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**Attachments**

    Technical Services TECH Note RILEM Tube Test Procedures

    Product Data literature for all products evaluated

**Submitted Information**

**For:** Matt Henderson, PROSOCO, Inc.  
**Cc:** Brian Koenings, PROSOCO, Inc.

**Subject:** Dunnville Cutstone Company  
Menomonie, WI

**Date:**

**Project:** 0710-10 PTP

**Samples Submitted:** 1 Type of Sandstone

<b>Sample</b>	<b>Color</b>	<b>Size</b>
Sandstone	Yellow	Various

Submitted by: Matt Henderson

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## **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.

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## **Purpose of Testing**

One type of sandstone was 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 sandstone were evaluated.

**New Construction Cleaning** – Sure Klean® 600 Detergent and Enviro Klean® Safety Klean were tested at various dilutions to determine the optimum cleaner/cure time combination for complete removal of laboratory applied Type N mortar from the submitted sandstone 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 N 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 N mortar after 7, 14, and 21 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 Siloxane PD, Sure Klean® Weather Seal Siloxane WB Concentrate, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II, Consolidack® Saltguard® WB, Stand Off® Gloss 'N Guard, and Stand Off® SLX100 Water & Oil Repellent were evaluated for their ability to provide water repellency to the submitted sandstone.

**Graffiti Control** – Sure Klean® Weather Seal Blok-Guard® & Graffiti Control and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II were evaluated for their ability to control graffiti on the submitted sandstone. Sure Klean® Fast Acting Stripper and Defacer Eraser® Graffiti Wipe were evaluated for their ability to remove graffiti from the submitted sandstone.

**Stain Repellency** – Stand Off® SLX100 Water & Oil Repellent and Stand Off® Gloss 'N Guard were evaluated for their ability to repel stains from the submitted sandstone.

**Color and Sheen Enhancement** – Stand Off® Gloss 'N Guard was evaluated on the submitted sandstone for its ability to provide color and/or sheen enhancement.

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

Sample	Product	Dilution
Sandstone	Sure Klean® 600 Detergent	1:6, 1:8
	Enviro Klean® Safety Klean	1:2, 1:3

**Protective Water Repellent Products Evaluated**

Sample	Product	Dilution
Sandstone	Sure Klean® Weather Seal Siloxane PD	Concentrate
	Sure Klean® Weather Seal Siloxane WB Concentrate	1:9
	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	Concentrate
	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate
	Consolideck® Saltguard® WB	Concentrate
	Stand Off® Gloss 'N Guard	Concentrate
	Stand Off® SLX100 Water & Oil Repellent	Concentrate

**Graffiti Control Products Evaluated**

Sample	Product	Dilution
Sandstone	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	Concentrate
	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate

**Graffiti Removal Products Evaluated**

Sample	Product	Dilution
Sandstone	Sure Klean® Fast Acting Stripper	Concentrate
	Defacer Eraser® Graffiti Wipe	Concentrate

**Products Evaluated****Stain Repellency Products Evaluated**

<b>Sample</b>	<b>Product</b>	<b>Dilution</b>
Sandstone	Stand Off® SLX100 Water & Oil Repellent	Concentrate
	Stand Off® Gloss 'N Guard	Concentrate

**Color and Sheen Enhancement Products Evaluated**

<b>Sample</b>	<b>Product</b>	<b>Dilution</b>
Sandstone	Stand Off® Gloss 'N Guard	Concentrate

**New Construction Cleaning**

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

Type N cementitious mortar was prepared in compliance with the manufacturer’s instructions, applied to the sample’s surface and allowed to cure for 7, 14 and 21 days. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type N cementitious mortar was visually evaluated after 7, 14 and 21 days of curing.

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**Description of Products Evaluated – New Construction Cleaning**

**Sure Klean® 600 Detergent** – A general purpose, concentrated acidic cleaner for brick, tile and concrete surfaces. 600 Detergent dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking.

**Enviro Klean® Safety Klean** – An effective, safe, alternative to acidic compounds for cleaning brick, tile, and concrete surfaces. Safety Klean rids new masonry construction of excess mortar, dirt and other common job site soiling. It’s ideal for projects where traditional acidic cleaners are not allowed. Non-fuming Safety Klean contains no hydrochloric or other traditional inorganic acids and is safe for use on and around most metal surfaces. Always test. Additionally, it is up to 70 percent more effective than citric and glycolic acids and 50 percent more effective than phosphoric acid.

