

**Table of Contents**

**Executive Summary** ..... i

**Submitted Information** ..... 1

**Introduction** ..... 2

**Purpose of Testing**..... 2

**Products Evaluated**..... 3

**New Construction Cleaning** ..... 4

    Description of Products Evaluated – New Construction Cleaning ..... 4

    Test Method – New Construction Cleaning ..... 4

    Test Results – New Construction Cleaning ..... 5

    Test Results – Limiting Surface Alterations ..... 6

    Test Results – Limiting Surface Alterations ..... 7

    Photographs – New Construction Cleaning ..... 8

    Photographs – Limiting Surface Alterations ..... 9

    Conclusions – New Construction Cleaning ..... 10

    Recommendations – New Construction Cleaning ..... 10

**Protective Water Repellents**..... 11

    Sample Preparation – Protective Water Repellents ..... 11

    Test Methods – Protective Water Repellents ..... 12

    Water Absorption – Capillary Uptake ..... 12

    Test Results – Protective Water Repellents ..... 13

    Photographs – Protective Water Repellents ..... 15

    Conclusions – Protective Water Repellents ..... 15

    Recommendations – Protective Water Repellents ..... 16

**Stain Repellency** ..... 17

    Description of Products Evaluated – Stain Repellency ..... 17

    Sample Preparation – Stain Repellency ..... 17

    Test Method – Stain Repellency ..... 18

    Test Results – Surface Beading ..... 19

    Test Results – Stain Repellency ..... 20

        “Mountain Rust” ..... 20

        “Copper Quartzite” ..... 20

        “Chiseled Sand Shadowstone” ..... 21

        “Arctic White Shadowstone” ..... 21

        “Terracotta Verde” ..... 22

        “Charcoal Gray” ..... 22

        “Blue Stone” ..... 23

        “Sierra Sandstone” ..... 23

        “Desert Rose” ..... 24

    Photographs – Stain Repellency ..... 25

    Conclusions – Stain Repellency ..... 26

    Recommendations – Stain Repellency ..... 26

**Color and Sheen Enhancement**..... 27

    Description of Products Evaluated – Color and Sheen Enhancement ..... 27

    Sample Preparation – Color and Sheen Enhancement ..... 27

    Test Method – Color and Sheen Enhancement ..... 27

    Test Results – Color and Sheen Enhancement ..... 28

    Photographs – Color and Sheen Enhancement ..... 29

    Recommendations – Color and Sheen Enhancement ..... 29

**Attachments**

    Technical Services TECH Note RILEM Tube Test Procedures

    Product Data literature for all products evaluated

**Submitted Information**

**For:** Mike Quarton, Realstone Systems, LLC  
**Cc:** Brian Koenings  
 John Bourne

**Subject:** Realstone Systems, LLC  
 Troy, MI

**Date:** October 9, 2006

**Project:** 0611-05 PTP

**Samples Submitted:** 9 types of natural stone for both horizontal and vertical installations, composed of quartz, slate, or sandstone.

<b>Sample</b>	<b>Type</b>	<b>Color</b>	<b>Size</b>
Mountain Rust	Quartz	Multi-Color	24" x 6" x 1"
Copper Quartzite	Quartz	Multi-Color	24" x 6" x 1"
Chiseled Sand Shadowstone	Quartz	White	24" x 6" x 1"
Arctic White Shadowstone	Quartz	White	24" x 6" x 1"
Terracotta Verde	Slate	Multi-Color	24" x 6" x 1"
Charcoal Gray	Slate	Gray	24" x 6" x 1"
Blue Stone	Slate	Blue	24" x 6" x 1"
Sierra Sandstone	Quartz	Multi-Color	24" x 6" x 1"
Desert Rose	Sandstone	Pink	24" x 6" x 1"

Submitted by: Mike Quarton, Realstone Systems, LLC, Troy, MI

---

## **Introduction**

Architectural Materials Testing (AMT) Laboratories is a Boyer Industries company that provides laboratory testing and consulting services for the construction industry. Laboratory testing includes evaluating chemical cleaning products and protective treatments for a variety of new and existing architectural materials.

This report includes descriptions of the PROSOCO, Inc. products and test methods that were used. Following test results and conclusions, the report provides recommendations for the most effective products and procedures.

---

## **Purpose of Testing**

Nine types of natural stone, composed of quartz, slate or sandstone, were submitted to AMT Laboratories by PROSOCO, Inc. with a request to determine if application of the products evaluated will produce any surface alterations during new construction cleaning operations. Additionally, the effectiveness of water repellents, graffiti control products, stain repellents, and color and sheen enhancement products suitable for natural stone were evaluated.

