.76	11.35
PC 120 128:1	-13.99	4.68
Liq Formula 90		10.92

Summary:

Substrates:	Textile
Contaminants:	Dirt

Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Next-Gen Supply Group	PC 120 Peroxide Mulitsurface Cleaner	1.56	0.00	☑	
Next-Gen Supply Group	PC 120 Peroxide Mulitsurface Cleaner	0.78	0.00	☐	
Chemspec	Liquid Formula 90	0.156	0.00	☑	

Conclusion: PC 120 at the 64:1 dilution may work as well as the industry standard product tested depending upon the uniformity of soiling of the carpet.