



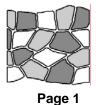
PROSOCO, Inc.

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Attachments

Technical Services TECH Note RILEM Tube Test Procedures Product Data literature for all products evaluated





Submitted Information

For: cc:	Jim Lucas Brian Koenings John Bourne
Subject:	Buechel Stone Corporation Chilton, WI
Date:	

Project: 0506-26 PTP

Samples Submitted: 7 types of dolomitic limestone

Sample	Color	Size
"Frontier Gray"	Gray	12" x 12" x 2½"
"Millcreek – Rock-face"	Gray/Tan	12" x 12" x 2½"
"Sandcastle Dark"	Brown/Gray	12" x 12" x 2½"
"Sandcastle Light"	Light Brown/Gray	12" x 12" x 2½"
"Silverdale"	Light Beige	12" x 12" x 2½"
"Texas Cream"	Beige	12" x 12" x 2½"
"Thermal New York Bluestone"	Green	12" x 12" x 1"

Submitted by: Jim Lucas





Purpose of Testing

Seven types of dolomitic limestone were submitted to PROSOCO, Inc.'s Testing Laboratory with a request to determine the optimum dilution of the new construction cleaning products evaluated for complete removal of laboratory applied mortar while limiting any surface alterations. Additionally, the effectiveness of water repellents, graffiti control products and color and sheen enhancing treatments suitable for limestone were evaluated.

New Construction Cleaning – Sure Klean[®] Vana Trol[®] and Sure Klean[®] Burnished Custom Masonry Cleaner were evaluated for removal of laboratory applied mortar. The surface alteration evaluation was visually determined based upon perceived discoloration or erosion/etching of the samples.

To simulate new construction soiling, the samples were placed on a bench with finished surface facing upward. Hollow cylinders measuring 50 mm in diameter and 75 mm tall were positioned on top of the samples and filled with a wet mixture of Type S cementitious mortar. The wet mortar-filled cylinder was allowed to remain in contact with the samples for 10 minutes before removal.

Heavy deposits of mortar were removed with dry scraping after 24 hours. Prepared cleaning solutions were then evaluated for their effectiveness in removing residual Type S mortar after 3, 7, and 14 days of curing. A visual examination was also made to determine if the tested cleaners caused any surface alterations to the submitted samples based on the following:

<u>Surface Finish Removal</u> is the visual examination of the sample comparing the surface finish of the untreated control surface to the surface finish cleaned with selected product(s) at given dilutions.

<u>Substrate Deterioration</u> is the visual examination of the sample comparing the surface of the untreated control to surfaces cleaned with selected product(s) at given dilutions looking for any potential erosion/digestion of the sample.

<u>Color Change</u> is the visual examination comparing the color of the untreated control surface to color of surfaces cleaned with selected products at given dilutions.

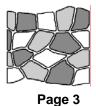
<u>Staining</u> is the visual examination for changes that are the result of a chemical reaction that leaves a staining precipitate.

Protective Water Repellents – Sure Klean[®] Paver Enhancer, Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control, Sure Klean[®] Weather Seal Natural Stone Treatment, Sure Klean[®] Weather Seal Natural Stone Treatment WB, and Stand Off[®] Limestone & Marble Protector were evaluated for their ability to provide water repellency on the submitted samples.

Graffiti Control – Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control and Defacer Eraser[®] Graffiti Barrier S were evaluated for their ability to repel graffiti from the submitted samples. Sure Klean[®] Fast Acting Stripper and Defacer Eraser[®] Graffiti Wipe were evaluated for their ability to remove graffiti from the submitted samples.

Color and Sheen Enhancement – Sure Klean[®] Paver Enhancer, Stand Off[®] Gloss 'N Guard, and Stand Off[®] Gloss 'N Guard WB were evaluated for their ability to provide color and sheen enhancement to the submitted samples.





Products Evaluated

New Construction Cleaning Products Evaluated

Sample	Treatment	Dilution
All Submitted Samples	Sure Klean [®] Vana Trol [®]	1:6, 1:8
	Sure Klean [®] Burnished Custom Masonry Cleaner	1:2, 1:3

Protective Water Repellent Products Evaluated

Sample	Treatment	Dilution
	Sure Klean [®] Paver Enhancer	Concentrate
All Submitted Samples	Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	Concentrate
	Sure Klean [®] Weather Seal Natural Stone Treatment	Concentrate
	Sure Klean [®] Weather Seal Natural Stone Treatment WB	Concentrate
	Stand Off [®] Limestone & Marble Protector	Concentrate