**New Construction Cleaning** – Sure Klean® Vana Trol® and Sure Klean® Manufactured Stone Cleaner were tested at various dilutions to determine the optimum cleaner/cure time combination for complete removal of laboratory applied Type M mortar from the submitted natural stone while limiting surface alterations. 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 M 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 M 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:

**Surface Finish Removal** 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.

**Substrate Deterioration** 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.

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

**Staining** is the visual examination for changes that are the result of a chemical reaction that leaves a staining precipitate.

**Protective Water Repellents** – Sure Klean® Weather Seal Natural Stone Treatment, Sure Klean® Weather Seal Natural Stone Treatment WB and Consolideck® Saltguard® WB were evaluated for their ability to provide water repellency to the submitted samples.

**Stain Repellency** – Stand Off® SLX100 Water & Oil Repellent and Stand Off® Stone, Tile & Masonry Protector (STMP) were evaluated for their ability to repel stains from the submitted samples.

**Color and Sheen Enhancement** – Stand Off® Color Enhancer and Paver Kare® Paver Enhancer were evaluated on the submitted samples for their ability to provide color and/or sheen enhancement.

**Products Evaluated****New Construction Cleaning Products Evaluated**

Sample	Product	Dilution
All Submitted Natural Stone	Sure Klean® Vana Trol®	(1:6), (1:8)
	Sure Klean® Manufactured Stone Cleaner	(1:3)

**Protective Water Repellent Products Evaluated**

Sample	Product	Dilution
All Submitted Natural Stone	Sure Klean® Weather Seal Natural Stone Treatment	Concentrate
	Sure Klean® Weather Seal Natural Stone Treatment WB	Concentrate
Quartz & Sandstone Samples	Consolideck® Saltguard® WB	Concentrate

**Stain Repellency Products Evaluated**

Sample	Product	Dilution
All Submitted Natural Stone	Stand Off® SLX100 Water & Oil Repellent	Concentrate
	Stand Off® Stone, Tile & Masonry Protector (STMP)	Concentrate

**Color and Sheen Enhancement Products Evaluated**

Sample	Product	Dilution
All Submitted Natural Stone	Stand Off® Color Enhancer	Concentrate
	Paver Kare® Paver Enhancer	Concentrate

Dilution ratios refer to mixtures of concentrated product : fresh water.

**New Construction Cleaning**

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

Type M cementitious mortar was prepared in compliance with the manufacturer's instructions, applied to the sample's 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 M cementitious 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® Manufactured Stone Cleaner** – Removes common construction and atmospheric staining from manufactured stone 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. Manufactured Stone Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

---

**Test Method – New Construction Cleaning**

New construction 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:
 

Sure Klean® Vana Trol® .....	3-5 minutes
Sure Klean® Manufactured Stone Cleaner .....	3-5 minutes
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****Cleaning Effectiveness (% Type M Mortar Removal)**

<b>“Mountain Rust”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	98%	99%	95%
Sure Klean® Vana Trol®	1:8	95%	99%	98%
Manufactured Stone Cleaner	1:3	99%	95%	98%
<b>“Copper Quartzite”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	100%	100%	100%
Sure Klean® Vana Trol®	1:8	100%	100%	100%
Manufactured Stone Cleaner	1:3	100%	100%	98%
<b>“Chiseled Sand Shadowstone”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	98%	98%	100%
Sure Klean® Vana Trol®	1:8	99%	98%	100%
Manufactured Stone Cleaner	1:3	95%	100%	98%
<b>“Arctic White Shadowstone”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	100%	100%	100%
Sure Klean® Vana Trol®	1:8	98%	100%	85%
Manufactured Stone Cleaner	1:3	95%	100%	98%
<b>“Terracotta Verde”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	100%	100%	100%
Sure Klean® Vana Trol®	1:8	100%	100%	100%
Manufactured Stone Cleaner	1:3	100%	100%	100%
<b>“Charcoal Gray”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	95%	98%	99%
Sure Klean® Vana Trol®	1:8	98%	98%	99%
Manufactured Stone Cleaner	1:3	98%	95%	98%
<b>“Blue Stone”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	100%	95%	100%
Sure Klean® Vana Trol®	1:8	100%	90%	90%
Manufactured Stone Cleaner	1:3	100%	95%	85%
<b>“Sierra Sandstone”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	100%	100%	100%
Sure Klean® Vana Trol®	1:8	100%	100%	100%
Manufactured Stone Cleaner	1:3	100%	100%	100%
<b>“Desert Rose”</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Sure Klean® Vana Trol®	1:6	90%	90%	90%
Sure Klean® Vana Trol®	1:8	85%	90%	85%
Manufactured Stone Cleaner	1:3	90%	95%	70%

**Test Results – Limiting Surface Alterations**

<b>Substrate:</b> Quartz		<b>Pigment Color:</b> “Mountain Rust”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	3	2	3	4
Sure Klean® Vana Trol®	1:8	3	2	3	4
Manufactured Stone Cleaner	1:3	3	2	3	4
<b>Substrate:</b> Quartz		<b>Pigment Color:</b> “Copper Quartzite”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	3	4	3	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4
<b>Substrate:</b> Quartz		<b>Pigment Color:</b> “Chiseled Sand Shadowstone”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	4	4	4	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4
<b>Substrate:</b> Quartz		<b>Pigment Color:</b> “Arctic White Shadowstone”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	4	4	4	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4

