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Submitted Information

For: Mike Rivard, Rivard Stone, Inc.
Cc: Matt Henderson
Kevin Gwinn
Brian Koenings

Subject: Rivard Stone, Inc.
Houlton, WI

Date: March 26, 2008

Project: 0801-14 PTP

Samples Submitted: 2 types of limestone

Sample	Type	Color	Size
St. Croix Valley Limestone	Honed	Buff	6" x 12" x 2"
	Rock Faced	Buff	6" x 12" x 2"

Submitted by: Mike Rivard, Rivard Stone, Inc.

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

Two types of limestone 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 limestone were evaluated.

New Construction Cleaning – Sure Klean® Vana Trol® 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 and Type S mortar from the submitted limestone 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 or Type S cementitious mortar. The wet mortar-filled cylinder was allowed to remain in contact with the samples for 10 minutes before removal.

Heavy deposits of mortar were removed with dry scraping after 24 hours. Prepared cleaning solutions were then evaluated for their effectiveness in removing residual Type N mortar after 7, 14, and 21 days of curing and Type S mortar after 3, 7, and 14 days of curing. A visual examination was also made to determine if the tested cleaners caused any surface alterations to the submitted samples based on the following:

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 Blok-Guard® & Graffiti Control, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II, Sure Klean® Weather Seal Natural Stone Treatment, Stand Off® Stone, Tile & Marble Protector (STMP), Stand Off® Limestone & Marble Protector, and Stand Off® Gloss 'N Guard were evaluated for their ability to provide water repellency to the submitted limestone.

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 limestone. Sure Klean® Fast Acting Stripper and Defacer Eraser® Graffiti Wipe were evaluated for their ability to remove graffiti from the submitted limestone.

Stain Repellency – Stand Off® Stone, Tile & Masonry Protector (STMP), Stand Off® Limestone & Marble Protector and Stand Off® Gloss 'N Guard were evaluated for their ability to repel stains from the submitted limestone.

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

Products Evaluated**New Construction Cleaning Products Evaluated**

Sample	Product	Dilution
St. Croix Valley Limestone Honed and Rock Faced	Sure Klean® Vana Trol®	1:6, 1:8
	Enviro Klean® Safety Klean	1:2, 1:3

Protective Water Repellent Products Evaluated

Sample	Product	Dilution
St. Croix Valley Limestone Honed and Rock Faced	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	Concentrate
	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate
	Sure Klean® Weather Seal Natural Stone Treatment	Concentrate
	Stand Off® Stone, Tile & Masonry Protector (STMP)	Concentrate
	Stand Off® Limestone & Marble Protector	Concentrate
	Stand Off® Gloss 'N Guard	Concentrate

Graffiti Control Products Evaluated

Sample	Product	Dilution
St. Croix Valley Limestone Honed and Rock Faced	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
St. Croix Valley Limestone Honed and Rock Faced	Sure Klean® Fast Acting Stripper	Concentrate
	Defacer Eraser® Graffiti Wipe	Concentrate

Products Evaluated**Stain Repellency Products Evaluated**

Sample	Product	Dilution
St. Croix Valley Limestone Honed and Rock Faced	Stand Off® Stone, Tile & Masonry Protector (STMP)	Concentrate
	Stand Off® Limestone & Marble Protector	Concentrate
	Stand Off® Gloss 'N Guard	Concentrate

Color and Sheen Enhancement Products Evaluated

Sample	Product	Dilution
St. Croix Valley Limestone Honed and Rock Faced	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 and Type S mortar from the submitted limestone while limiting surface alterations to the natural stone surface.

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.

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.

Sample Preparation – New Construction Cleaning

Type S and Type N mortar were prepared in compliance with the manufacturer's instructions, applied to the samples and allowed to cure. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type S masonry mortar was visually evaluated after 3, 7, and 14 days of curing. The removal of Type N masonry mortar was visually evaluated after 7, 14, and 21 days of curing. A visual examination was also made to the natural stone to determine if the products tested caused any change to the surface of the stone.

