



# PALLET TAG PROGRAM LABORATORY REPORT



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**ATTACHMENTS**

- Technical Services TECH Note RILEM Test Method No. II.4
- Product Data literature for all products evaluated



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**FOR:** Mark O'Keefe  
**CC:** Paul Tessier  
**SUBJECT:** Glacier Stone Supply, LLC,  
Kalispell, MT  
**DATE:** January 17, 2005  
**PROJECT:** 0412-10 PTP

**SAMPLES SUBMITTED:** 14 pieces of "Wolfcreek Flagstone"

<u>Sample</u>	<u>Number</u>	<u>Color</u>	<u>Size</u>
"Wolfcreek Flagstone"	14	Dark Brown/Orange/Grey	Various

Submitted by: Mark O'Keefe



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## PURPOSE OF TESTING:

Fourteen pieces of “Wolfcreek Flagstone” were submitted to PROSOCO, Inc.’s Testing Laboratory with a request to determine if application of the products evaluated will produce any surface alteration during new construction cleaning operations. Additionally, the effectiveness of water repellents, stain repellents, and color enhancing treatments suitable for natural stone were evaluated.

**A. New Construction Cleaning** – Enviro Klean® Safety Klean and Sure Klean® Vana Trol® were evaluated for removal of laboratory applied mortar.

To simulate new construction soiling, the sample was 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 sample and filled with a wet mixture of Type N cementitious mortar. The wet mortar-filled cylinder was allowed to remain in contact with the sample 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.

**B. Limiting Surface Alterations** – Enviro Klean® Safety Klean and Sure Klean® Vana Trol® were tested at various dilutions to determine if a cleaning program implemented to remove excess mortar, and related new construction soiling would otherwise alter the appearance of cleaned surfaces. Surface alterations were evaluated visually based upon perceived discoloration or erosion/etching of the sample.

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.

**C. Water Repellent Evaluation** - Sure Klean® Paver Enhancer, Sure Klean® Weather Seal Natural Stone Treatment, Sure Klean® Weather Seal SL100 Water Repellent, Sure Klean® Weather Seal Siloxane WB Concentrate, Stand Off® SLX100 Water & Oil Repellent and Stand Off® Impregnator were evaluated on the submitted samples for their ability to provide water repellency.

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

**E. Color Enhancement** – Sure Klean® Paver Enhancer, Stand Off® Gloss ‘N Guard and Stand Off® Gloss ‘N Guard WB were evaluated for their ability to provide color enhancement to the submitted samples.



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## PRODUCTS EVALUATED FOR CLEANING AND LIMITING SURFACE ALTERATIONS

SAMPLE	PRODUCT	DILUTION
"Wolfcreek Flagstone"	Sure Klean® Vana Trol®	1:6, 1:8
	Enviro Klean® Safety Klean	1:2, 1:3

## WATER REPELLENT PRODUCTS EVALUATED

SAMPLE	TREATMENT	DILUTION
"Wolfcreek Flagstone"	Sure Klean® Paver Enhancer	Concentrate
	Sure Klean® Weather Seal Natural Stone Treatment	Concentrate
	Sure Klean® Weather Seal SL100 Water Repellent	Concentrate
	Sure Klean® Weather Seal Siloxane WB Concentrate	1:9
	Stand Off® SLX100 Water & Oil Repellent	Concentrate
	Stand Off® Impregnator	Concentrate

## STAIN REPELLENT PRODUCTS EVALUATED

SAMPLE	TREATMENT	DILUTION
"Wolfcreek Flagstone"	Stand Off® Stone, Tile & Masonry Protector (STMP)	Concentrate
	Stand Off® SLX100 Water & Oil Repellent	Concentrate
	Stand Off® Impregnator	Concentrate

## COLOR ENHANCEMENT PRODUCTS EVALUATED

SAMPLE	TREATMENT	DILUTION
"Wolfcreek Flagstone"	Sure Klean® Paver Enhancer	Concentrate
	Stand Off® Gloss 'N Guard	Concentrate
	Stand Off® Gloss 'N Guard WB	Concentrate

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



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## SECTION A – 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 samples.

Type N cementitious mortar was prepared in compliance with the manufacturer’s instructions, applied to the natural stone 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 masonry mortar was visually evaluated after 7, 14 and 21 days of curing.

### **DESCRIPTION OF PRODUCTS EVALUATED – New Construction Cleaning**

**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.

**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.

### **TEST METHOD – New Construction Cleaning**

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

1. Prewet the surface with water.
2. Apply the cleaner.
3. Allow the appropriate dwell time, as specified.
 

Safety Klean.....	3-5 minutes
Vana Trol® .....	3-5 minutes
4. Pressure rinse thoroughly.\*

\*Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.