**Test Results – Limiting Surface Alterations**

<b>Substrate: Slate</b>		<b>Pigment Color: "Terracotta Verde"</b>			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	4	4	4	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4
<b>Substrate: Slate</b>		<b>Pigment Color: "Charcoal Gray"</b>			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	4	4	4	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4
<b>Substrate: Slate</b>		<b>Pigment Color: "Blue Stone"</b>			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	4	4	4	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4
<b>Substrate: Quartz</b>		<b>Pigment Color: "Sierra Sandstone"</b>			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	4	4	4	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4
<b>Substrate: Sandstone</b>		<b>Pigment Color: "Desert Rose"</b>			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	4	4	4	4
Sure Klean® Vana Trol®	1:8	4	4	4	4
Manufactured Stone Cleaner	1:3	4	4	4	4



**Photographs – New Construction Cleaning**

**“Blue Stone”; 3 Day Cleaning**



**Sure Klean®  
Vana Trol® (1:6)**

**Sure Klean®  
Vana Trol® (1:8)**

**Sure Klean®  
Manufactured Stone  
Cleaner (1:3)**

**Untreated Control**

**“Blue Stone”; 7 Day Cleaning**



**Sure Klean®  
Vana Trol® (1:6)**

**Sure Klean®  
Vana Trol® (1:8)**

**Sure Klean®  
Manufactured Stone  
Cleaner (1:3)**

**Untreated Control**

**“Blue Stone”; 14 Day Cleaning**



**Sure Klean®  
Vana Trol® (1:6)**

**Sure Klean®  
Vana Trol® (1:8)**

**Sure Klean®  
Manufactured Stone  
Cleaner (1:3)**

**Untreated Control**

**Photographs – Limiting Surface Alterations**

**“Blue Stone”; Limiting Surface Alterations**



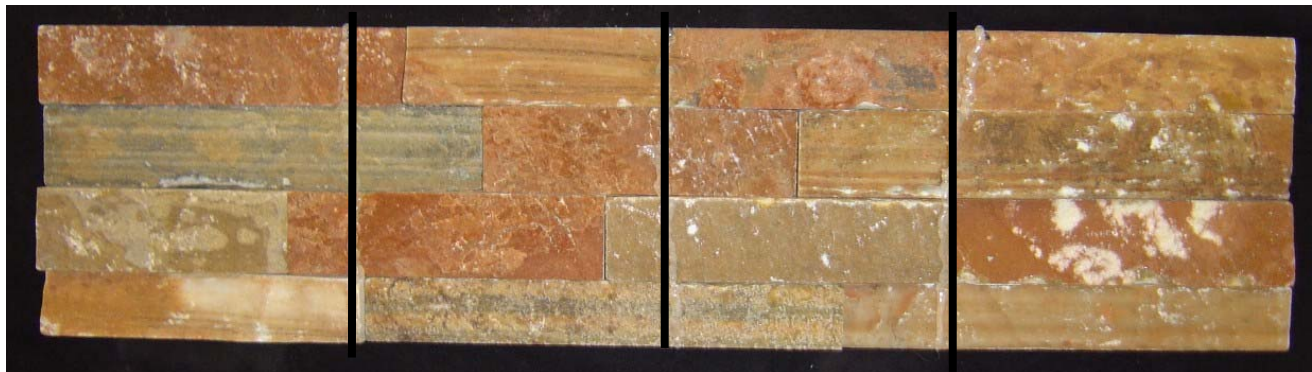
**Sure Klean®  
Vana Trol® (1:6)**

**Sure Klean®  
Vana Trol® (1:8)**

**Sure Klean®  
Manufactured Stone  
Cleaner (1:3)**

**Untreated Control**

**“Mountain Rust”; Limiting Surface Alterations**



**Sure Klean®  
Vana Trol® (1:6)**

**Sure Klean®  
Vana Trol® (1:8)**

**Sure Klean®  
Manufactured Stone  
Cleaner (1:8)**

**Untreated Control**

---

### **Conclusions – New Construction Cleaning**

Based on the test results, Sure Klean® Vana Trol® and Sure Klean® Manufactured Stone Cleaner performed well in removing excess mortar from the submitted samples. Both cleaners performed well in removing the mortar soils even after allowing the mortar to remain on the surface of the samples for 14 days under ideal curing conditions. Neither Sure Klean® Vana Trol nor Sure Klean® Manufactured Stone Cleaner caused noticeable surface alterations to any of the submitted samples.

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 M mortar.