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
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)**

St. Croix Valley Limestone, Honed				
Product	Dilution	7 day	14 day	21 day
Sure Klean® Vana Trol®	1:6	100%	100%	100%
Sure Klean® Vana Trol®	1:8	100%	100%	100%
Enviro Klean® Safety Klean	1:2	100%	100%	100%
Enviro Klean® Safety Klean	1:3	100%	100%	100%
St. Croix Valley Limestone, Rock Faced				
Product	Dilution	7 day	14 day	21 day
Sure Klean® Vana Trol®	1:6	100%	100%	100%
Sure Klean® Vana Trol®	1:8	100%	95%	100%
Enviro Klean® Safety Klean	1:2	100%	100%	100%
Enviro Klean® Safety Klean	1:3	95%	98%	100%

Cleaning Effectiveness (% Type S Mortar Removal)

St. Croix Valley Limestone, Honed				
Product	Dilution	3 day	7 day	14 day
Sure Klean® Vana Trol®	1:6	100%	98%	98%
Sure Klean® Vana Trol®	1:8	98%	90%	97%
Enviro Klean® Safety Klean	1:2	100%	95%	100%
Enviro Klean® Safety Klean	1:3	100%	98%	95%
St. Croix Valley Limestone, Rock Faced				
Product	Dilution	3 day	7 day	14 day
Sure Klean® Vana Trol®	1:6	90%	100%	95%
Sure Klean® Vana Trol®	1:8	95%	95%	95%
Enviro Klean® Safety Klean	1:2	100%	90%	95%
Enviro Klean® Safety Klean	1:3	90%	90%	95%

Test Results – Limiting Surface Alterations

Substrate: St. Croix Valley Limestone, Honed Surface					
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	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
Substrate: St. Croix Valley Limestone, Rock Faced Surface					
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	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**St. Croix Valley Limestone, Honed; 3 Day Cleaning; Type S Mortar**

Sure Klean[®]
Vana Trol[®] (1:6)

Sure Klean[®]
Vana Trol[®] (1:8)

Enviro Klean[®]
Safety Klean (1:2)

Enviro Klean[®]
Safety Klean (1:3)

St. Croix Valley Limestone, Honed; 7 Day Cleaning; Type S Mortar

Sure Klean[®]
Vana Trol[®] (1:6)

Sure Klean[®]
Vana Trol[®] (1:8)

Enviro Klean[®]
Safety Klean (1:2)

Enviro Klean[®]
Safety Klean (1:3)

Photographs – New Construction Cleaning**St. Croix Valley Limestone, Honed; 14 Day Cleaning; Type S Mortar****Sure Klean®
Vana Trol® (1:6)****Sure Klean®
Vana Trol® (1:8)****Enviro Klean®
Safety Klean (1:2)****Enviro Klean®
Safety Klean (1:3)****Untreated Control**

Photographs – New Construction Cleaning**St. Croix Valley Limestone, Honed; 7 Day Cleaning; Type N Mortar****Sure Klean®
Vana Trol® (1:6)****Sure Klean®
Vana Trol® (1:8)****Enviro Klean®
Safety Klean (1:2)****Enviro Klean®
Safety Klean (1:3)****St. Croix Valley Limestone, Honed; 14 Day Cleaning; Type N Mortar****Sure Klean®
Vana Trol® (1:6)****Sure Klean®
Vana Trol® (1:8)****Enviro Klean®
Safety Klean (1:2)****Enviro Klean®
Safety Klean (1:3)**

Photographs – New Construction Cleaning**St. Croix Valley Limestone, Honed; 21 Day Cleaning; Type N Mortar**

**Sure Klean®
Vana Trol® (1:6)**

**Sure Klean®
Vana Trol® (1:8)**

**Enviro Klean®
Safety Klean (1:2)**

**Enviro Klean®
Safety Klean (1:3)**



Untreated Control

Photographs – Limiting Surface Alterations**St. Croix Valley Limestone, Honed**

**Sure Klean®
Vana Trol® (1:6)**

**Sure Klean®
Vana Trol® (1:8)**

**Enviro Klean®
Safety Klean (1:2)**

**Enviro Klean®
Safety Klean (1:3)**



**Untreated
Surface**

Conclusions – New Construction Cleaning

Based on the test results, both Sure Klean® Vana Trol® and Enviro Klean® Safety Klean performed well in removing excess mortar from the submitted limestone. 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 for type S mortar and 21 days for type N mortar under ideal curing conditions. Neither product caused any surface alterations to the submitted limestone.