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## Test Results – New Construction Cleaning

% Removal (Type N Mortar)

### “Wolfcreek Flagstone”

Product	Dilution	7 day	14 day	21 day
Enviro Klean® Safety Klean	1:2	100%	100%	100%
	1:3	100%	100%	100%
Sure Klean® Vana Trol®	1:6	100%	100%	100%
	1:8	100%	100%	100%

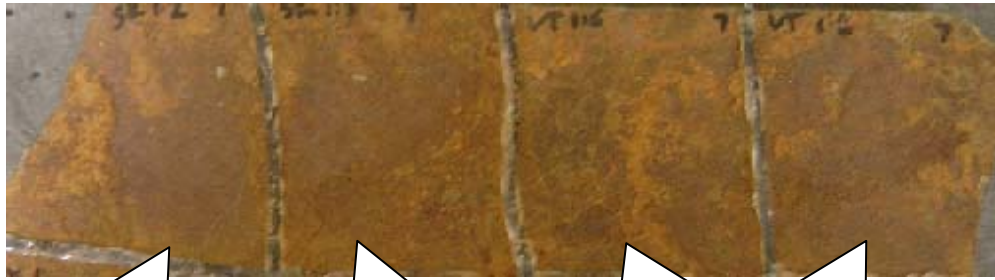


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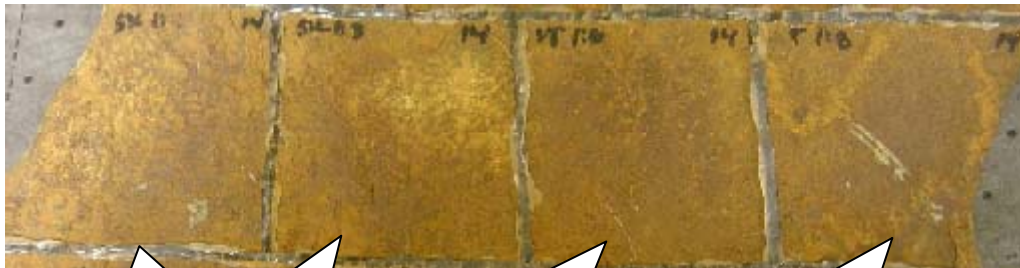
## PHOTOGRAPHS – Cleaning

“Wolfcreek Flagstone”; 7 Day Cleaning



- Sure Klean®  
Vana Trol® 1:6
- Sure Klean®  
Vana Trol® 1:8
- Enviro Klean®  
Safety Klean 1:2
- Enviro Klean®  
Safety Klean 1:3

“Wolfcreek Flagstone”; 14 day cleaning



- Sure Klean®  
Vana Trol® 1:6
- Sure Klean®  
Vana Trol® 1:8
- Enviro Klean®  
Safety Klean 1:2
- Enviro Klean®  
Safety Klean 1:3

“Wolfcreek Flagstone”; 21 day cleaning



- Sure Klean®  
Vana Trol® 1:6
- Sure Klean®  
Vana Trol® 1:8
- Enviro Klean®  
Safety Klean 1:2
- Enviro Klean®  
Safety Klean 1:3



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## CONCLUSIONS – New Construction Cleaning

Based on the test results, all PROSOCO, Inc. products tested performed well in removing excess mortar from the submitted samples. These products performed well in removing the mortar soils even after allowing the mortar to remain on the surface of the samples for 21 days under ideal curing conditions.

It is recommended that the selected cleaners always be used in the lowest possible concentration. They should be rinsed with the lowest pressure of water as practical, at least 400 psi, to minimize removal of the decorative finish. Excessive pressure and water volume may combine to damage or remove decorative finishes. To facilitate easier removal of excess mortar and construction dirt while minimizing any potential surface alterations to the decorative finish, clean within 7 days of construction.

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## RECOMMENDATIONS– New Construction Cleaning

Recommendations for cleaning for the “Wolfcreek Flagstone” submitted by Glacier Stone Supply, LLC, Kalispell, MT, 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, 21 Days)
“Wolfcreek Flagstone”	Sure Klean® Vana Trol® (1:8) OR Enviro Klean® Safety Klean (1:3)

Excessive pressure and water volume may combine to damage or remove decorative finishes. To facilitate easier removal of excess mortar and construction dirt while minimizing any potential surface alterations to the decorative finish, clean within 7 days of construction. Rinsing with high-pressure spray (400-800 psi) is recommended.