---

### **Recommendations – New Construction Cleaning**

Recommendations for cleaning for the natural stone submitted by Realstone Systems, LLC, Troy, MI are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while limiting surface alterations.

<b>Sample</b>	<b>New Construction Cleaning (Type M mortar, 14 day cleaning)</b>
All Submitted Natural Stone	Sure Klean® Vana Trol® (1:6) OR (1:8) OR Sure Klean® Manufactured Stone 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
- 

## **Description of Products Evaluated – Protective Water Repellents**

**Consolideck® Saltguard® WB** – A ready-to-use water-based, VOC compliant silane/siloxane water repellent and “chloride screen” for the protection of concrete and masonry surfaces. Saltguard® WB penetrates more deeply than conventional water- or solvent-based water repellents. Low odor and alkaline stable, Saltguard® WB is ideal for field or in-plant application to concrete and most masonry surfaces. Saltguard® WB protects horizontal and vertical surfaces from moisture intrusion and chemical attack of chloride salts.

**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 silicate 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 silicate water repellents, Natural Stone Treatment WB has been developed to help prevent surface staining during application.

---

## **Sample Preparation – Protective Water Repellents**

The submitted samples were scored and allowed to dry for at least 24 hours prior to treatment. All treatments were applied by brush in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions. All treatments were allowed to cure for at least 72 hours 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 5.0 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.

**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 5.0 mL of water or more, then:

A rating of **AA** *Above Average* water repellent performance would be reported for treatments which result in a loss of no more than:

$$5.0 \text{ mL} \times 20\% = \mathbf{1.0 \text{ mL}}$$

A rating of **A** *Average* water repellent performance would be reported for treatments which result in a loss of no more than:

$$5.0 \text{ mL} \times 50\% = \mathbf{2.5 \text{ mL}}$$

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

$$5.0 \text{ mL} \times 50\% = \mathbf{2.5 \text{ mL}}$$


---

## **Water Absorption – Capillary Uptake**

The RILEM absorption tube would not fit on two of the slate samples, “Charcoal Gray” and “Blue Stone”, due to the narrow strips that the samples are composed of. Therefore, the Capillary Uptake method for water absorption was evaluated on these samples.

Water absorption values were determined by comparing the dry weight of the sample with its weight after water uptake by capillary absorption through the surface for 1-minute, 4-minute, 9-minute, 16-minute, 36-minute, and 64-minute timed intervals. These values were then compared with values derived from similar evaluation of a treated sample to determine changes in water absorption characteristics created by the treatment.

**Test Results – Protective Water Repellents****Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes****AA = Above Average****A = Average****BA = Below Average**

<b>“Mountain Rust”</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	0.0	--
Consolideck® Saltguard® WB	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment WB	0.0	<b>AA</b>
<b>“Copper Quartzite”</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	0.0	--
Consolideck® Saltguard® WB	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment WB	0.0	<b>AA</b>
<b>“Chiseled Sand Shadowstone”</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	0.0	--
Consolideck® Saltguard® WB	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment WB	0.0	<b>AA</b>
<b>“Arctic White Shadowstone”</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	0.0	--
Consolideck® Saltguard® WB	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment WB	0.0	<b>AA</b>
<b>“Terracotta Verde”</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	< 0.1	--
Sure Klean® Weather Seal Natural Stone Treatment	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment WB	0.0	<b>AA</b>
<b>“Sierra Sandstone”</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	0.0	--
Consolideck® Saltguard® WB	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment WB	0.0	<b>AA</b>
<b>“Desert Rose”</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	0.0	--
Consolideck® Saltguard® WB	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment	0.0	<b>AA</b>
Sure Klean® Weather Seal Natural Stone Treatment WB	0.0	<b>AA</b>

**Test Results – Water Absorption – Capillary Uptake**

<b>Substrate: Slate</b>	<b>Color: "Charcoal Grey"</b>						
<b>Product</b>	<b>% Absorbed 1 minute</b>	<b>% Absorbed 4 minute</b>	<b>% Absorbed 9 minute</b>	<b>% Absorbed 36 minute</b>	<b>% Absorbed 36 minute</b>	<b>% Absorbed 64 minute</b>	<b>% Effective</b>
Untreated Control	0.16%	0.15%	0.17%	0.18%	0.17%	18%	--
Natural Stone Treatment	0.06%	0.09%	0.08%	0.07%	0.08%	8%	<b>53.9%</b>
Natural Stone Treatment WB	0.06%	0.09%	0.08%	0.07%	0.08%	6%	<b>65.1%</b>
<b>Substrate: Slate</b>	<b>Color: "Blue Stone"</b>						
<b>Product</b>	<b>% Absorbed 1 minute</b>	<b>% Absorbed 4 minute</b>	<b>% Absorbed 9 minute</b>	<b>% Absorbed 36 minute</b>	<b>% Absorbed 36 minute</b>	<b>% Absorbed 64 minute</b>	<b>% Effective</b>
Untreated Control	0.16%	0.19%	0.18%	0.22%	0.21%	25%	--
Natural Stone Treatment	0.11%	0.12%	0.14%	0.14%	0.17%	17%	<b>34.4%</b>
Natural Stone Treatment WB	0.11%	0.12%	0.14%	0.14%	0.17%	11%	<b>57.8%</b>