Graffiti Repellent Products Evaluated

Sample	Product	Dilution
All Submitted Samples	Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	Concentrate
All Submitted Samples	Defacer Eraser [®] Graffiti Barrier S	Concentrate

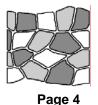
Graffiti Removal Products Evaluated

Sample	Product	Dilution
All Submitted Samples	Sure Klean [®] Fast Acting Stripper	Concentrate
All Submitted Samples	Defacer Eraser [®] Graffiti Wipe	Concentrate

Color and Sheen Enhancement Products Evaluated

Sample	Treatment	Dilution
	Sure Klean [®] Paver Enhancer	Concentrate
All Submitted Samples	Stand Off [®] Gloss 'N Guard	Concentrate
	Stand Off [®] Gloss 'N Guard WB	Concentrate





New Construction Cleaning

These cleaning trials were conducted to determine the optimal cleaning/cure time combination to most efficiently remove Type S mortar from the submitted samples while limiting surface alterations.

Type S cementitious mortar was prepared in compliance with the manufacturer's instructions, applied to the natural stone surface and allowed to cure for 3, 7 and 14 days. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type S mortar was visually evaluated after 3, 7 and 14 days of curing.

Description of Products Evaluated – New Construction Cleaning

Sure Klean[®] Vana Trol[®] – A concentrated acidic cleaner for new masonry surfaces that are subject to vanadium, manganese and other metallic stains. Use on: gray, brown, white, and most light-colored brick; natural stone; cast stone. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-10 parts water. Apply by brush or low-pressure spray.

Sure Klean[®] Burnished Custom Masonry Cleaner – Removes common construction and atmospheric staining from custom masonry and other architectural concrete surfaces. This general-purpose, non-etching, acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Burnished Custom Masonry Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

Test Method – New Construction Cleaning

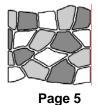
Dilution ratios refer to mixtures of concentrated cleaner : fresh water. Chemical cleaners were evaluated using the following procedure:

- 1. Pre-wet the surface with water.
- 2. Apply the cleaner.

3.	Allow the appropriate dwell time, as specified.	
	Vana Trol [®]	3-5 minutes
	Burnished Custom Masonry Cleaner	
4.	Pressure rinse thoroughly.*	

***Pressure Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.





Test Results - New Construction Cleaning

<u>% removal</u>

"Front	ier Gray"			
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean Vana Troi	1:8	100%	100%	100%
Cure Klass [®] Durnished Custom Massary Classer	1:2	100%	100%	100%
Sure Klean [®] Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
"Millcreek	- Rock-face	"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
	1:8	100%	100%	100%
Sure Klean [®] Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Sure Rieari Burnished Custori Masority Clearler	1:3	100%	100%	100%
"Sandca	stle Dark"			
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
	1:8	100%	100%	100%
Sure Klean [®] Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Sure Klean Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
"Sandca	stle Light"		l.	1
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
	1:8	100%	100%	100%
Sure Klean [®] Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Sure Klean Burnished Custom Masonly Cleaner	1:3	100%	100%	100%
"Silv	erdale"			
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean Vana Troi	1:8	100%	100%	100%
Come Klasse® Dome iskaal Oostaat Maaaaa Olaasaa	1:2	100%	100%	100%
Sure Klean [®] Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
"Texas	s Cream"		•	
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Niedri Varia I 101	1:8	100%	100%	100%
Cure Kleen [®] Durriched Curters Measure Classes	1:2	100%	100%	100%
Sure Klean [®] Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
"Thermal New	York Bluest			
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Miedii Valla 1101	1:8	100%	100%	100%
Sure Kloop [®] Burnished Custom Mesons, Classes	1:2	100%	100%	100%
Sure Klean [®] Burnished Custom Masonry Cleaner	1:3	100%	100%	100%