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**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® 600 Detergent.....	3-5 minutes
Enviro Klean® Safety Klean.....	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 N Mortar Removal)**

<b>Sandstone</b>				
<b>Product</b>	<b>Dilution</b>	<b>7 day</b>	<b>14 day</b>	<b>21 day</b>
Sure Klean® 600 Detergent	1:6	100%	100%	100%
Sure Klean® 600 Detergent	1:8	100%	100%	100%
Enviro Klean® Safety Klean	1:2	95%	90%	90%
Enviro Klean® Safety Klean	1:3	95%	90%	90%

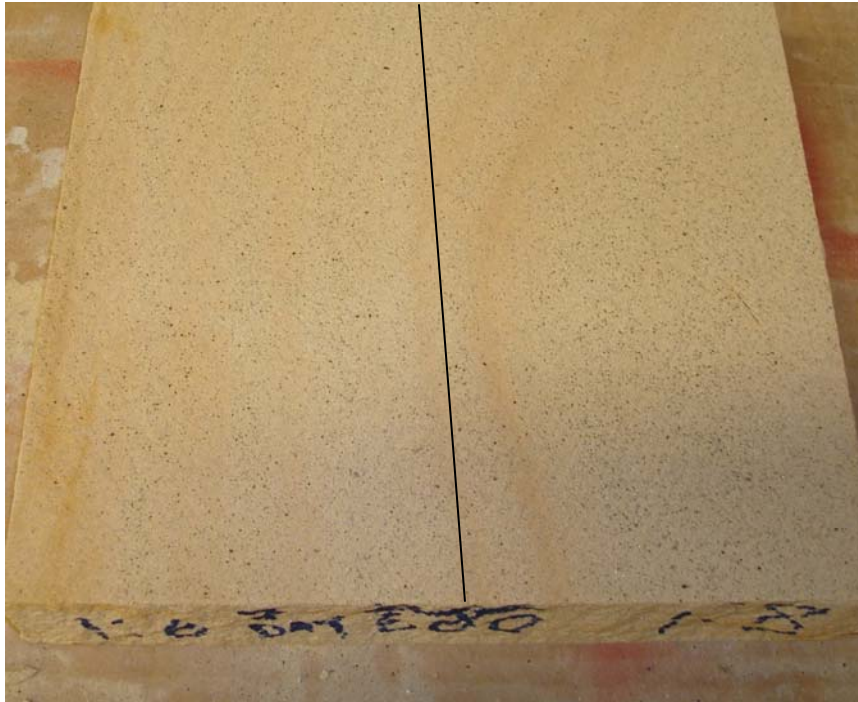
**Test Results – Limiting Surface Alterations**

<b>Substrate: Sandstone</b>					
<b>Product</b>	<b>Dilution</b>	<b>Surface Finish Removal</b>	<b>Substrate Deterioration</b>	<b>Color Change</b>	<b>Staining</b>
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Enviro Klean® Safety Klean	1:2	0	0	0	0
Enviro Klean® Safety Klean	1:3	0	0	0	0

**0 – No Change**                      **3 – Change – Heavy**  
**1 – Change – Slight**            **4 – Change – Excessive**  
**2 – Change – Moderate**