**Photographs – Protective Water Repellents**

**“Copper Quartzite”; Horizontal RILEM II.4, 5.0 milliliters, 20 minutes**



**Consolideck®  
Saltguard® WB**

**Sure Klean® Weather  
Seal Natural Stone  
Treatment**

**Sure Klean® Weather  
Seal Natural Stone  
Treatment WB**

**Untreated Control**

**Conclusions – Protective Water Repellents**

In the RILEM tests, test results indicate that all of the water repellents tested exhibited above average water repellency on the submitted samples. In the Capillary Uptake tests, Sure Klean® Weather Seal Natural Stone Treatment WB and Sure Klean® Weather Seal Natural Stone Treatment were both effective water repellents.

Consolideck® Saltguard® WB exhibited a slight to moderate color enhancement on the samples evaluated. Neither Sure Klean® Weather Seal Natural Stone Treatment or Sure Klean® Weather Seal Natural Stone Treatment WB caused any noticeable color change to any of the submitted samples.



**Recommendations – Protective Water Repellents**

Recommendations for water repellent treatments for the natural stone submitted by Realstone Systems, LLC, Troy, MI are provided in the chart below. Recommendations are based on the treatments that proved most effective at providing water repellency on the submitted samples.

Sample	Protective Water Repellents
"Mountain Rust", "Copper Quartzite", "Chiseled Sand Shadowstone", "Arctic White Shadowstone", "Sierra Sandstone" and "Desert Rose"	Consolideck® Saltguard® WB OR Sure Klean® Weather Seal Natural Stone Treatment WB OR *Sure Klean® Weather Seal Natural Stone Treatment
"Terracotta Verde", "Charcoal Gray" and "Blue Stone"	Sure Klean® Weather Seal Natural Stone Treatment WB OR *Sure Klean® Weather Seal Natural Stone Treatment

**\*NOTE:** Sure Klean® Weather Seal Natural Stone Treatment is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not be suitable for sale in states and districts with more restrictive AIM VOC regulations.

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.

---

## **Stain Repellency**

These trials were conducted to determine the effectiveness of treatments in preventing food and oil staining on the submitted samples.

---

### **Description of Products Evaluated – Stain Repellency**

#### **Stain Repellent Treatments**

**Stand Off® SLX100 Water & Oil Repellent** – Combines water and oil repellency on most substrates to prevent staining by waterborne and oily substances. This modified “neat” silane system offers invisible protection and low volatility. The small molecular structure of SLX100 allows for maximum penetration at coverage rates higher than that of conventional silanes. Depth of penetration is controlled by the application rate (loading rate). This makes SLX100 ideal for protecting granite and other dense, color-sensitive surfaces.

**Stand Off® Stone, Tile & Masonry Protector (STMP)** – A penetrating oil and stain repellent that is an easy-to-use, low-VOC, low-odor protective treatment improves the stain resistance and simplifies maintenance cleaning of interior and exterior stone, quarry tile, concrete and masonry surfaces.

#### **Maintenance Cleaner**

**Enviro Klean® 2010 All Surface Cleaner** – A “next-generation” product for cleaning and degreasing light-to-heavily soiled stone, tile, masonry and much more. Powerful enough for industrial use, flexible enough for jobs around the home, space-saving EK 2010 replaces a host of individual cleaning agents. It is suitable for home-use on windows, bathroom tub and tile, counter tops and more when diluted with water. It's concentrated enough for the toughest industrial cleaning jobs on concrete, metal and many other plant and warehouse surfaces. EK 2010 also removes Sure Klean® Weather Seal Siloxane PD overspray from windows.

#### **Staining Agents Evaluated**

<b><u>Products</u></b>	<b><u>Temperature</u></b>
Coca Cola	ambient (~70°F)
Ketchup	ambient (~70°F)
Mustard	ambient (~70°F)
Red Wine	ambient (~70°F)
Balsamic Vinegar	ambient (~70°F)
Soy Sauce	ambient (~70°F)
Olive Oil	ambient (~70°F)
Wesson Oil	(~250°F)
Coffee	(~120°F)

---

### **Sample Preparation – Stain Repellency**

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. The protective treatments were then applied by brush in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions. The treatments were allowed to cure on the samples for at least 72 hours before testing.