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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## SECTION B – LIMITING SURFACE ALTERATIONS

### DESCRIPTION OF PRODUCTS EVALUATED – Limiting Surface Alterations

**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.

**Sure Klean® Vana Trol®** - A concentrated acidic cleaner for new masonry surfaces that are subject to vanadium, manganese and other metallic stains. Designed for use on gray, brown, white and most light-colored brick, natural stone and 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.

### TEST METHOD – Limiting Surface Alterations:

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

1. Prewet the surface with water.
2. Apply the cleaner.
3. Allow the appropriate dwell time, as specified.
 

Safety Klean.....	3-5 minutes
Vana Trol® .....	3-5 minutes
4. Pressure rinse thoroughly. \*

\* Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.



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### TEST RESULTS – Limiting Surface Alterations

Substrate: Natural Stone	Pigment Color: "Wolfcreek Flagstone"				
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Enviro Klean® Safety Klean	1:2	0	0	0	0
Enviro Klean® Safety Klean	1:3	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0

0 – No change  
 1 – change – slight  
 2 – change – moderate  
 3 – change – heavy  
 4 – change - excessive

### PHOTOGRAPHS – Limiting Surface Alterations

"Wolfcreek Flagstone"



Enviro Klean®  
Safety Klean 1:2

Enviro Klean®  
Safety Klean 1:3

Sure Klean®  
Vana Trol® 1:6

Sure Klean®  
Vana Trol® 1:8



Untreated Control



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## CONCLUSIONS – Limiting Surface Alterations

Test results indicate that none of the products tested caused any surface alterations on any of the submitted samples. It is recommended that the selected cleaners always be used in the lowest possible concentration. They should be rinsed with the lowest pressure of water as practical to minimize removal of the decorative finish. Excessive pressure and water volume may combine to damage or remove decorative finishes. To facilitate easier removal of excess mortar and construction dirt while minimizing any potential surface alterations to the decorative finish, clean within 7 days of construction.

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## RECOMMENDED PRODUCTS AND DILUTIONS – Limiting Surface Alterations

Product recommendations for limiting surface alterations to the “Wolfcreek Flagstone” submitted by Glacier Stone Supply, LLC, Kalispell, MT, are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while limiting surface alterations.

Sample	Limiting Surface Alterations
“Wolfcreek Flagstone”	Sure Klean® Vana Trol® (1:8) OR Enviro Klean® Safety Klean (1:3)

Excessive pressure and water volume may combine to damage or remove decorative finishes. To facilitate easier removal of excess mortar and construction dirt while minimizing any potential surface alterations to the decorative finish, clean within 7 days of construction. Rinsing with high-pressure spray (400-800 psi) is recommended.

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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## SECTION C - 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

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## **DESCRIPTIONS OF PRODUCTS EVALUATED - Protective Water Repellents:**

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

**Sure Klean® Weather Seal 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 SL100 Water Repellent** – A modified, “neat” silane system that offers invisible protection and low volatility and complies with all known regulations limiting the Volatile Organic Compound (VOC) content of architectural coatings and sealers. SL100 protects horizontal and vertical concrete and masonry surfaces against water and waterborne contaminants. The small molecular structure of SL100 ensures maximum penetration and colorless protection of dense, color-sensitive surfaces. Ideal for GFRG, integrally colored pre-cast concrete and many types of natural stone.

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

**Stand Off® Impregnator** – Combines water and oil repellency to prevent staining by waterborne or oily substances. This special system offers invisible protection and low volatility. The small molecular structure of Impregnator lets it penetrate and chemically bond deep within the substrate to provide long-lasting protection against water- and oil-related staining and deterioration. In addition, Impregnator forms an effective chloride screen that reduces surface erosion and corrosion of rebar in reinforced concrete caused by water and water-carried salts.



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## SAMPLE PREPARATION - Protective Water Repellents:

The submitted samples were allowed to absorb atmospheric humidity for at least 24 hours prior to treatment. The treatment method adhered to the current PROSOCO, Inc. Product Guide. All treatments were allowed to cure for at least 7 days 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 horizontal 5.0-milliliter head pressures. Filled to 5 milliliters, a water absorption tube produces a 103 mph dynamic wind pressure. See RILEM II.4 Tech Note for additional information.

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

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

**A** = "Average" correlates to less than or equal to 50% of the maximum untreated absorption.

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

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

A rating of **AA** *Above Average* water repellent performance would require loss of no more than 5 ml X 20% = 1 ml.

A rating of **A** *Average* water repellent performance would require loss of no more than 5 ml X 50% = 2.5ml.

A rating of **BA** *Below Average* water repellent performance would be reported for treatments which result in a loss of more than 50% X 5ml = 2.5ml+.