**Photographs – New Construction Cleaning**

**Sandstone 7 Day Cleaning; Type N Mortar**



**Sure Klean®  
600 Detergent (1:6)**

**Sure Klean®  
600 Detergent (1:8)**



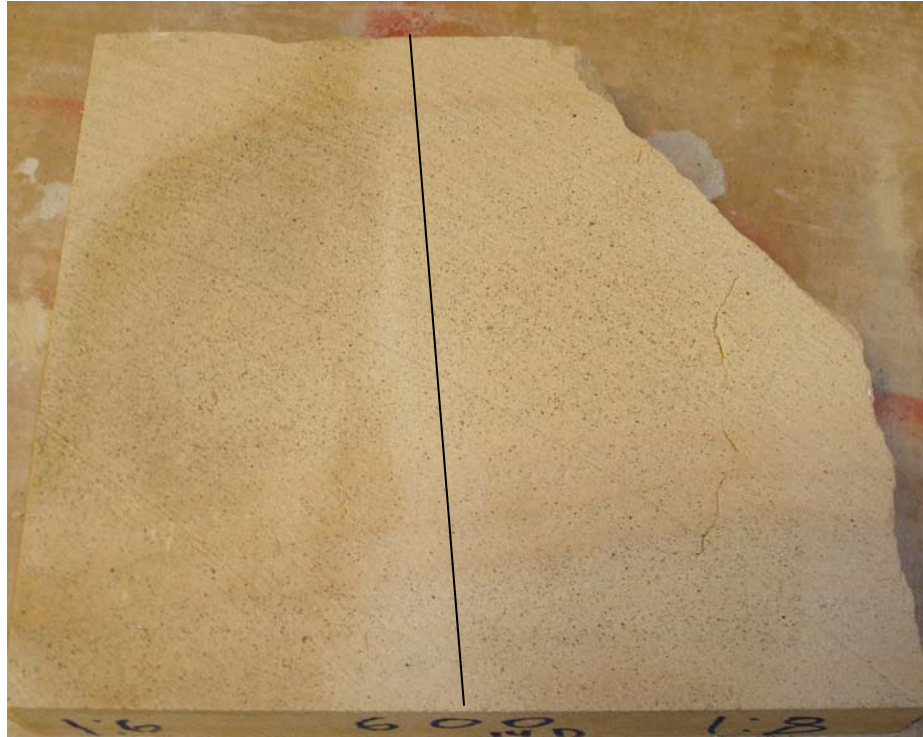
**Enviro Klean®  
Safety Klean (1:2)**

**Enviro Klean®  
Safety Klean (1:3)**



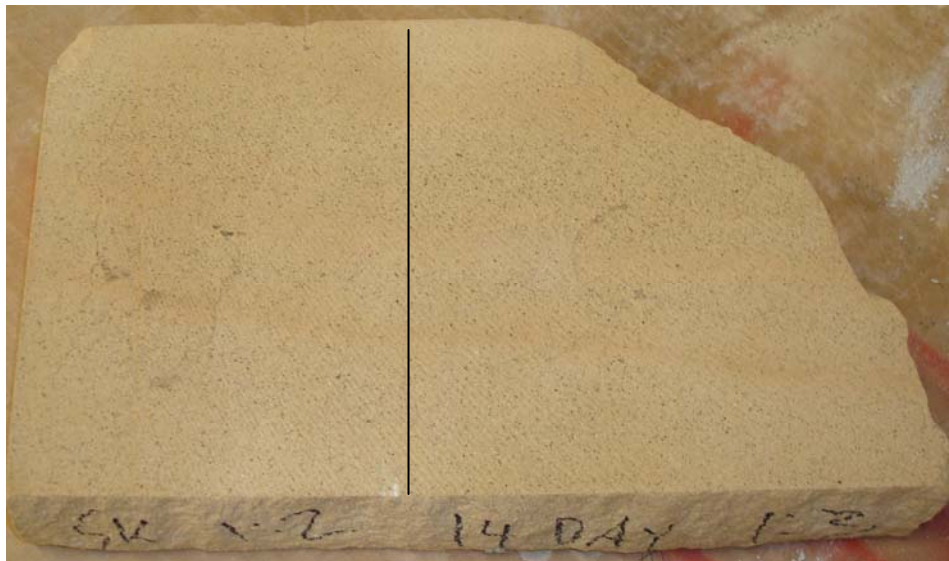
**Photographs – New Construction Cleaning**