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

Recommendations – New Construction Cleaning

Recommendations for cleaning for the limestone submitted by Rivard Stone, Inc., Houlton, 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) (Type S Mortar, 14 Day Cleaning)
St. Croix Valley Limestone Honed and Rock Faced	Sure Klean® Vana Trol® (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.

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 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.

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.

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.

Stand Off® Limestone & Marble Protector – A clear, penetrating water and oil repellent suitable for use on interior or exterior calcareous surfaces such as limestone, marble and travertine. It's also suitable for many other types of masonry surfaces. Limestone & Marble Protector penetrates deeply to provide surface and subsurface protection without forming a glossy surface film. Treated surfaces retain their natural color, texture and appearance.

Limestone & Marble Protector combines high quality siloxane resins with "oleophobic" resins to produce a penetrating water and oil repellent ideal for long-term protection against food, oil and waterborne staining. Unlike conventional penetrating oil repellent products, Limestone & Marble Protector has been modified to ensure effectiveness on limestone, marble and other calcareous or neutral pH surfaces.

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.

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:

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

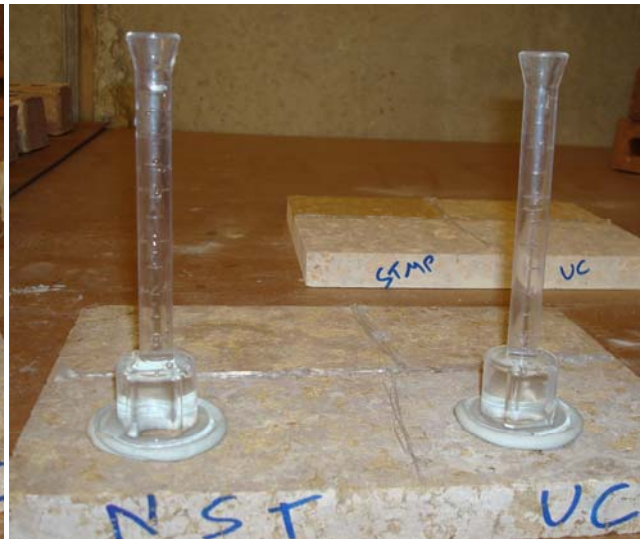
Test Results – Protective Water Repellents**Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes****AA** = Above Average**A** = Average**BA** = Below Average

Honed Limestone	Results in mL loss	Ranking
Untreated Control	-5.0 mL	--
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	-4.5 mL	<u>BA</u>
Sure Klean® Weather Seal Natural Stone Treatment	-1.0 mL	<u>AA</u>
Stand Off® Stone, Tile & Masonry Protector (STMP)	-1.0 mL	<u>AA</u>
Stand Off® Limestone & Marble Protector	-0.5 mL	<u>AA</u>
Stand Off® Gloss 'N Guard	-0.75 mL	<u>AA</u>
Rock Faced Limestone	Results in mL loss	Ranking
Untreated Control	-5.0 mL	--
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.5 mL	<u>AA</u>
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	-4.5 mL	<u>BA</u>
Sure Klean® Weather Seal Natural Stone Treatment	-2.5 mL	<u>A</u>
Stand Off® Stone, Tile & Masonry Protector (STMP)	-1.0 mL	<u>AA</u>
Stand Off® Limestone & Marble Protector	-1.5 mL	<u>A</u>
Stand Off® Gloss 'N Guard	-1.0 mL	<u>AA</u>

Photographs – Protective Water Repellents**St. Croix Valley Limestone, Honed; Horizontal RILEM II.4, 5.0 milliliters, 20 minutes**