<u>Test Results</u> – Limiting Surface Alterations

Product Sure Klean [®] Vana Trol [®]		Color: "Frontier	Gray"			
	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining	
	1:6	0	0	0	0	
	1:8	0	0	0	0	
Sure Klean [®] Burnished	1:2	0	0	0	0	
Custom Masonry Cleaner	1:3	0	0	0	0	
Substrate: Limestone	ne Pigment Color: "Millcreek – Rock-face"					
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining	
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0	
	1:8	0	0	0	0	
Sure Klean [®] Burnished	1:2	0	0	0	0	
Custom Masonry Cleaner	1:3	0	0	0	0	
Substrate: Limestone	Pigment	Color: "Sandcas	tle Dark"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining	
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0	
Sule Riean vana 110	1:8	0	0	0	0	
Sure Klean [®] Burnished	1:2	0	0	0	0	
Custom Masonry Cleaner	1:3	0	0	0	0	
Substrate: Limestone	Pigment	Pigment Color: "Sandcastle Light"				
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining	
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0	
	1:8	0	0	0	0	
Sure Klean [®] Burnished	1:2	0	0	0	0	
Custom Masonry Cleaner	1:3	0	0	0	0	
Substrate: Limestone	Pigment	Color: "Silverdal	e"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining	
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0	
Sule Rieall Valla 110	1:8	0	0	0	0	
Sure Klean [®] Burnished	1:2	0	0	0	0	
	1:3	0	0	0	0	
Custom Masonry Cleaner	Pigment	Color: "Texas C	ream"			
Custom Masonry Cleaner Substrate: Limestone		Surface Finish	Substrate Deterioration	Color Change	Staining	
	Dilution	Removal	Deterioration			
Substrate: Limestone Product	Dilution 1:6	Removal 0	0	0	0	
Substrate: Limestone				0 0	0	
Substrate: Limestone Product	1:6	0	0	÷	-	
Substrate: Limestone Product Sure Klean [®] Vana Trol [®]	1:6 1:8	0 0	0 0	0	0	

1 – change – slight

2 - change - moderate

4 - change - excessive





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Test Results – Limiting Surface Alterations

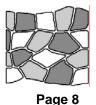
Substrate: Limestone	Pigment	Pigment Color: "Thermal New York Bluestone"					
Product	Dilution	Dilution Surface Finish Substrate Color Change Staining					
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0		
	1:8	0	0	0	0		
Sure Klean [®] Burnished	1:2	0	0	0	0		
Custom Masonry Cleaner	1:3	0	0	0	0		

0 – No change 1 – change – slight 3 – change – heavy

4 - change - excessive

2 – change – moderate





Photographs - New Construction Cleaning

"Millcreek – Rock-face"; 3 Day Cleaning



"Millcreek – Rock-face"; 7 Day Cleaning



"Millcreek – Rock-face"; 14 Day Cleaning





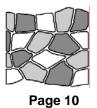


Photographs – Limiting Surface Alterations

"Millcreek - Rock-face"; Limiting Surface Alterations







Conclusions – New Construction Cleaning

Based on the test results, both Sure Klean[®] Vana Trol[®] and Sure Klean[®] Burnished Custom Masonry Cleaner performed well in removing excess mortar from the submitted samples. These products performed well in removing the mortar soils even after allowing the mortar to remain on the surface of the samples for 14 days using Type S mortar under ideal curing conditions.

It is recommended that the selected cleaners always be used in the lowest possible concentration. To facilitate easier removal of excess mortar and construction dirt while minimizing any potential surface alterations to the decorative finish, clean within 3 days of construction when using Type S mortar.

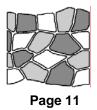
Recommendations – New Construction Cleaning

Recommendations for cleaning for the dolomitic limestone submitted by Buechel Stone Corporation, Inc., Chilton, WI are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while limiting surface alterations.

Sample	New Construction Cleaning (Type S mortar, 14 day cleaning)	
All Submitted Samples	Sure Klean [®] Vana Trol [®] (1:8) OR Sure Klean [®] Burnished Custom Masonry Cleaner (1:3)	

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should always be conducted to determine the most appropriate cleaning product and procedures for a particular project. See product literature for additional application and product information.





Protective Water Repellents

The testing described below evaluates the suitability of water repellent treatments.

The surface treatments evaluated were selected for their suitability for application based on the following selection criteria:

- 1. Weatherproofing properties
- 2. Color change
- 3. Ease of application

<u>Description of Products Evaluated</u> – Protective Water Repellents

Sure Klean[®] Paver Enhancer – A solvent-based blend of high-quality siloxanes modified to provide excellent water repellency and color enhancement to interlocking concrete, fired clay, porous tile and many types of natural stone surfaces. Paver Enhancer penetrates and reacts with the surface to form a chemical bond, providing long-term durability, alkali resistance and superior breatheability.

Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control – A clear, solvent-based silicone elastomer formulated to weatherproof concrete block and other porous masonry materials. Blok-Guard[®] & Graffiti Control protects masonry surfaces from repeated graffiti attacks without altering the natural appearance. Blok-Guard[®] & Graffiti Control penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering. Graffiti removal is fast and easy using Defacer Eraser[®] Graffiti Wipe. Blok-Guard[®] & Graffiti Control is easy to apply with low-pressure spray, brush or roller.