**Sandstone 14 Day Cleaning; Type N Mortar**



**Sure Klean<sup>®</sup>  
600 Detergent (1:6)**

**Sure Klean<sup>®</sup>  
600 Detergent (1:8)**

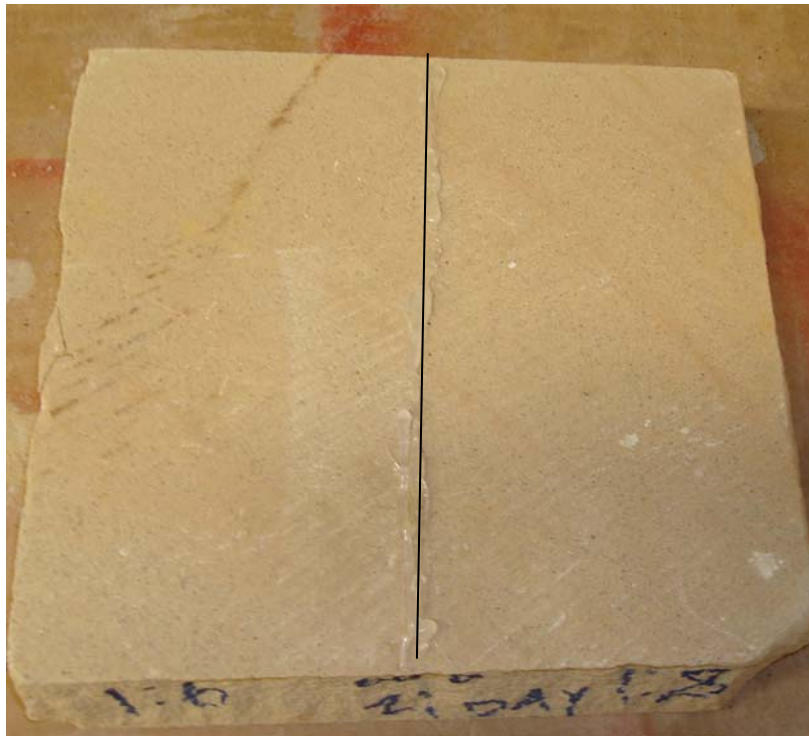


**Enviro Klean<sup>®</sup>  
Safety Klean (1:2)**

**Enviro Klean<sup>®</sup>  
Safety Klean (1:3)**

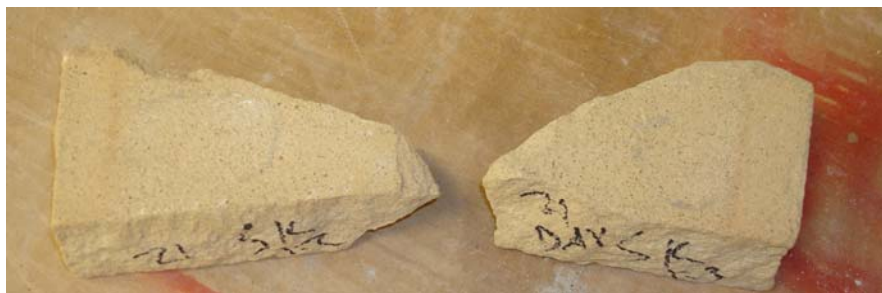
**Photographs – New Construction Cleaning**

**Sandstone 21 Day Cleaning; Type N Mortar**



**Sure Klean®  
600 Detergent (1:6)**

**Sure Klean®  
600 Detergent (1:8)**



**Enviro Klean®  
Safety Klean (1:2)**

**Enviro Klean®  
Safety Klean (1:3)**



**Untreated Control**

**Photographs – Limiting Surface Alterations**

**Sandstone**



**Sure Klean®  
600 Detergent (1:6)**

**Sure Klean®  
600 Detergent (1:8)**



**Untreated  
Surface**



**Enviro Klean®  
Safety Klean (1:2)**

**Enviro Klean®  
Safety Klean (1:3)**



**Untreated  
Surface**

**Conclusions – New Construction Cleaning**

Based on the test results, Sure Klean® 600 Detergent and Enviro Klean® Safety Klean® performed well in removing excess mortar from the submitted sandstone. Both cleaners performed well in removing the mortar soils even after allowing the mortar to remain on the surface of the samples for 21 days under ideal curing conditions. Neither product caused any surface alterations to the submitted sandstone.

It is recommended that the selected cleaners always be used in the lowest possible concentration.

**Recommendations – New Construction Cleaning**

Recommendations for cleaning for the sandstone submitted by Dunnville Cutstone Company, Menomonie, 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 N mortar, 21 day cleaning)
Sandstone	Sure Klean® 600 Detergent (1:8) or Enviro Klean® Safety Klean® (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.



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## **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**

**Sure Klean® Weather Seal Siloxane PD** – A ready-to-use, water-based silane/siloxane water repellent for concrete, GFRC, and most masonry and stucco surfaces. Siloxane PD penetrates more deeply than conventional water repellents. It helps masonry resist cracking, spalling, staining and other damage related to water intrusion. Low odor and alkaline stable, Siloxane PD is ideal for field and in-plant application.