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

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



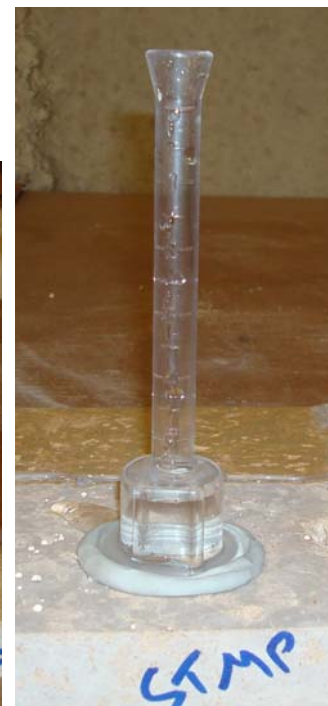
**Sure Klean®
Weather Seal
Natural Stone
Treatment**

**Untreated
Control**



**Stand Off® Limestone &
Marble Protector**

**Stand Off®
Gloss 'N Guard**



**Stand Off® Stone, Tile &
Masonry Protector**

Conclusions – Protective Water Repellents

In the RILEM tests, results indicate that at least three of the treatments evaluated provided above average protection to both types of the submitted limestone. Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II was not effective in repelling water from either sample. Sure Klean® Weather Seal Natural Stone Treatment and Stand Off® Limestone & Marble Protector did not provide sufficient water repellency to the rock faced limestone.

Samples treated with Stand Off® Gloss 'N Guard exhibited a moderate color enhancement on the samples evaluated.

Recommendations – Protective Water Repellents

Recommendations for water repellent treatments for the limestone submitted by Rivard Stone, Inc., Houlton, 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
St. Croix Valley Limestone, Honed	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or *Sure Klean® Weather Seal Natural Stone Treatment or Stand Off® Stone, Tile & Masonry Protector (STMP) or *Stand Off® Limestone & Marble Protector or *Stand Off® Gloss 'N Guard
St. Croix Valley Limestone, Rock Faced	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or Stand Off® Stone, Tile & Masonry Protector (STMP) or *Stand Off® Gloss 'N Guard

***NOTE:** Sure Klean® Weather Seal Blok-Guard® & Graffiti Control, Sure Klean® Weather Seal Natural Stone Treatment, Stand Off® Limestone & Marble Protector, and Stand Off® Gloss 'N Guard are manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). These products 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.

Graffiti Control

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

Description of Products Evaluated – Graffiti Control

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 limestone 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 Stripper20 minutes
Graffiti Wipe5 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

Honed Limestone					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	50%	20%	55%	50%
Graffiti Wipe	50%	35%	15%	35%	34%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	98%	85%	50%	65%	75%
Graffiti Wipe	80%	85%	60%	75%	75%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	60%	40%	60%	61%
Graffiti Wipe	75%	50%	35%	65%	56%
Rock Faced Limestone					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	70%	50%	15%	30%	41%
Graffiti Wipe	35%	30%	15%	15%	24%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	90%	70%	90%	85%
Graffiti Wipe	90%	90%	75%	95%	88%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	60%	25%	50%	54%
Graffiti Wipe	55%	65%	25%	45%	48%

Photographs – Graffiti Control

St. Croix Valley Limestone, Honed; Graffiti Applied



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

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



Untreated Control

Photographs – Graffiti Control**St. Croix Valley Limestone, Honed; Graffiti Removed**

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

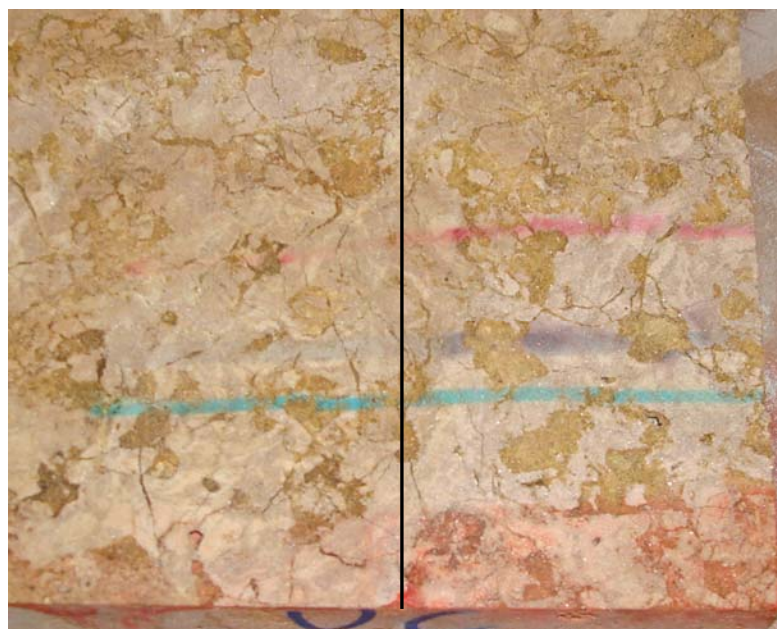
**Sure Klean[®] Weather Seal
Blok-Guard[®] & Graffiti Control II**