## **Test Method – Stain Repellency**

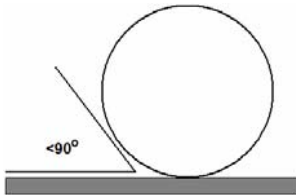
### **Surface Beading Evaluation**

The food and oil products were applied to the test areas by using a dropper creating a bead 0.5 – 1.0 cm in diameter. The beading properties of the oils and liquids were visually evaluated within two minutes after application. The results are reported as a rating based on the angle of contact between the base of the droplet and the substrate. A rating of “1 or 2” indicated the smallest angle of contact ( $<90^\circ$ ) which correlates to “above average” repellency. A rating of “3 or 4” indicates “average” repellency. A rating of “5 or greater” indicated that the food or oil quickly absorbed into the substrate and correlates to “below average” repellency.

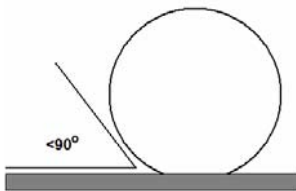
**Note: Non-free flowing staining agents such as ketchup and mustard are applied in a globular fashion and therefore are not evaluated for their beading properties.**

### **Rating System (1-5)**

1. No wetting of contact area (no darkening); angle less than  $90^\circ$ .



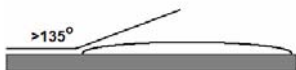
2. Wetting contained to the contact area (slight darkening); angle is less than  $90^\circ$ .



3. Wetting contained to the contact area (slight darkening); angle is greater than  $90^\circ$ , but less than  $135^\circ$ .



4. Wetting beyond the contact area (darkening); angle is greater than  $135^\circ$ .



5. Wetting beyond the contact area (darkening); angle is flat.



### **Stain Removal Evaluation**

The soiling agents were allowed to dwell on the treated and untreated substrates for times of 24 hours, 4 hours, 1 hour, and 10 minutes. The test areas were then cleaned with Enviro Klean<sup>®</sup> 2010 All Surface Cleaner diluted 1 part concentrate to 10 parts fresh water and scrubbed under a stream of running water from a faucet. Samples were allowed to dry for 24 hours. Evaluation consisted of a visual examination of the tested areas to determine the percentage of staining removal.

**Test Results – Surface Beading**

<b>“Mountain Rust”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	3	4	4	5	5	5
SLX100 Water & Oil Repellent	1	-	-	1	1	1	1	1	2
STMP	2	-	-	3	2	2	2	2	3
<b>“Copper Quartzite”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	4	5	5	5	5	5
SLX100 Water & Oil Repellent	1	-	-	2	2	2	2	2	3
STMP	1	-	-	3	3	3	4	4	3
<b>“Chiseled Sand Shadowstone”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	4	-	-	4	5	5	5	5	5
SLX100 Water & Oil Repellent	1	-	-	2	2	1	2	2	2
STMP	1	-	-	3	2	3	2	2	2
<b>“Arctic White Shadowstone”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	5	5	5	5	5	5
SLX100 Water & Oil Repellent	1	-	-	2	2	1	2	2	2
STMP	1	-	-	3	2	3	2	2	2
<b>“Terracotta Verde”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	5	-	-	5	5	5	5	5	5
SLX100 Water & Oil Repellent	1	-	-	1	1	1	2	2	2
STMP	1	-	-	3	2	2	2	2	2
<b>“Charcoal Gray”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	4	-	-	3	4	5	5	5	5
SLX100 Water & Oil Repellent	1	-	-	1	2	1	3	3	2
STMP	1	-	-	2	2	3	3	3	2
<b>“Blue Stone”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	3	5	4	5	5	3
SLX100 Water & Oil Repellent	1	-	-	2	1	2	2	2	2
STMP	1	-	-	2	2	2	2	2	2
<b>“Sierra Sandstone”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	4	5	4	5	3	4
SLX100 Water & Oil Repellent	1	-	-	1	1	2	2	2	2
STMP	1	-	-	2	3	2	2	2	2
<b>“Desert Rose”</b>									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	4	-	-	4	4	5	5	5	5
SLX100 Water & Oil Repellent	1	-	-	1	2	2	2	2	3
STMP	1	-	-	3	3	3	2	2	3

**Test Results – Stain Repellency**

**% Removal**

<b>“Mountain Rust”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	75%	75%	100%	100%	100%	60%	60%	80%
4 hour	100%	100%	90%	100%	100%	100%	60%	60%	80%
1 hour	100%	100%	100%	100%	100%	100%	60%	60%	80%
10 min.	100%	100%	100%	100%	100%	100%	60%	60%	80%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	70%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	75%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>“Copper Quartzite”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	95%	70%	70%	80%	90%	100%	60%	60%	100%
4 hour	100%	100%	100%	80%	100%	100%	60%	60%	100%
1 hour	100%	100%	100%	80%	100%	100%	60%	60%	100%
10 min.	100%	100%	100%	80%	100%	100%	60%	60%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	80%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

\*Indicates etching occurred due to the acidic nature of the staining agents.

