CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2010

DateRun: 06/28/2010

Experimenters: Jason Marshall, Timothy Weil

ClientType: Cleaning Equipment Mfr

ProjectNumber: Project #1

Substrates: Vinyl Composite Tiles

PartType: Coupon

Contaminants: Hucker's Soil

Cleaning Methods: Mechanical Agitation

Analytical Methods: Gloss-Color Meter

Purpose: To determine effectiveness of various cleaning liquids on soiled floor tiles using mechanical equipment.

Experimental Procedure: A four foot by eight-foot piece of plywood was covered with Armstrong Imperial texture standard Exceleron vinyl composition tiles (white). Tiles were adhered using Roberts Vinyl Composition Tile adhesive. The tiles were then coated with a standard floor wax.

Tiles were evaluated using a BYK Spectro Guide gloss/color meter to determine soiled baseline L-values of tiles previously coated with Hucker's Soil Formulation (Jiffy Creamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%).

A modified Tennet T5 Echo floor scrubber machine was filled with room temperature tap water. Americo Red Buff floor maintenance pads were installed, and the brush setting was set to the lowest pressure level. With the squeegee system engaged the floor tiles were cleaned for five minutes. Cleaning took place in one spot on the floor only. Upon the completion of the cleaning, final L-values were recorded. The L-values were used to determine how close the cleaned floor was to the original appearance.

The cleaning process was repeated using hot water (100 F), electrolyzed water (supplied via the Tennet T5 machine), and Zep Commercial Neutral Floor Concentrate (1 oz/gallon).

Results: The extended cleaning resulted in improved cleaning for each fluid tested. The alkaline cleaner had the highest removal of soil followed by cold water. The electrolyzed water system had the lowest soil removal (shown in the Difference column in the table below). Upon review of the process, the electrolyzed water system may not have been operating during cleaning. A retest was conducted to confirm cleaning results.

5-minute cleaning follow-up	Dirty	5 min clean	Difference	% of initial baseline
Cold water	66.36	78.83	12.47	92.94
Hot water	56.77	72.86	16.09	85.08
Electrolyzed water	72.04	76.45	4.41	89.82
EW retest	48.56	74.43	25.87	88.29
Alkaline cleaner - warm	56.56	81.41	24.85	96.43

Summary:

Substrates:	Vinyl Composite Tiles				
Contaminants:	Hucker's Soil				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Water	Water	100	92.94	☑	
Water	Water	100	85.08	☑	
Tennent Corporation	Tennent Electrolyzed Water	100	89.82	☑	
ZEP Manufacturing Company	Neutral Floor Cleaner Concentrate	0.78	96.43	☑	

Conclusion: The modified cleaning time resulted in more effective cleaning. The follow up electrolyzed water test resulted in the greatest improvement of L-value readings from the dirty level to the post clean level as compared to the other cleaning scenarios. An additional test will be conducted to clean a larger area.