**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 significantly improved when the submitted limestone was treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control prior to graffiti application. Samples treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II showed moderate improvement of graffiti repellency of the stone. Neither product altered the appearance of the submitted limestone.

Recommendations – Graffiti Control

Recommendations for graffiti control treatment for the limestone submitted by Rivard Stone, Inc., Houlton, 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 limestone submitted.

Sample	Graffiti Repellents	Graffiti Removers
St. Croix Valley Limestone Honed and Rock Faced	*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.

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® 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.

Stand Off® Limestone & Marble Protector – A clear, penetrating water and oil repellent suitable for use on interior or exterior calcareous surfaces such as limestone, marble and travertine. It's also suitable for many other types of masonry surfaces. Limestone & Marble Protector penetrates deeply to provide surface and subsurface protection without forming a glossy surface film. Treated surfaces retain their natural color, texture and appearance.

Limestone & Marble Protector combines high quality siloxane resins with “oleophobic” resins to produce a penetrating water and oil repellent ideal for long-term protection against food, oil and waterborne staining. Unlike conventional penetrating oil repellent products, Limestone & Marble Protector has been modified to ensure effectiveness on limestone, marble and other calcareous or neutral pH surfaces.

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.

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

<u>Products</u>	<u>Temperature</u>
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

The protective treatments were 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

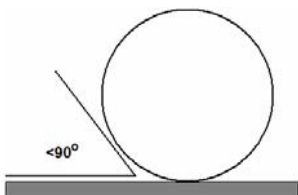
Surface Beading Evaluation

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.

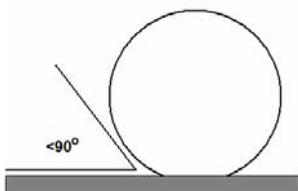
Note: Non-free flowing staining agents such as ketchup and mustard are applied in a globular fashion and therefore are not evaluated for their beading properties.

Rating System (1-5)

1. No wetting of contact area (no darkening); angle less than 90° .



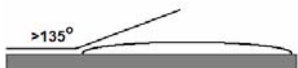
2. Wetting contained to the contact area (slight darkening); angle is less than 90° .



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



4. Wetting beyond the contact area (darkening); angle is greater than 135° .



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

St. Croix Valley Limestone, Honed Surface									
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
Stone, Tile & Masonry Protector (STMP)	2	--	--	3	2	3	3	3	2
Limestone & Marble Protector	2	--	--	3	3	3	3	3	3
Gloss 'N Guard	3	--	--	3	3	4	4	4	4
St. Croix Valley Limestone, Rock Faced Surface									
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
Stone, Tile & Masonry Protector (STMP)	2	--	--	2	1	2	2	2	2
Limestone & Marble Protector	2	--	--	2	1	2	2	2	2
Gloss 'N Guard	3	--	--	3	3	3	4	5	4