**Test Results – Stain Repellency**

**% Removal**

<b>“Chiseled Sand Shadowstone”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	100%	20%	80%	80%	50%	50%	90%
4 hour	100%	90%	100%	20%	80%	80%	50%	50%	90%
1 hour	100%	100%	100%	20%	80%	80%	50%	50%	90%
10 min.	100%	100%	100%	20%	80%	80%	50%	50%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	100%	90%	90%	95%	100%	100%	100%	100%
4 hour	100%	100%	100%	90%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	95%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	95%	90%	80%	100%	100%	100%	100%	90%
4 hour	100%	100%	100%	80%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	90%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>“Arctic White Shadowstone”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	90%	50%	50%	50%	50%	30%	100%
4 hour	100%	100%	100%	50%	50%	50%	50%	30%	100%
1 hour	100%	100%	100%	50%	50%	50%	50%	30%	100%
10 min.	100%	100%	100%	50%	50%	50%	50%	30%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	100%	70%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	70%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	95%	60%	90%	90%	100%	100%	100%
4 hour	100%	100%	100%	60%	90%	90%	100%	100%	100%
1 hour	100%	100%	100%	90%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

\*Indicates etching occurred due to the acidic nature of the staining agents.

**Test Results – Stain Repellency**

**% Removal**

<b>“Terracotta Verde”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	80%	95%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	95%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	90%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>“Charcoal Gray”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	70%	100%	100%	100%	70%	70%	100%	100%
4 hour	100%	100%	100%	100%	100%	90%	90%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	70%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	70%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

\*Indicates etching occurred due to the acidic nature of the staining agents.

**Test Results – Stain Repellency**

**% Removal**

<b>“Blue Stone”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	70%	100%	100%	100%	100%	70%	70%	100%
4 hour	100%	100%	100%	100%	100%	100%	70%	70%	100%
1 hour	100%	100%	100%	100%	100%	100%	90%	90%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	95%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>“Sierra Sandstone”</b>									
<b>Untreated Control</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	80%	95%	70%	100%	100%	60%	60%	100%
4 hour	100%	100%	100%	70%	100%	100%	60%	60%	100%
1 hour	100%	100%	100%	80%	100%	100%	80%	80%	100%
10 min.	100%	100%	100%	100%	100%	100%	90%	90%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	80%	95%	70%	100%	100%	80%	80%	100%
4 hour	100%	100%	100%	90%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	90%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

\*Indicates etching occurred due to the acidic nature of the staining agents.



**Test Results – Stain Repellency****% Removal**

<b>“Desert Rose”</b>									
<b>Untreated Control</b>									
	<b>Coca-Cola</b>	<b>Ketchup</b>	<b>Mustard</b>	<b>Red Wine</b>	<b>Balsamic Vinegar</b>	<b>Soy Sauce</b>	<b>Olive Oil</b>	<b>Wesson Oil</b>	<b>Hot Coffee</b>
<b>24 hr</b>	100%	70%	95%	80%	80%	90%	50%	50%	70%
<b>4 hour</b>	100%	100%	95%	80%	80%	90%	50%	50%	70%
<b>1 hour</b>	100%	100%	95%	80%	80%	90%	50%	50%	100%
<b>10 min.</b>	100%	100%	100%	95%	100%	95%	50%	50%	100%
<b>Stand Off® SLX100 Water &amp; Oil Repellent</b>									
	<b>Coca-Cola</b>	<b>Ketchup</b>	<b>Mustard</b>	<b>Red Wine</b>	<b>Balsamic Vinegar</b>	<b>Soy Sauce</b>	<b>Olive Oil</b>	<b>Wesson Oil</b>	<b>Hot Coffee</b>
<b>24 hr</b>	100%	80%	100%	100%	100%	100%	100%	100%	100%
<b>4 hour</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>1 hour</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>10 min.</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	<b>Coca-Cola</b>	<b>Ketchup</b>	<b>Mustard</b>	<b>Red Wine</b>	<b>Balsamic Vinegar</b>	<b>Soy Sauce</b>	<b>Olive Oil</b>	<b>Wesson Oil</b>	<b>Hot Coffee</b>
<b>24 hr</b>	100%	95%	80%	90%	95%	100%	100%	100%	100%
<b>4 hour</b>	100%	100%	100%	95%	95%	100%	100%	100%	100%
<b>1 hour</b>	100%	100%	100%	95%	95%	100%	100%	100%	100%
<b>10 min.</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%

\*Indicates etching occurred due to the acidic nature of the staining agents.

**Photographs – Stain Repellency**

**“Chiseled Sand Shadowstone”; Stains Applied**



**Untreated Control**

**Stand Off® SLX100  
Water & Oil**

**Stand Off® Stone, Tile &  
Masonry Protector (STMP)**

**“Chiseled Sand Shadowstone”; Stains Removed**



**Untreated Control**

**Stand Off® SLX100  
Water & Oil**

**Stand Off® Stone, Tile &  
Masonry Protector (STMP)**

### **Conclusions – Stain Repellency**

Based upon laboratory evaluations, both of the treatments evaluated improved the surface beading of the samples. In addition, both of the treatments were effective in improving the samples' resistance to the applied stains, especially to the oils. Neither of the treatments caused any noticeable color change the submitted samples.