Sure Klean[®] Weather Seal Natural Stone Treatment – A modified siloxane water repellent developed for limestone, marble and most other traditional masonry surfaces. Natural Stone Treatment penetrates deeply to provide long-lasting protection without altering the natural appearance of the substrate. Unlike conventional siloxane water repellents, Natural Stone Treatment is modified for effectiveness on most limestone, marble and other calcareous surfaces.

Sure Klean[®] Weather Seal Natural Stone Treatment WB – A low odor, water-based solution of potassium methyl siliconate developed to effectively treat a wide range of natural stone and masonry surfaces. Natural Stone Treatment WB provides long-lasting repellency without altering the natural appearance of the substrate. Natural Stone Treatment WB is used as a surface treatment on natural stone and masonry surfaces to impart a water-repellent surface and reduce water absorption into the substrate. Unlike conventional siliconate water repellents, Natural Stone Treatment WB has been developed to help prevent surface staining during application.

Stand Off[®] **Limestone & Marble Protector** – A clear, penetrating water and oil repellent suitable for use on interior or exterior calcareous surfaces such as limestone, marble and travertine. It's also suitable for many other types of masonry surfaces. Limestone & Marble Protector penetrates deeply to provide surface and subsurface protection without forming a glossy surface film. Treated surfaces retain their natural color, texture and appearance. Limestone & Marble Protector combines high quality siloxane resins with "oleophobic" resins to produce a penetrating water and oil repellent ideal for long-term protection against food, oil and waterborne staining. Unlike conventional penetrating oil repellent products, Limestone & Marble Protector has been modified to ensure effectiveness on limestone, marble and other calcareous or neutral pH surfaces.





Sample Preparation – Protective Water Repellents

The submitted samples were cut, scored, and allowed to dry for at least 24 hours prior to treatment. The evaluated treatments were applied to the submitted samples by brush as recommended in the current PROSOCO, Inc. Product Guide. All treatments were allowed to cure for at least 7 days prior to testing.

Test Methods - Protective Water Repellents

Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes

The water absorption tube test simulating wind driven and wind blown rain conditions was performed. Tests were run with vertical 5.0-milliliter head pressures. Filled to 5 milliliters, a water absorption tube produces a 103 mph dynamic wind pressure. See RILEM II.4 Tech Note for additional information.

The ranking system used to evaluate the effectiveness of the products applied to each submitted sample is as follows:

AA = "Above Average" correlates to less than or equal to 20% of the maximum untreated absorption.

 \underline{A} = "Average" correlates to less than or equal to 50% of the maximum untreated absorption.

BA = "Below Average" correlates to greater than 50% of the maximum untreated absorption.

EXAMPLE: If RILEM tubes applied to an untreated sample result in loss of 5 ml of water or more, then:

A rating of **AA** Above Average water repellent performance would require loss of no more than:

5 ml X 20% = 1 ml.

A rating of <u>A</u> Average water repellent performance would require loss of no more than:

A rating of **<u>BA</u>** *Below Average* water repellent performance would be reported for treatments which result in a loss of more than:

5 ml X 50% = 2.5ml.





Test Results - Protective Water Repellents

Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes

$\underline{AA} = Above Average \qquad \underline{A} = Average$	<u>BA</u> = Below Average		
"Frontier Gray"	Results in mL loss	Ranking	
Untreated Control	-0.0		
Sure Klean [®] Paver Enhancer	-0.0	AA	
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	AA	
Sure Klean [®] Weather Seal Natural Stone Treatment	-0.0	AA	
Sure Klean [®] Weather Seal Natural Stone Treatment WB	-0.0	AA	
Stand Off [®] Limestone & Marble Protector	-0.0	AA	
"Millcreek – Rock-face"	Results in mL loss	<u>Ranking</u>	
Untreated Control	-1.2		
Sure Klean [®] Paver Enhancer	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Natural Stone Treatment	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Natural Stone Treatment WB	-0.0	AA	
Stand Off [®] Limestone & Marble Protector	-0.0	<u>AA</u>	
"Sandcastle Dark"	Results in mL loss	<u>Ranking</u>	
Untreated Control	-0.5		
Sure Klean [®] Paver Enhancer	-0.0	AA	
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	AA	
Sure Klean [®] Weather Seal Natural Stone Treatment	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Natural Stone Treatment WB	-0.0	AA	
Stand Off [®] Limestone & Marble Protector	-0.0	<u>AA</u>	
"Sandcastle Light"	Results in mL loss	<u>Ranking</u>	
Untreated Control	-0.6		
Sure Klean [®] Paver Enhancer	-0.0	AA	
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Natural Stone Treatment	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Natural Stone Treatment WB	-0.0	AA	
Stand Off [®] Limestone & Marble Protector	-0.0	<u>AA</u>	
"Silverdale"	Results in mL loss	<u>Ranking</u>	
Untreated Control	-1.4		
Sure Klean [®] Paver Enhancer	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Natural Stone Treatment	-0.0	<u>AA</u>	
Sure Klean [®] Weather Seal Natural Stone Treatment WB	-0.0	<u>AA</u>	
Stand Off [®] Limestone & Marble Protector	-0.0	<u>AA</u>	