Test Results – Stain Repellency

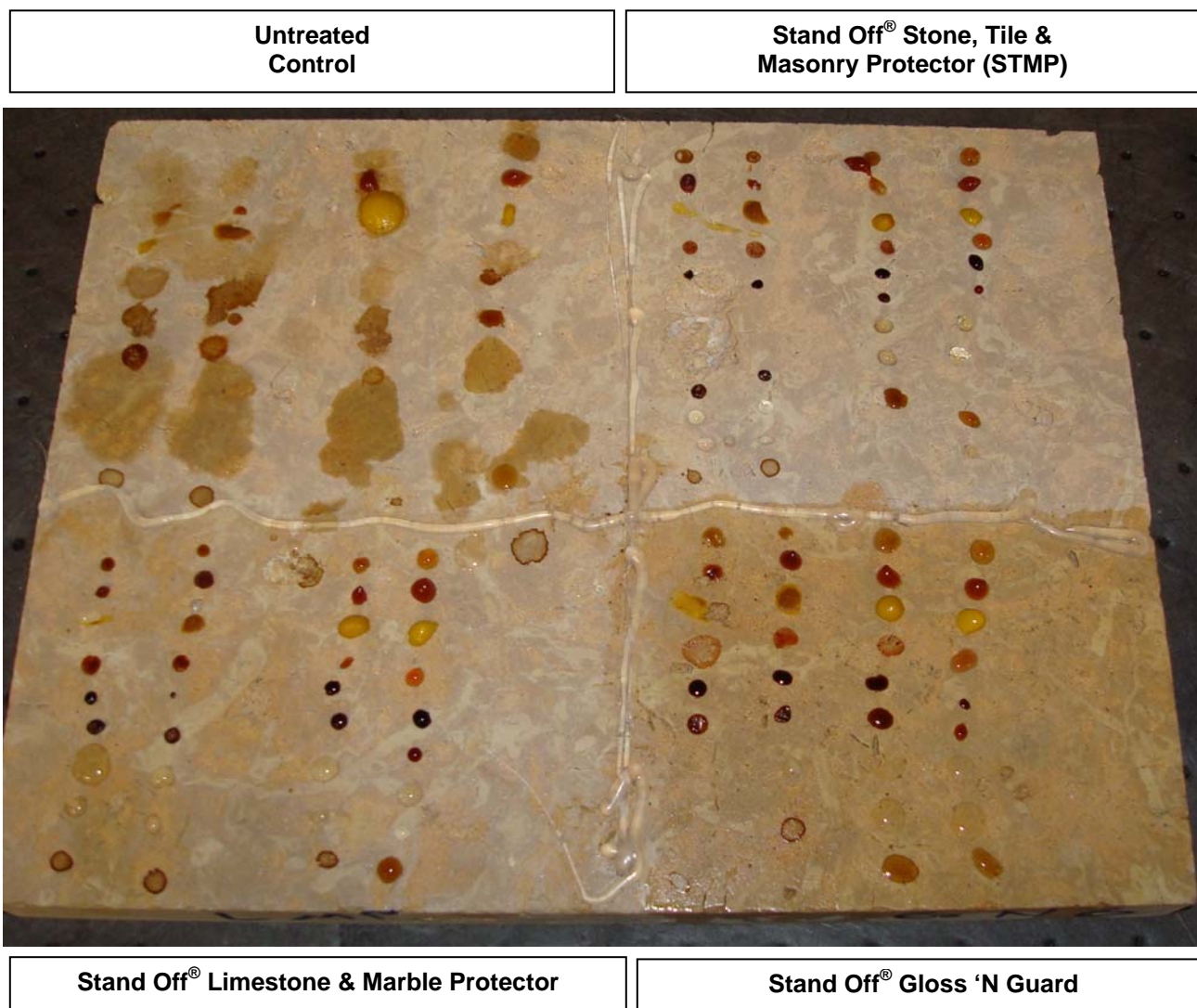
									% Removal
St. Croix Valley Limestone, Honed Surface									
Untreated Control									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	50%	75%	75%	50%	50%	50%	20%	10%	10%
4 hour	50%	75%	75%	50%	50%	50%	20%	10%	10%
1 hour	60%	75%	75%	50%	50%	50%	20%	10%	10%
10 min.	60%	75%	75%	50%	50%	50%	20%	10%	10%
Stand Off® Stone, Tile & Masonry Protector (STMP)									
	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%
Stand Off® Limestone & Marble Protector									
	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%
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%	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
St. Croix Valley Limestone, Rock Faced Surface									
Untreated Control									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	60%	10%	50%	40%	75%	75%	20%	20%	30%
4 hour	60%	50%	50%	60%	75%	75%	20%	20%	30%
1 hour	60%	50%	50%	60%	75%	75%	20%	20%	30%
10 min.	60%	50%	50%	60%	75%	75%	20%	20%	30%
Stand Off® Stone, Tile & Masonry Protector (STMP)									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	55%	45%	100%	100%	100%	100%	100%	100%
4 hour	100%	75%	50%	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%
Stand Off® Limestone & Marble Protector									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	50%	30%	100%	100%	100%	100%	100%	100%
4 hour	100%	50%	50%	100%	100%	100%	100%	100%	100%
1 hour	100%	75%	50%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	75%	100%	100%	100%	100%	100%	100%
Stand Off® Gloss 'N Guard									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	75%	30%	100%	100%	100%	100%	100%	100%
4 hour	100%	85%	45%	100%	100%	100%	100%	100%	100%
1 hour	100%	95%	50%	100%	100%	100%	100%	100%	100%
10 min.	100%	95%	50%	100%	100%	100%	100%	100%	100%