**Sure Klean® Weather Seal Siloxane WB Concentrate** – A self-emulsifying water repellent concentrate designed for dilution with fresh water at the job site. This solvent-free blend of silanes and oligomeric alkoxysiloxanes mixes easily with water to produce a penetrating water repellent ideal for application to dense or porous masonry surfaces.

**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.

**Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II** – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II is easy to apply with low-pressure spray, brush or roller.

**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.

**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® 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.

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### **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.

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**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:

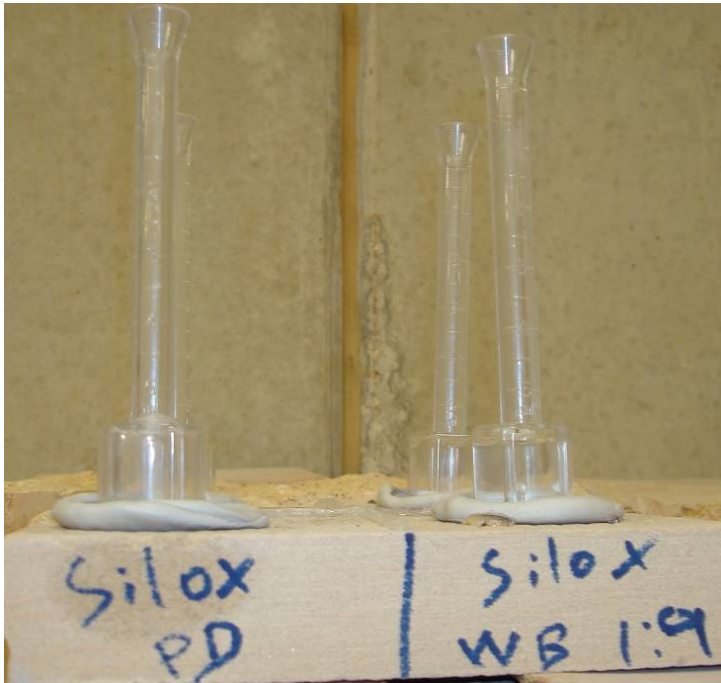
$$5.0 \text{ mL} \times 50\% = \mathbf{2.5 \text{ mL}}$$

**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>Sandstone</b>	<b>Results in mL loss</b>	<b>Ranking</b>
Untreated Control	-5.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-5.0 mL	<b><u>BA</u></b>
Sure Klean® Weather Seal Siloxane WB (1:9)	-0.5 mL	<b><u>AA</u></b>
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0 mL	<b><u>AA</u></b>
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	-4.0 mL	<b><u>BA</u></b>
Consolideck® Saltguard® WB	-0.0 mL	<b><u>AA</u></b>
Stand Off® Gloss 'N Guard	-0.0 mL	<b><u>AA</u></b>
Stand Off® SLX100 Water & Oil Repellent	-0.0 mL	<b><u>AA</u></b>

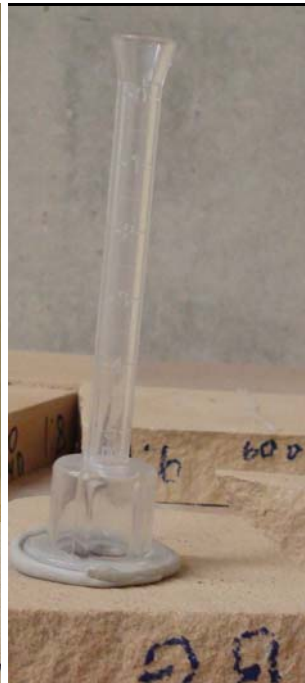
**Photographs – Protective Water Repellents**

**Sandstone; Horizontal RILEM II.4, 5.0 milliliters, 20 minutes**



**Sure Klean® Weather Seal Siloxane PD**

**Sure Klean® Weather Seal Siloxane WB (1:9)**



**Sure Klean® Weather Seal Blok-Guard® & Graffiti Control**



**Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II**



**Consolideck® Saltguard® WB**



**Stand Off® Gloss 'N Guard**



**Stand Off® SLX100 Water & Oil Repellent**



**Untreated Control**



### **Conclusions – Protective Water Repellents**

In the RILEM tests, test results indicate that most of the water repellents tested exhibited above average water repellency on the submitted sandstone. Sure Klean® Weather Seal Siloxane PD and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II were not effective in repelling water from the stone.