 $\Delta \Lambda = \Lambda hove \Lambda verse$ $\Lambda = \Lambda verse$ $B\Lambda = Below \Lambda verse$





Test Results - Protective Water Repellents

Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes

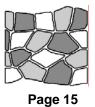
<u>AA</u> = Above Average

<u>A</u> = Average

<u>BA</u> = Below Average

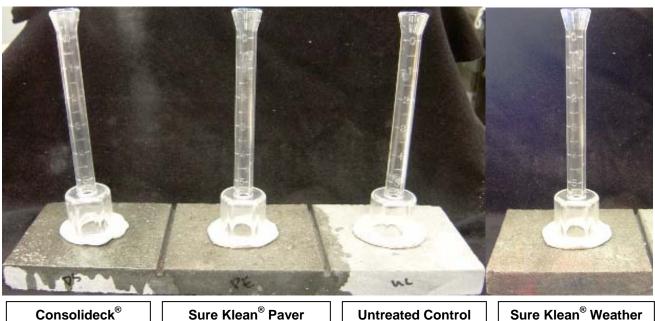
"Texas Cream"	Results in mL loss	<u>Ranking</u>
Untreated Control	-0.8	
Sure Klean [®] Paver Enhancer	-0.0	<u>AA</u>
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	AA
Sure Klean [®] Weather Seal Natural Stone Treatment	-0.0	<u>AA</u>
Sure Klean [®] Weather Seal Natural Stone Treatment WB	-0.0	<u>AA</u>
Stand Off [®] Limestone & Marble Protector	-0.0	<u>AA</u>
"Thermal New York Bluestone"	<u>Results in mL loss</u>	<u>Ranking</u>
"Thermal New York Bluestone" Untreated Control	Results in mL loss -0.0	<u>Ranking</u>
Untreated Control Sure Klean [®] Paver Enhancer		Ranking <u>AA</u>
Untreated Control	-0.0	
Untreated Control Sure Klean [®] Paver Enhancer	-0.0 -0.0	 <u>AA</u>
Untreated Control Sure Klean [®] Paver Enhancer Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0 -0.0 -0.0	 <u>AA</u> <u>AA</u>





Photographs – Protective Water Repellents

"Thermal New York Bluestone"; RILEM Testing



Consolideck[®] DuraSheen



Untreated Control









Conclusions – Protective Water Repellents

Test results indicate that all of the water repellents tested exhibited above average water repellency on the submitted samples. In addition, Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control provided slight to moderate color enhancement to the submitted samples. Sure Klean[®] Paver Enhancer provided moderate to significant color enhancement to the submitted samples. Sure Klean[®] Weather Seal Natural Stone Treatment, Sure Klean[®] Weather Seal Natural Stone Treatment WB and Stand Off[®] Limestone & Marble Protector did not alter the appearance of any of the submitted samples.

<u>Recommendations</u> – Protective Water Repellents

Recommendations for water repellent treatments for the dolomitic limestone submitted by Buechel Stone Corporation, Chilton, WI are provided in the chart below. Recommendations are based on the treatments that proved most effective at providing water repellency on the submitted limestone.

Sample	Water Repellents	
All Submitted Samples	Sure Klean [®] Paver Enhancer OR Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control OR Sure Klean [®] Weather Seal Natural Stone Treatment OR Sure Klean [®] Weather Seal Natural Stone Treatment WB OR Stand Off [®] Limestone & Marble Protector	

The ability of a water repellent treatment to prevent the ingress of water is affected by a variety of factors. Therefore, on-site testing should be carried out for all installations with the recommended systems to ensure job site workmanship yields equivalent results.

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate water repellent product and procedures for a particular project. See product literature for additional application and product information.