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

Photographs – Stain Repellency**St. Croix Valley Limestone, Honed; Stains Applied**

Photographs – Stain Repellency**St. Croix Valley Limestone, Honed; Stains Removed****Untreated
Control****Stand Off® Stone, Tile &
Masonry Protector (STMP)****Stand Off® Limestone & Marble Protector****Stand Off® Gloss 'N Guard**

Conclusions – Stain Repellency

Based upon laboratory evaluations, each of the treatments evaluated improved the surface beading of the samples. In addition, each of the treatments tested were effective in improving the limestone samples' resistance to the applied stains. Stand Off® Gloss 'N Guard created a moderate color enhancement to the submitted limestone samples.

Recommendations – Stain Repellency

Recommendations for stain resistance treatment for the limestone submitted by Rivard Stone, Inc., Houlton, 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
St. Croix Valley Limestone Honed and Rock Faced	Stand Off® Stone, Tile & Masonry Protector (STMP) or *Stand Off® Limestone & Marble Protector or *Stand Off® Gloss 'N Guard	Enviro Klean® 2010 All Surface Cleaner

***NOTE:** Stand Off® Limestone & Marble Protector and Stand Off® Gloss 'N Guard are manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). These products may not be suitable for sale in states and districts with more restrictive AIM VOC regulations.

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 and/or sheen enhancement to the submitted samples.

Description of Products Evaluated – Color and Sheen Enhancement

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.

Test Method – Color and Sheen Enhancement

Stand Off® 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

St. Croix Valley Limestone, Honed Surface		
Treatment	Color Enhancement	Sheen Enhancement
Stand Off® Gloss 'N Guard	2	2
St. Croix Valley Limestone, Rock Faced Surface		
Treatment	Color Enhancement	Sheen Enhancement
Stand Off® Gloss 'N Guard	2	2

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

Photographs – Color and Sheen Enhancement

St. Croix Valley Limestone; Treatments Applied



Stand Off® Gloss 'N Guard



Untreated Surface

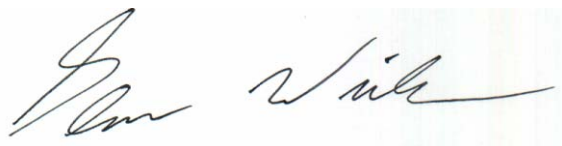
Recommendations – Color and Sheen Enhancement

Recommendations for color and sheen enhancement for the limestone submitted by Rivard Stone, Inc., Houlton 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
St. Croix Valley Limestone Honed and Rock Faced	*Stand Off® Gloss 'N Guard	*Stand Off® Gloss 'N Guard

***NOTE:** Stand Off® Gloss 'N Guard 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.



Glenn Winkler
Project Testing Laboratory Technician



PALLET TAG PROGRAM

Laboratory Report

Rivard Stone, Inc.
318 Hwy 35 and 64
Houlton, WI 54082



Project No. 0801-14 PTP

Prepared For:
PROSOCO
SINCE 1939

Prepared By:
AMT Laboratories
March 2008