Sandstone treated with Consolideck® Saltguard® WB, Stand Off® Gloss 'N Guard and Stand Off® SLX100 Water & Oil Repellent each exhibited a slight to moderate color enhancement on the samples evaluated.

### **Recommendations – Protective Water Repellents**

Recommendations for water repellent treatments for the sandstone submitted by Dunnville Cutstone Company, Menomonie, WI 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
Sandstone	Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) or *Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or Consolideck® Saltguard® WB or Stand Off® Gloss 'N Guard or Stand Off® SLX100 Water & Oil Repellent

**\*NOTE:** Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 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.

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## **Graffiti Control**

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

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### **Description of Products Evaluated – Graffiti Control**

#### **Graffiti Control Treatments**

**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.

**Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II** – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II is easy to apply with low-pressure spray, brush or roller.

#### **Products Evaluated for Graffiti Removal**

**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.

**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, split-face concrete block, wood and metal surfaces.

#### **Graffiti Agents**

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

**Sample Preparation – Graffiti Control**

Sections of the sandstone samples were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions and then allowed to cure for at least one day. At the end of the one-day cure period, 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 Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II. 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 Method – Graffiti Control**

Chemical cleaners were evaluated using the following procedure:

1. Apply the product to a dry surface, soiled with graffiti.
2. Allow appropriate dwell time:
  - Fast Acting Stripper .....20 minutes
  - Graffiti Wipe .....5 minutes
3. Pressure rinse thoroughly until water runs clear.\*
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**

<b>Sandstone</b>					
<b>Untreated Control</b>	<b>Red Paint</b>	<b>Black Marker</b>	<b>Green Marker</b>	<b>Red Marker</b>	<b>% Avg. Removal</b>
Fast Acting Stripper	40%	40%	75%	50%	<b>51%</b>
Graffiti Wipe	35%	25%	45%	80%	<b>46%</b>
<b>Blok-Guard® &amp; Graffiti Control</b>	<b>Red Paint</b>	<b>Black Marker</b>	<b>Green Marker</b>	<b>Red Marker</b>	<b>% Avg. Removal</b>
Fast Acting Stripper	60%	55%	85%	65%	<b>66%</b>
Graffiti Wipe	55%	60%	90%	85%	<b>73%</b>
<b>Blok-Guard® &amp; Graffiti Control II</b>	<b>Red Paint</b>	<b>Black Marker</b>	<b>Green Marker</b>	<b>Red Marker</b>	<b>% Avg. Removal</b>
Fast Acting Stripper	45%	50%	50%	55%	<b>50%</b>
Graffiti Wipe	60%	25%	50%	35%	<b>43%</b>

**Photographs – Graffiti Control**

**Sandstone; Graffiti Applied**



**Sure Klean<sup>®</sup> Weather Seal  
Blok-Guard<sup>®</sup> & Graffiti Control**



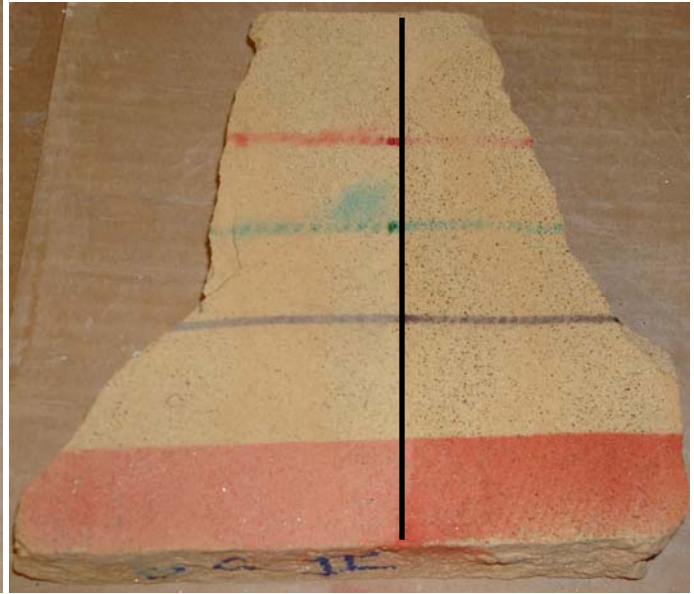
**Sure Klean<sup>®</sup> Weather Seal  
Blok-Guard<sup>®</sup> & Graffiti Control II**