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TEST RESULTS:

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

AA = Above Average

A = Average

BA = Below Average

<b>"Wolfcreek Flagstone"</b>	<b>Results in mL loss</b>	<b><u>Ranking</u></b>
Untreated Control	0.0	--
Paver Enhancer	0.0	<u>AA</u>
Natural Stone Treatment	0.0	<u>AA</u>
SL100 Water Repellent	0.0	<u>AA</u>
Siloxane WB (1:9)	0.0	<u>AA</u>
SLX100 Water & Oil Repellent	0.0	<u>AA</u>
Impregnator	0.0	<u>AA</u>



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## PHOTOGRAPH – Water Repellents

“Wolfcreek Flagstone”; RILEM Testing

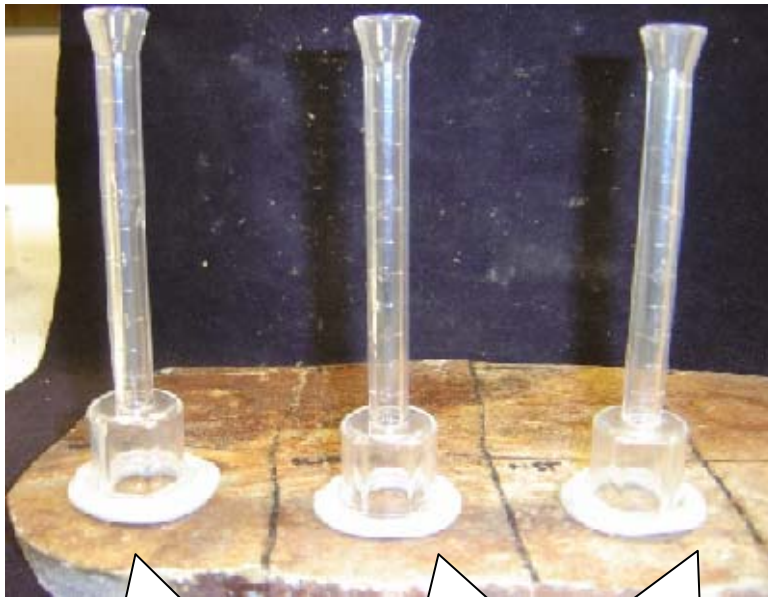


**Untreated Control**

**Stand Off<sup>®</sup> SLX100 Water & Oil Repellent**

**Stand Off<sup>®</sup> Impregnator**

**Sure Klean<sup>®</sup> Paver Enhancer**



**Sure Klean<sup>®</sup> Weather Seal Siloxane WB (1:9)**

**Sure Klean<sup>®</sup> Weather Seal SL100 Water Repellent**

**Sure Klean<sup>®</sup> Weather Seal Natural Stone Treatment**





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## CONCLUSIONS – Protective Water Repellents:

Test results indicate that all of the water repellents tested exhibited above average water repellency on the submitted samples. In addition, Sure Klean® Paver Enhancer enhanced the appearance of the submitted samples.

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## RECOMMENDATIONS – Protective Water Repellents:

Recommendations for water repellent treatments for the “Wolfcreek Flagstone” submitted by Glacier Stone Supply, LLC, Kalispell, MT, are provided in the chart below. Recommendations are based on the treatments that proved most effective at providing water repellency on the submitted natural stone.

Sample	Recommended Water Repellents
“Wolfcreek Flagstone”	Sure Klean® Paver Enhancer
	Sure Klean® Weather Seal Natural Stone Treatment
	Sure Klean® Weather Seal SL100 Water Repellent
	Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)
	Stand Off® SLX100 Water & Oil Repellent
	Stand Off® Impregnator

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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## SECTION D – STAIN REPELLENCY

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

### **DESCRIPTION OF PRODUCTS EVALUATED - Stain Protection:**

**Stand Off® Stone, Tile & Masonry Protector (STMP)** – A penetrating oil and stain repellent. 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® SLX100 Water & Oil Repellent** - Combines water and oil repellency on most substrates to prevent staining by waterborne and oily substances. This modified “heat” 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® Impregnator** – Combines water and oil repellency to prevent staining by waterborne or oily substances. This special system offers invisible protection and low volatility. The small molecular structure of Impregnator lets it penetrate and chemically bond deep within the substrate to provide long-lasting protection against water- and oil-related staining and deterioration. In addition, Impregnator forms an effective chloride screen that reduces surface erosion and corrosion of rebar in reinforced concrete caused by water and water-carried salts.

