

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2010
 DateRun: 07/16/2010
 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: Reevaluation 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 over the smaller soiled section (four center tiles) of the 8'x4' flooring. 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: A retest was conducted to confirm cleaning results. The electrolyzed water system had the highest soil removal. No substantial difference was found between the other three, cold water working better than warm water and the neutral cleaner. The electrolyzed water was run first, followed by room temperature water, hot water then neutral cleaner. This trend was basically the order that the liquids were evaluated during the trial. The cleaning results and results are listed below.

Process	Coupon	Initial L	Dirty L	Final L	%decrease	Cleaned	Ave L value	Run order
Cold Water	1	84.83	27.72	47.95	32.68	56.52	56.55	2
	2	86.17	26.00	49.02	30.17	56.89		
	3	81.07	26.78	44.88	33.03	55.36		
	4	85.76	25.84	49.25	30.13	57.43		
Hot Water	5	85.61	27.73	42.01	32.39	49.07	51.03	3
	6	84.14	29.65	40.52	35.24	48.16		
	7	85.08	35.64	45.68	41.89	53.69		
	8	85.48	26.37	45.46	30.85	53.18		
Electrolyzed	9	85.33	32.08	72.76	37.60	85.27	85.31	1
	10	85.74	31.76	74.81	37.04	87.25		
	11	84.72	31.90	75.04	37.65	88.57		
	12	85.61	26.94	68.60	31.47	80.13		
Zep	13	85.65	36.24	47.58	42.31	55.55	52.39	4
	14	85.85	29.28	44.87	34.11	52.27		
	15	80.25	31.91	40.19	39.76	50.08		
	16	85.35	32.74	44.09	38.36	51.66		

Summary:	Substrates: Vinyl Composite Tiles					
	Contaminants: Hucker's Soil					
	Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:

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Water	Water	100	56.55	<input checked="" type="checkbox"/>	Rank 2
Water	Water	100	51.03	<input type="checkbox"/>	Rank 3
Tennent Corporation	Tennent Electrolyzed Water	100	85.31	<input checked="" type="checkbox"/>	Rank 1
ZEP Manufacturing Company	Neutral Floor Cleaner Concentrate	0.78	52.39	<input type="checkbox"/>	Rank 4

Conclusion:

The electrolyzed water system was the only process that showed significant difference from the other methods. The next follow up test will look at the run order of products to determine if the cleaning order effects performance of the cleaning systems.