**Untreated Control**

**Photographs – Graffiti Control**

**Sandstone; Graffiti Removed**



**Sure Klean® Weather Seal  
Blok-Guard® & Graffiti Control**

**Sure Klean® Weather Seal  
Blok-Guard® & Graffiti Control II**

**Sure Klean® Fast  
Acting Stripper**

**Defacer Eraser®  
Graffiti Wipe**

**Sure Klean® Fast  
Acting Stripper**

**Defacer Eraser®  
Graffiti Wipe**



**Untreated Control**

**Sure Klean® Fast  
Acting Stripper**

**Defacer Eraser®  
Graffiti Wipe**

### **Conclusions – Graffiti Control**

Based upon laboratory evaluations, graffiti removal was improved when the submitted sandstone was treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control prior to graffiti application. Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II did not improve the graffiti repellency of the stone. Neither product altered the appearance of the submitted sandstone.

### **Recommendations – Graffiti Control**

Recommendations for graffiti control treatment for the sandstone submitted by Dunnville Cutstone Company, Menomonie, 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 the sandstone submitted.

Sample	Graffiti Repellents	Graffiti Removers
Sandstone	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	Sure Klean® Fast Acting Stripper or Defacer Eraser® Graffiti Wipe

**\*NOTE:** Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 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. 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. See product literature for additional application and product information.

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## **Stain Repellency**

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

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

#### **Stain Repellent Treatments**

**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® 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.

#### **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)

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

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**

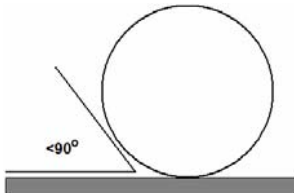
### **Surface Beading Evaluation**

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.

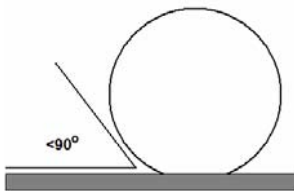
**Note: Non-free flowing staining agents such as ketchup and mustard are applied in a globular fashion and therefore are not evaluated for their beading properties.**

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

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



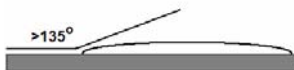
2. Wetting contained to the contact area (slight darkening); angle is less than  $90^\circ$ .



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® 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**

Sandstone									
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
Gloss 'N Guard	2	--	--	3	3	3	5	5	3
SLX100 Water & Oil Repellent	2	--	--	2	2	2	3	3	2

**Test Results – Stain Repellency**

										% Removal
Sandstone										
Untreated Control										
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee	
24 hr	80%	90%	85%	75%	25%	50%	50%	20%	10%	
4 hour	80%	90%	85%	80%	25%	50%	60%	25%	10%	
1 hour	80%	90%	85%	80%	25%	40%	65%	30%	10%	
10 min.	80%	90%	85%	75%	25%	40%	60%	45%	10%	
Stand Off® Gloss 'N Guard										
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee	
24 hr	100%	100%	100%	100%	100%	100%	50%	40%	60%	
4 hour	100%	100%	100%	100%	100%	100%	50%	35%	65%	
1 hour	100%	100%	100%	100%	100%	100%	40%	45%	75%	
10 min.	100%	100%	100%	100%	100%	100%	40%	30%	60%	
Stand Off® SLX100 Water & Oil Repellent										
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee	
24 hr	100%	100%	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.