Graffiti Control

This evaluation compares the effectiveness of graffiti control treatments in preventing staining of enamel spray paint and permanent markers.

Description of Products Evaluated – Graffiti Control

Products Evaluated for Graffiti Repellency

Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control – A clear, solvent-based silicone elastomer formulated to weatherproof concrete block and other porous masonry materials. Blok-Guard[®] & Graffiti Control protects masonry surfaces from repeated graffiti attacks without altering the natural appearance. Blok-Guard[®] & Graffiti Control penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering. Graffiti removal is fast and easy using Defacer Eraser[®] Graffiti Wipe. Blok-Guard[®] & Graffiti Control is easy to apply with low-pressure spray, brush or roller.

Defacer Eraser[®] Graffiti Barrier S – A clear, water-based sacrificial coating for control of graffiti on most building surfaces. Easy-to apply Graffiti Barrier S stops spray paints, crayons and ink from penetrating and staining the underlying surface. After a graffiti attack, simply remove the graffiti and the sacrificial coating with Defacer Eraser[®] Graffiti Wipe. Reapply the sacrificial coating to restore the graffiti barrier.

Graffiti Barrier S allows cost-effective control of chronic graffiti without chemical strippers or abrasives that can damage building surfaces or the surrounding environment. The coating is formulated as a water-thin liquid for spray application to porous and textured surfaces. It allows protection of limited areas and spot reapplication without a noticeable change in overall color or appearance.

Products Evaluated for Graffiti Removal

Defacer Eraser[®] **Graffiti Wipe** – An easy-to-use graffiti remover that does not contain methanol, methylene chloride or other "halogenated" solvents prohibited on many projects. Graffiti Wipe removes a variety of graffiti stains from most smooth masonry, wood and metal surfaces.

Sure Klean[®] Fast Acting Stripper – A thixotropic stripping compound formulated specifically for removal of high strength paints and coatings such as epoxies, polyurethanes, and floor enamels. Additionally, Fast Acting Stripper dissolves most spray paints, marking pens, lacquers and other graffiti.

Graffiti Agents

Interior/Exterior Spray Paint (Red) Permanent Marker (Green) Permanent Marker (Red) Permanent Marker (Black)





Sample Preparation – Graffiti Control

Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control and Defacer Eraser[®] Graffiti Barrier S were applied by brush to sections of the dolomitic limestone samples in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions, and were allowed to cure for at least one day. A visual adverse effects evaluation was made and then the graffiti agents were applied to the substrates.

Spray paint and markers were applied as graffiti agents to all treated surfaces no sooner than one day following application of Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control and Defacer Eraser[®] Graffiti Barrier S. Removal of the graffiti agents was attempted 24 hours after application of the graffiti agents, using Defacer Eraser[®] Graffiti Wipe and Sure Klean[®] Fast Acting Stripper.

Test Methods – Graffiti Control

Chemical cleaners were evaluated using the following procedure:

- 1. Apply the graffiti removal product to a dry surface, soiled with graffiti.
- 4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

***Pressure Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.





Test Results – Graffiti Control

"Frontier Gray"						
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	90%	95%	70%	98%	88%	
Graffiti Wipe	98%	30%	40%	95%	66%	
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	100%	100%	100%	100%	
Graffiti Wipe	100%	100%	100%	100%	100%	
Graffiti Barrier S	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	100%	100%	100%	100%	
Graffiti Wipe	100%	100%	100%	100%	100%	
	"	Villcreek – Rock	-face"			
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	80%	20%	30%	90%	55%	
Graffiti Wipe	80%	20%	30%	30%	40%	
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	98%	95%	95%	95%	96%	
Graffiti Wipe	95%	95%	95%	95%	95%	
Graffiti Barrier S	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	95%	100%	100%	99%	
Graffiti Wipe	100%	95%	100%	100%	99%	
		"Sandcastle Da	ark"			
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	85%	99%	40%	70%	74%	
Graffiti Wipe	99%	30%	30%	30%	47%	
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	100%	100%	100%	100%	
Graffiti Wipe	100%	100%	100%	100%	100%	
Graffiti Barrier S	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	100%	100%	100%	100%	100%	
Graffiti Wipe	100%	100%	100%	100%	100%	
	"Sandcastle Light"					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	90%	85%	20%	20%	54%	
Graffiti Wipe	95%	20%	20%	20%	39%	
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	98%	100%	100%	100%	100%	
Graffiti Wipe	99%	100%	100%	100%	100%	
Graffiti Barrier S	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal	
Fast Acting Stripper	99%	100%	100%	95%	99%	
Graffiti Wipe	100%	100%	100%	100%	100%	





