

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2018
 DateRun: 10/15/2018
 Experimenters: Sabrina Apel, Ted Kearney
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #1
 Substrates: Marble
 PartType: Coupon
 Contaminants: Calcium/lime
 Cleaning Methods: Immersion/Soak
 Analytical Methods: Gravimetric

Purpose: To evaluate bathroom cleaners on effectiveness of cleaning water stains from marble pieces.

Experimental Procedure: To test the descaling performance, the marble block test method was used. In this test, a marble block is submerged for a period of time in five cleaner solutions. The weight of the marble block was measured before the immersion and after the immersion. Marble is chemically similar to hard water stains in that they both are made up of calcium carbonate. Results can be expressed in number of grams lost over time during the immersion process. This method is widely used due to its simplicity but has some restrictions. One such limitation is how other soils typically mixed with hard water stains are not taken into consideration.

Several marble chunks of similar size were weighed to determine the baseline weight of each piece. The marble chunks were then immersed in the five supplied products at vendor recommended dilutions and allowed to soak for 18 hours. For the first hour the marble chunks were taken out of the solutions every 5 minutes rinsed under deionized water, patted down to dry and then weighed. After the weight was taken after every 5 minutes for the first hour the marble chunks were then immersed in the solutions for the rest of the test (17 hours). The marble chunks were then removed after the full 18 hours and rinsed in a deionized water spray at 120 F for 3 minutes to remove any loose material from the chunks. The marble chunks were then dried for 15 minutes using a Master Appliance Heat gun at 500 F. When the marble chunks cooled to room temperature, final weights were recorded to determine weight loss, if any.

Results:	Product	Initial Wt Marble Chunk	Final Wt Marble Chunk	Wt Loss/Gain	% Change
	Fas-Pak MF Deep Foam Spray	13.5090	13.5038	0.0052	0.04
	Lysol Toilet Bowl Cleaner	9.0236	0.0000	9.0236	100
	Lysol Toilet Bowl Cleaner with Hydrogen Peroxide	15.2679	15.1591	0.1088	0.72
	Clorox Toilet Cleaning Gel	18.8138	18.4995	0.3143	1.67
	Scrubbing Bubbles Bubbly Bleach Gel	16.8353	16.8327	0.0026	0.02

Summary:	Substrates: Marble				
	Contaminants: Calcium/lime				
Company Name:	Product Name:	Conc.:	Efficiency:	Effective:	Observations:
Fas-Pak Inc	MF Deep Foam Spray	100		<input type="checkbox"/>	Weight loss 0.04%
Reckitt Benckiser	Lysol Power Toilet Bowl Cleaner	100		<input checked="" type="checkbox"/>	Weight loss 100%
Reckitt Benckiser	Lysol Toilet Bowl Cleaner with Hydrogen Peroxide	100		<input checked="" type="checkbox"/>	Weight loss 0.72%
Clorox Company	Clorox Toilet Cleaning Gel	100		<input checked="" type="checkbox"/>	Weight loss 1.6%
SC Johnson & Son Inc	Scrubbing Bubbles	100		<input type="checkbox"/>	Weight loss 0.02%

Conclusion: The supplied product had the second least weight loss (0.0052 g) when compared to conventional products of the same field of cleaning products. The most effective cleaner in terms of weight loss was Scrubbing Bubbles Bubbly Bleach Gel, with a loss of 0.0026 grams over 18 hours. The supplied product, Fas-Pak MF Deep Foam Spray would be recommended to clean marble surfaces contaminated with water stains.