**Photographs – Stain Repellency**

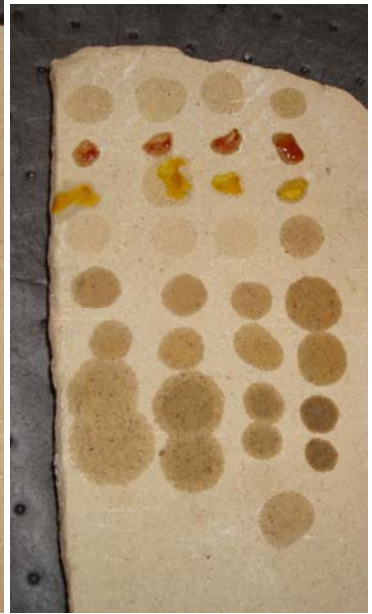
**Sandstone; Stains Applied**



**Stand Off® Gloss 'N Guard**



**Stand Off® SLX100 Water & Oil Repellent**



**Untreated Control**

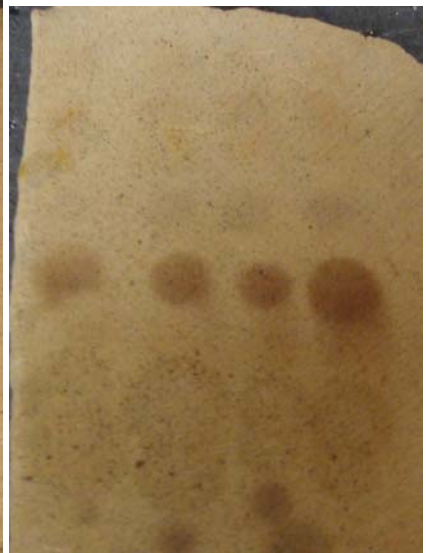
**Sandstone; Stains Removed**



**Stand Off® Gloss 'N Guard**



**Stand Off® SLX100 Water & Oil Repellent**



**Untreated Control**

### **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. The sample treated with Stand Off® SLX100 Water & Oil Repellent was more resistant to the oils applied. Both of the treatments caused a moderate color change to the submitted samples.

### **Recommendations – Stain Repellency**

Recommendations for stain resistance treatment for the sandstone submitted by Dunnville Cutstone Company, Menomonie, WI 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
Sandstone	Stand Off® SLX100 Water & Oil Repellent	Enviro Klean® 2010 All Surface Cleaner

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.

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**Color and Sheen Enhancement**

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

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

**Stand Off<sup>®</sup> 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.

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**Test Method – Color and Sheen Enhancement**

Stand Off<sup>®</sup> Gloss 'N Guard was 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.

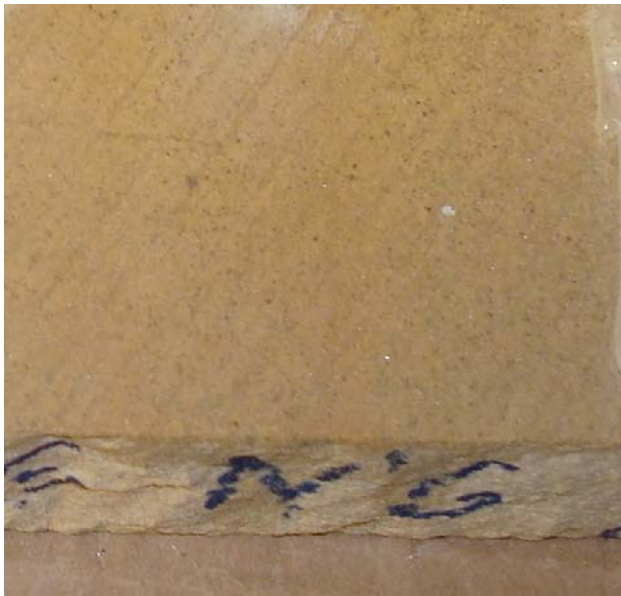
**Test Results – Color and Sheen Enhancement**

<b>Sandstone</b>		
<b>Treatment</b>	<b>Color Enhancement</b>	<b>Sheen Enhancement</b>
Stand Off® Gloss 'N Guard	1	0

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

**Photographs – Color and Sheen Enhancement**

**Sandstone; Treatments Applied**



**Stand Off<sup>®</sup> Gloss 'N Guard**



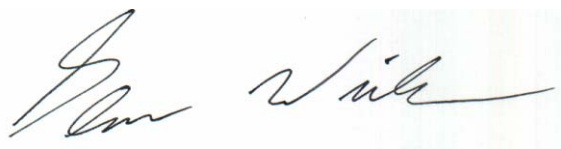
**Untreated Surface**

**Recommendations – Color and Sheen Enhancement**

Recommendations for color and sheen enhancement for the sandstone submitted by Dunnville Cutstone Company, Menomonie WI 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
Sandstone	Stand Off® Gloss 'N Guard	No Recommendation

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.



Glenn Winkler  
Project Testing Laboratory Technician





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

Dunnville Cutstone Company  
E4862 170<sup>th</sup> Avenue  
Menomonie, WI 54741



*Project No. 0710-10 PTP*

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

*Prepared By:*  
AMT Laboratories  
February 2008