Test Results – Graffiti Control

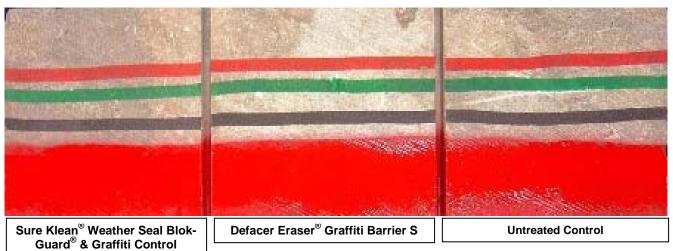
		"Silverdale"	3		
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	70%	70%	50%	70%	65%
Graffiti Wipe	90%	40%	30%	50%	53%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	95%	85%	85%	95%	90%
Graffiti Wipe	95%	85%	80%	90%	88%
Graffiti Barrier S	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	90%	100%	95%	96%
Graffiti Wipe	100%	90%	100%	100%	98%
	•	"Texas Crean	n"		
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	40%	40%	60%	56%
Graffiti Wipe	85%	20%	20%	30%	39%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	95%	90%	85%	98%	92%
Graffiti Wipe	95%	90%	85%	95%	91%
Graffiti Barrier S	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	90%	100%	95%	96%
Graffiti Wipe	100%	98%	100%	100%	100%
	"Ther	mal New York B	luestone"		
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	20%	90%	98%	72%
Graffiti Wipe	90%	20%	90%	90%	73%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	98%	98%	100%	100%	99%
Graffiti Wipe	98%	98%	100%	100%	99%
Graffiti Barrier S	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	95%	100%	100%	99%
Graffiti Wipe	100%	95%	100%	100%	99%



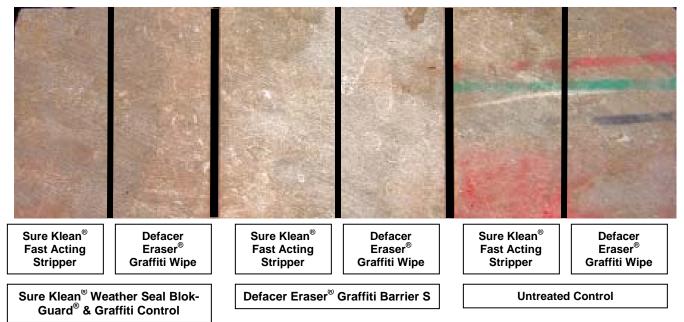


Photographs – Graffiti Control

"Sandcastle Dark"; Before Graffiti Removal



"Sandcastle Dark"; After Graffiti Removal







Conclusions – Graffiti Control

Based upon laboratory evaluations, graffiti removal was improved when the submitted samples were treated with Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control or Defacer Eraser[®] Graffiti Barrier S prior to graffiti application. In addition, Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control provided a slight to moderate color enhancement to the appearance of the submitted samples.

Recommendations – Graffiti Control

Recommendations for graffiti control treatment for each type of dolomitic limestone submitted by Buechel Stone Corporation, Chilton, WI are provided in the chart below. Recommendations are based on the treatment that proved most effective for providing graffiti repellency and the product that was most effective at removing the graffiti on all types submitted.

Sample Type	Graffiti Repellency	Graffiti Removal
All Submitted Samples	Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control OR Defacer Eraser [®] Graffiti Barrier S	Sure Klean [®] Fast Acting Stripper OR Defacer Eraser [®] Graffiti Wipe

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. Because the severity of graffiti varies from location to location, on-site testing should be conducted to determine the most appropriate graffiti control product and procedure for a particular project.





Color and Sheen Enhancement

These trials were conducted to determine the product(s) that provide the best color and sheen enhancement to the submitted dolomitic limestone.

Description of Products Evaluated - Color and Sheen Enhancement

Sure Klean[®] Paver Enhancer – A solvent-based blend of high-quality siloxanes modified to provide excellent water repellency and color enhancement to interlocking concrete, fired clay, porous tile and many types of natural stone surfaces. Paver Enhancer penetrates and reacts with the surface to form a chemical bond, providing long-term durability, alkali resistance and superior breatheability.

Stand Off[®] **Gloss 'N Guard** – A highly durable protective coating for tile, pavers, terrazzo and other polished and unpolished masonry. Gloss 'N Guard dries to a high-gloss finish that enhances the natural beauty of treated surfaces.

