CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2019

DateRun: 04/09/2019

Experimenters: Sabrina Apel, Diana Pierez

ClientType: Cleaner Manufacturer

ProjectNumber: Project #1

Substrates: Marble

PartType: Coupon

Contaminants: Calcium/lime

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: To evaluate K-Cup cleaners on the effectiveness of their descaling performance using 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 two 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 into the two supplied products at vendor recommended dilutions and allowed to soak for 2 hours. The marble chunks were removed from the solutions after 5 minutes, and were rinsed to remove any loose material, dried using a Master Appliance Heat gun at 500 F, weighed, and reimmersed into the cleaner. This process was repeated after 10, 15, 30, 60, and 120 minutes. After 120 minutes, the marble chunks were removed from the solution, rinsed, and dried. Final weights were recorded to determine weight loss, if any. Three trials were performed for each cleaner.

Results:

Cleaner	Trial	Initial wt Marble	Final Wt Marble	Wt Loss	% Wt Loss	Average % Wt Loss
Clean'n Brew Cleaning Cup	1	17.5481	16.6371	0.9110	5.2	6.15
	2	14.6839	13.6555	1.0284	7.0	
	3	14.5792	13.6676	0.9116	6.3	
Urnex K-Cup Cleaning Cup	1	12.3633	12.1454	0.2179	1.8	0.6
	2	15.9385	15.9223	0.0162	0.1	
	3	12.0028	12.0027	0.0001	0.0	

Summary:

Substrates:	Marble				
Contaminants:	Calcium/lime				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Clean 'n Brew	Clean'n Brew Cleaning Cup		0.00	☑	Average Wt Loss 6.15%
Urnex	Urnex K-Cup Cleaning Cup		0.00	☐	Average wt loss 0.6%

Conclusion: Clean’n Brew Cleaning Cup was the most effective cleaner in terms of weight loss in comparison to the Urnex K-Cup Cleaning Cup cleaner. Clean’n Brew Cleaning Cup had an average of 6.15% weight loss, and Urnex K-Cup Cleaning Cup had an average of 0.6% weight loss. Clean’n Brew Cleaning Cup would be recommended for descaling.