CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	24
DateRun:	11/12/2024
Experimenters:	Tatyanna Moreland Junior
ClientType:	Cleaner Manufacturer
ProjectNumber:	Project #2
Substrates:	Marble
PartType:	Coupon
Contaminants:	Calcium/Scale
Cleaning Methods:	Immersion/Soak
Analytical Methods:	Gravimetric, Visual
Purpose:	Descaling efficacy testing of Virdivis FB-1000 at various concentrations compared to CLR.
Experimental Procedure:	Four marble blocks (2"x2") were tested using solutions of FB1000 at concentrations of 10%, 2%, and 1%, as well as CLR at 50%. Initial weights of the blocks were recorded before immersion. Each block was submerged in its designated solution within a beaker, and observations of dissolution, discoloration, or other changes were documented at 1, 5, 10, 15, and 30-minute intervals. After 30 minutes, the blocks were rinsed under deionized water for 15 seconds and dried with a heat gun set to 500°F for two minutes. The blocks were then allowed to cool to room temperature for two hours. Final weights were measured, and observations of any additional changes were recorded.

Results:

Code	Cleaner	Dilution
A	CLR	50%
B	FB-1000	10%
C	FB-1000	2%
D	FB-1000	1%

Cleaner	Initial wt	Final wt	Wt loss	Time (min)	Observation
A	16.0441	15.1640	0.8801	1	Very fizzy; cloudy
				5	Very fizzy; still cloudy
				10	Very fizzy; very still cloudy
				15	Very fizzy; very still cloudy
				30	Very fizzy; very cloudy; soft
B	15.7732	15.6949	0.0783	1	a little cloudy
				5	cloudy; fizzy
				10	cloudy; fizzy
				15	cloudy; not as much fizz
				30	very cloudy
C	15.8808	15.8460	0.0348	1	no change
				5	no change
				10	small fizz; little cloudy
				15	small fizz; little cloudy
				30	small fizz; cloudy
D	16.1105	16.0973	0.0132	1	no change
				5	no change
				10	little fizz
				15	little fizz
				30	little fizz

CLR (50%) produced a stronger reaction and resulted in greater marble dissolution compared to the FB-1000 dilutions. It also changed the color of the marble from light brown to a deeper brown after rinsing

CLEANING LABORATORY EVALUATION SUMMARY

with DI water and drying. In contrast, the FB-1000 dilutions did not alter the color of the marble blocks like CLR did, but there was still measurable weight loss on each block, even though the reaction and weight loss amount decreased with the lower concentrations.

Summary:

Substrates:	Marble				
Contaminants:	Calcium/Scale				
Company Name:	**Product Name:**	**Conc.:**	**Efficiency:**	**Effective:**	**Observations:**
Jelmar	CLR PRO Calcium, Lime & Rust Remover	50%		☑	
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	10%		☑	
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	2%		☑	
Innovative Chemical Technologies, Inc.	Virdivis FB1000 (ICT 1648L)	1%		☑	

Conclusion:

The FB-1000 concentrations demonstrated effectiveness in dissolving marble blocks, indicating their potential as a calcium remover or descaler. Among the tested dilutions, the 10% solution was the most effective and showed performance closest to the comparative product, CLR (50%).