### **Recommendations – Stain Repellency**

Recommendations for stain resistance treatment for the natural stone submitted by Realstone Systems, LLC, Troy, MI are provided in the chart below. Recommendations are based on the treatments that proved most effective for providing stain repellency on the submitted samples.

Sample	Stain Repellent	Maintenance Cleaner
All Submitted Natural Stone	Stand Off® SLX100 Water & Oil Repellent OR Stand Off® Stone, Tile & Masonry Protector (STMP)	Enviro Klean® 2010 All Surface Cleaner (1:10)

The ability of a stain repellent treatment to prevent staining 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 stain repellent product and procedures for a particular project. See product literature for additional application and product information.

---

## **Color and Sheen Enhancement**

This evaluation compares the effectiveness of the evaluated products in providing color enhancement to the submitted samples.

---

### **Description of Products Evaluated** – Color and Sheen Enhancement

**Paver Kare® 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® Color Enhancer** – A mineral spirits carried solution. Color Enhancer brings out the color, warmth and richness of interior limestone, marble, granite and other unpolished natural stone surfaces. Treated surfaces not only look better but resist destructive water penetration and staining from a wide range of contaminants, including oil, grease, food and drink, and dirt.

Color Enhancer is perfect for stone counters and tabletops, and stone and terrazzo floors. This penetrating protective treatment won't trap moisture or create a surface sheen. Treated surfaces keep their natural texture. Low-odor and easy to apply, Color Enhancer complies with all known VOC regulations.

---

### **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 at least 24 hours prior to treatment.

---

### **Test Method** – Color and Sheen Enhancement

Paver Kare® Paver Enhancer and Stand Off® Color Enhancer were applied by brush in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions. After 24 hours, a visual evaluation was made comparing the untreated surface to the treated surface.

**Test Results – Color and Sheen Enhancement**

<b>“Mountain Rust”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	2	0
Stand Off® Color Enhancer	3	0*
<b>“Copper Quartzite”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	2	0
Stand Off® Color Enhancer	3	0*
<b>“Chiseled Sand Shadowstone”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	2	0
Stand Off® Color Enhancer	3	0*
<b>“Arctic White Shadowstone”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	2	0
Stand Off® Color Enhancer	3	0*
<b>“Terracotta Verde”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	2	0
Stand Off® Color Enhancer	3	0
<b>“Charcoal Gray”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	3	1
Stand Off® Color Enhancer	3	0
<b>“Blue Stone”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	2	0
Stand Off® Color Enhancer	3	0
<b>“Sierra Sandstone”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	2	0
Stand Off® Color Enhancer	3	0*
<b>“Desert Rose”</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Paver Kare® Paver Enhancer	1	0
Stand Off® Color Enhancer	2	0

**\*Note:** Color Enhancer diminishes the surface sheen in the natural stone samples.

**Scale:** 0 – No Enhancement; Dull  
 1 – Slight Enhancement  
 2 – Moderate Enhancement  
 3 – Significant Enhancement

**Photographs – Color and Sheen Enhancement**

**“Terracotta Verde”; Treatments Applied**



**Paver Kare® Paver Enhancer**

**Stand Off® Color Enhancer**

**Untreated Control**

**Recommendations – Color and Sheen Enhancement**

Recommendations for color and sheen enhancement for the natural stone submitted by Realstone Systems, LLC, Troy MI are provided in the chart below. Recommendations are based on the treatment that proved most effective in providing color and/or sheen enhancement to the submitted samples.

Sample	Color Enhancement	Sheen Enhancement
“Mountain Rust”, “Copper Quartzite”, “Chiseled Sand Shadowstone”, “Arctic White Shadowstone” and “Sierra Sandstone”	*Paver Kare® Paver Enhancer	No Recommendation
“Terracotta Verde”, “Charcoal Gray”, “Blue Stone” and “Desert Rose”	*Paver Kare® Paver Enhancer OR Stand Off® Color Enhancer	No Recommendation

**\*NOTE:** Paver Kare® Paver Enhancer is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not be suitable for sale in states and districts with more restrictive AIM VOC regulations.

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.

John Lancaster  
Project Testing Laboratory Technician



***PALLET TAG PROGRAM***  
*Laboratory Report*

Realstone Systems, LLC  
560 Kirts Boulevard, 120  
Troy, MI 48084



*Project No. 0611-05 PTP*

*Prepared For:*  
**PROSOCO**  
SINCE 1939

*Prepared By:*  
AMT Laboratories  
November 2006