

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 25

DateRun: 09/24/2024

Experimenters: Cindy McClaughlin, Rachael Rososky

ClientType: Cleaner Manufacturer

ProjectNumber: Project #2

Substrates: Marble

PartType: Part

Contaminants: Calcium/Scale

Cleaning Methods: Immersion/Soak

Analytical Methods: Gravimetric, Visual

Purpose: Descaling efficacy testing of Virdivis FB-1000 product against Lysol Power Toilet Bowl Cleaner.

Experimental Procedure: The baseline weight and visual observations were taken for four marble block chips, three for the Virdivis FB-1000 (one for 10%, one for 2%, and one for 1%) and one for the Lysol toilet bowl cleaner. Each chip was placed in a beaker filled with the designated product solution and immersed completely. The chips were removed from the products and rinsed in tap water for 15 seconds each, and then dried with a heat gun at 500 F for 2 minutes each. The chips were left to cool to room temp for 2 hours total. Once the chips were cooled, final weights were recorded to determine weight loss (if any). Visual observations were made for color change (if any) and presence of marble chips in the solution for each marble block during the immersion process after 1 minute, 5 minutes, 10 minutes, 15 minutes, and 30 minutes.

Results:

| Marble Piece | Initial Weight | Clean Weight | % Removed |
|-------------------------------|----------------|--------------|-----------|
| 1 (FB-1000 10%) | 21.3636 | 21.2091 | 0.7232 |
| 2 (FB-1000 2%) | 28.7136 | 28.6813 | 0.1125 |
| 3 (FB-1000 1%) | 30.9967 | 30.9837 | 0.0419 |
| 4 (Lysol toilet bowl cleaner) | 22.7754 | 21.7376 | 4.5567 |

| Marble Piece | Observation Time Length | Observation Notes |
|-----------------|-------------------------|---|
| 1 (FB-1000 10%) | 1 Minute | little bubbles, foaming, rising slowly, no color change or pieces breaking off, marble looks same |
| | 5 Minutes | lighter color change, cloudy white liquid, all other observations the same |
| | 10 Minutes | more cloudy white at bottom of beaker, crack forming on marble (side corner), no other changes |
| | 15 Minutes | marble turning slight whiter in color, bubble rate slowing, another crack down middle of marble, no other changes |
| | 30 Minutes | solution cloudier, marble got more pale in color, all other observations are the same |
| Marble Piece | Observation Time Length | Observation Notes |
| 2 (FB-1000 2%) | 1 Minute | little to no bubbles or foaming, no color change or pieces falling off, marble looks the same |
| | 5 Minutes | no change from previous observations |
| | 10 Minutes | no change from previous observations |
| | 15 Minutes | some cloudy whitening of solution at the bottom near the marble, no other changes |

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|-------------------------------|-------------------------|---|
| | 30 Minutes | no change from previous observation |
| Marble Piece | Observation Time Length | Observation Notes |
| 3 (FB-1000 1%) | 1 Minute | little to no bubbles or foam, no color change, marble looks the same |
| | 5 Minutes | no change from previous observations |
| | 10 Minutes | no change from previous observations |
| | 15 Minutes | no change from previous observations |
| | 30 Minutes | no change from previous observations |
| Marble Piece | Observation Time Length | Observation Notes |
| 4 (Lysol toilet bowl cleaner) | 1 Minute | little bubbles and foaming, no discoloration or chips, bubbles on marble, no color change |
| | 5 Minutes | bubble rate same, lots of foam on top, no color change, chips breaking off |
| | 10 Minutes | bubble rate slowing, foam same, slight color change, more chips broke off |
| | 15 Minutes | bubble rate same, significant foaming, slight color change, significant chipping |
| | 30 Minutes | bubble rate increasing, significant foaming, slight color change, more chipping |

Summary:

| | | | | | | |
|--|--|---------------|--------------------|--------------------------|----------------------|--|
| Substrates: | Marble | | | | | |
| Contaminants: | Calcium/Scale | | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: | |
| Innovative Chemical Technologies, Inc. | Virdivis FB1000 (ICT 1648L) | 10% | 0.72 | <input type="checkbox"/> | | |
| Innovative Chemical Technologies, Inc. | Virdivis FB1000 (ICT 1648L) | 2% | 0.11 | <input type="checkbox"/> | | |
| Innovative Chemical Technologies, Inc. | Virdivis FB1000 (ICT 1648L) | 1% | 0.04 | <input type="checkbox"/> | | |
| Reckitt Benckiser | Lysol Toilet Bowl Cleaner with Hydrogen Peroxide | RTU | 4.56 | <input type="checkbox"/> | | |

Conclusion:

Virdivis FB-100 was less effective at descaling when compared to the Lysol Power Toilet Bowl Cleaner.