Stand Off[®] Gloss 'N Guard WB – A highly durable protective coating for tile, pavers, terrazzo and other polished and unpolished masonry. Gloss 'N Guard WB dries to a satin-gloss finish which enhances the natural beauty of treated surfaces. The water-borne acrylic formula complies with all known AIM VOC regulations nationwide.

Sample Preparation – Color and Sheen Enhancement

Samples were cleaned with Enviro Klean[®] 2010 All Surface Cleaner diluted with 10 parts water and allowed to dry for 24 hours prior to treatment.

Test Method – Color and Sheen Enhancement

All treatments were applied by brush in accordance with the application instructions in the current PROSOCO, Inc. Product Data Sheets. Visual examinations for color and sheen enhancement were then made, comparing the treated surfaces to an untreated surface.





Test Results – Color and Sheen Enhancement

"Frontier Gray"				
Treatment	Color Enhancement	Sheen Enhancement		
Sure Klean [®] Paver Enhancer	3	1		
Stand Off [®] Gloss 'N Guard	3	3		
Stand Off [®] Gloss 'N Guard WB	1	3		
"Millcree	k – Rock-face"			
Treatment	Color Enhancement	Sheen Enhancement		
Sure Klean [®] Paver Enhancer	2	0		
Stand Off [®] Gloss 'N Guard	3	2		
Stand Off [®] Gloss 'N Guard WB	2	3		
"Sand	castle Dark"			
Treatment	Color Enhancement	Sheen Enhancement		
Sure Klean [®] Paver Enhancer	3	0		
Stand Off [®] Gloss 'N Guard	3	2		
Stand Off [®] Gloss 'N Guard WB	1	3		
"Sando	astle Light"			
Treatment	Color Enhancement	Sheen Enhancement		
Sure Klean [®] Paver Enhancer	3	0		
Stand Off [®] Gloss 'N Guard	2	2		
Stand Off [®] Gloss 'N Guard WB	1	3		
"Si	verdale"			
Treatment	Color Enhancement	Sheen Enhancement		
Sure Klean [®] Paver Enhancer	2	0		
Stand Off [®] Gloss 'N Guard	3	1		
Stand Off [®] Gloss 'N Guard WB	1	3		
"Tex	"Texas Cream"			
Treatment	Color Enhancement	Sheen Enhancement		
Sure Klean [®] Paver Enhancer	2	0		
Stand Off [®] Gloss 'N Guard	3	1		
Stand Off [®] Gloss 'N Guard WB	1	3		
"Thermal New York Bluestone"				
Treatment	Color Enhancement	Sheen Enhancement		
Sure Klean [®] Paver Enhancer	3	0		
Stand Off [®] Gloss 'N Guard	3	2		
Stand Off [®] Gloss 'N Guard WB	3	3		

Scale: 0- No Enhancement; Dull

1- Slight Enhancement

2- Moderate Enhancement

3- Significant Enhancement





Photographs – Color and Sheen Enhancement



"New York Thermal Bluestone"; Treatments Applied





Recommendations – Color and Sheen Enhancement

Recommendations for color and sheen enhancement for the dolomitic limestone submitted by Buechel Stone Corporation, Chilton, WI are provided in the chart below. Recommendations are based on the treatment or treatments that proved most effective in providing color and sheen enhancement to the submitted samples.

Sample	Color Enhancement	Sheen Enhancement
"Frontier Gray" "Sandcastle Dark" "Sandcastle Light"	Sure Klean [®] Paver Enhancer OR Stand Off [®] Gloss 'N Guard	Stand Off [®] Gloss 'N Guard OR Stand Off [®] Gloss 'N Guard WB
"Millcreek – Rock-face" "Thermal New York Bluestone"	Sure Klean [®] Paver Enhancer OR Stand Off [®] Gloss 'N Guard OR Stand Off [®] Gloss 'N Guard WB	Stand Off [®] Gloss 'N Guard OR Stand Off [®] Gloss 'N Guard WB
"Silverdale" "Texas Cream"	Sure Klean [®] Paver Enhancer OR Stand Off [®] Gloss 'N Guard	Stand Off [®] Gloss 'N Guard WB

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate product and procedures for a particular project. See product literature for additional application and product information.

Christopher A. Moore Project Testing Laboratory Technician

CAM



Laboratory Report

Pallet Tag Program Evaluation

Buechel Stone Corporation Chilton, WI

Project No. 0506-26 PTP

Prepared For:

Buechel Stone Corporation W 3639 Hwy H Chilton, WI 53014

Prepared By:

PROSOCO, Inc. November 2005