CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2011
DateRun:	03/17/2011
Experimenters:	Jason Marshall, Timothy Weil
ClientType:	General
ProjectNumber:	Project #1
Substrates:	Ceramics
PartType:	Part
Contaminants:	Dirt
Cleaning Methods:	Manual Wipe
Analytical Methods:	Visual, Gloss-Color Meter
Purpose:	To evaluate current cleaning process for grout cleaning
Experimental Procedure:	Three cleaning products were selected for comparison. These included two supplied chemicals and steam. Cleaning was performed using a supplied cloth towel or a toothbrush/grout brush and vibratory scrubbing device. Initial light reading were taken of grout in several unsoiled location in building restroom to create a composite baseline reading. In addition, various dirty locations were selected for a composite dirty reading. The selected cleaner and cleaning method were used to clean a section of the dirty bathroom floor. Cleaning product was liberally applied to the floor and then cleaned for a minute with consistent mechanical force. At the end of the cleaning, the surface was wiped with a towel to remove excess dirty and cleaning solution. Once dried, "clean" light readings were taken to determine cleaning effectiveness. Furthermore, visual ranking of each section of cleaned grout was compared against all cleaning processes.
Results:	Visual Observations Scrubbing cleaning with either the hand held brush or mechanical agitation both outperformed the cloth cleaning application. The TMI Neutral Disinfectant product with the mechanical agitation was ranked highest based on visual observations followed by the DfE 401 all purpose cleaner at 2.3%. The DfE at 4.7% with mechanical agitation was ranked the same as the Neutral disinfectant with the hand held brush. Steam cleaning with a brush (no cloth) was the next most effective cleaning process (based on visual rankings). Color-Gloss Evaluation The Neutral Disinfectant with the hand held brush resulted in the highest gloss-color reading after cleaning. The steam cleaning with a brush (no cloth) had the second highest level. The collected data and observations for the cleaning processes are listed in the table.

Coupon #	Unsoiled (Lu)	Soiled (Ls)	Clean (Lc)	Lc-Ls	Lu-Ls	[(Lc-Ls) /Lu-
Neutral cloth	77.67	45.65	53.48	7.83	32.02	24.46
Neutral brush	77.67	45.65	57.34	11.69	32.02	36.51
Neutral sonic	77.67	45.65	54.02	8.37	32.02	26.14
DfE 2.3% cloth	77.67	45.65	49.75	4.10	32.02	12.81
DfE 2.3% brush	77.67	45.65	51.23	5.58	32.02	17.43
DfE 2.3% sonic	77.67	45.65	53.17	7.52	32.02	23.49
DfE 4.7% cloth	77.67	45.65	51.56	5.91	32.02	18.46
DfE 4.7% brush	77.67	45.65	44.71	-0.94	32.02	-2.94
DfE 4.7% sonic	77.67	45.65	47.9	2.25	32.02	7.03
steam small head	77.67	45.65	50.82	5.17	32.02	16.15
steam medium head	77.67	45.65	49.59	3.94	32.02	12.31
steam no cloth with small brush	77.67	45.65	56.25	10.60	32.02	33.11

Method	Visual Rank	Gloss-Color Rank
Neutral cloth	9	4
Neutral brush	3	1
Neutral sonic	1	3
DfE 2.3% cloth	10	10
DfE 2.3% brush	5	7
DfE 2.3% sonic	2	5
DfE 4.7% cloth	12	6
DfE 4.7% brush	8	12
DfE 4.7% sonic	3	11

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steam small head	11	8
steam medium head	7	9
steam no cloth with small brush	5	2

Summary:

Substrates:	Ceramics				
Contaminants:	Dirt				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Water	Water	100	0.00	☐	

Conclusion: Additional cleaners will be selected to determine more effective grout cleaning options.