### **Kitchen Products Evaluated:**

Coca Cola  
Ketchup  
Mustard  
Red wine  
Balsamic Vinegar  
Soy Sauce  
Olive Oil  
Wesson Oil  
Coffee

### **Temperature:**

ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
(~250°F)  
(~120°F)

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## **SAMPLE PREPARATION – Stain Repellency**

Samples were cleaned with Enviro Klean® 2010 All Surface Cleaner diluted with 10 parts water, allowed to dry and absorb atmospheric moisture for 24 hours prior to treatment. The method of application for protective treatments followed the current PROSOCO, Inc. Product Guide.



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## TEST METHOD – Stain Repellency

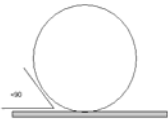
### Surface Beading Evaluation

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 oil quickly absorbed into the substrate and correlates to “below average” repellency.

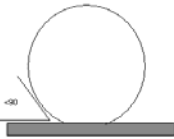
**Note: Non-free flowing staining agents such as ketchup and mustard are applied in a blob and not evaluated for their beading properties.**

#### Rating System (1-5)

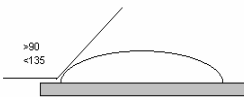
1. No wetting of contact area (no darkening); angle less than  $90^\circ$



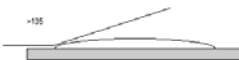
2. Wetting contained to the contact area (slight darkening); angle is less than  $90^\circ$



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.



# PALLET TAG PROGRAM LABORATORY REPORT



**TEST RESULTS – Surface Beading**

"Wolfcreek Flagstone"									
Treatment	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	3	3	3	3	3	2
STMP	2	-	-	3	3	2	2	2	2
SLX100	2	-	-	2	2	2	3	3	2
Impregnator	2	-	-	2	2	2	2	2	2

**TEST RESULTS – Staining Removal**

% Removal

"Wolfcreek Flagstone"									
Untreated Control									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	100%	10%	100%	100%	100%	30%	30%	100%
4 hour	100%	100%	100%	100%	100%	100%	30%	30%	100%
1 hour	100%	100%	100%	100%	100%	100%	30%	30%	100%
10 min.	100%	100%	100%	100%	100%	100%	30%	30%	100%
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® 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%	90%	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® Impregnator									
	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%	80%	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%



# PALLET TAG PROGRAM LABORATORY REPORT



## PHOTOGRAPHS- Stain Results

“Wolfcreek Flagstone”; Stains Applied



Untreated Control

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

Stand Off® SLX100  
Water & Oil  
Repellent

Stand Off®  
Impregnator

“Wolfcreek Flagstone”; Stains Removed



Untreated Control

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

Stand Off®  
SLX100 Water &  
Oil Repellent

Stand Off®  
Impregnator



# PALLET TAG PROGRAM LABORATORY REPORT



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## CONCLUSIONS – Stain Repellency

Based upon laboratory evaluations, all of the treatments tested improved the surface beading of the samples. In addition, all of the treatments were effective in repelling the staining agents from the samples.

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## RECOMMENDATIONS – Stain Repellency

Recommendations for stain resistance treatment for the “Wolfcreek Flagstone” submitted by Glacier Stone Supply, LLC, Kalispell, MT, are provided in the chart below. Recommendations are based on the treatments that proved most effective for providing stain repellency on the submitted natural stone.

Sample	Stain Repellent	Maintenance Cleaner
“Wolfcreek Flagstone”	Stand Off <sup>®</sup> Stone, Tile & Masonry Protector (STMP) OR Stand Off <sup>®</sup> SLX 100 Water & Oil Repellent OR Stand Off <sup>®</sup> Impregnator	Enviro Klean <sup>®</sup> 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.



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

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## SECTION E – COLOR ENHANCEMENT:

### DESCRIPTION OF PRODUCTS EVALUATED – Color Enhancement:

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

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

**Stand Off® Gloss 'N Guard WB** – A highly durable polyurethane protective coating for tile, pavers, terrazzo and other polished and unpolished masonry. Gloss 'N Guard WB dries to a high-gloss finish, which enhances the natural beauty of treated surfaces – both horizontal and vertical. Gloss 'N Guard WB's water-based formula offers several improvements on similar solvent-based products. No solvent odor, easy soap and water cleanup, and reduced fire-hazards make the treatment safe and easy to use, as well as effective. In addition, Gloss 'N Guard WB complies with all known regulations limiting Volatile Organic Compound (VOC) content.

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## TEST METHOD – COLOR ENHANCEMENT

The color enhancing products were applied in accordance with the application instructions in the current PROSOCO, Inc. Product Guide.





# PALLET TAG PROGRAM LABORATORY REPORT



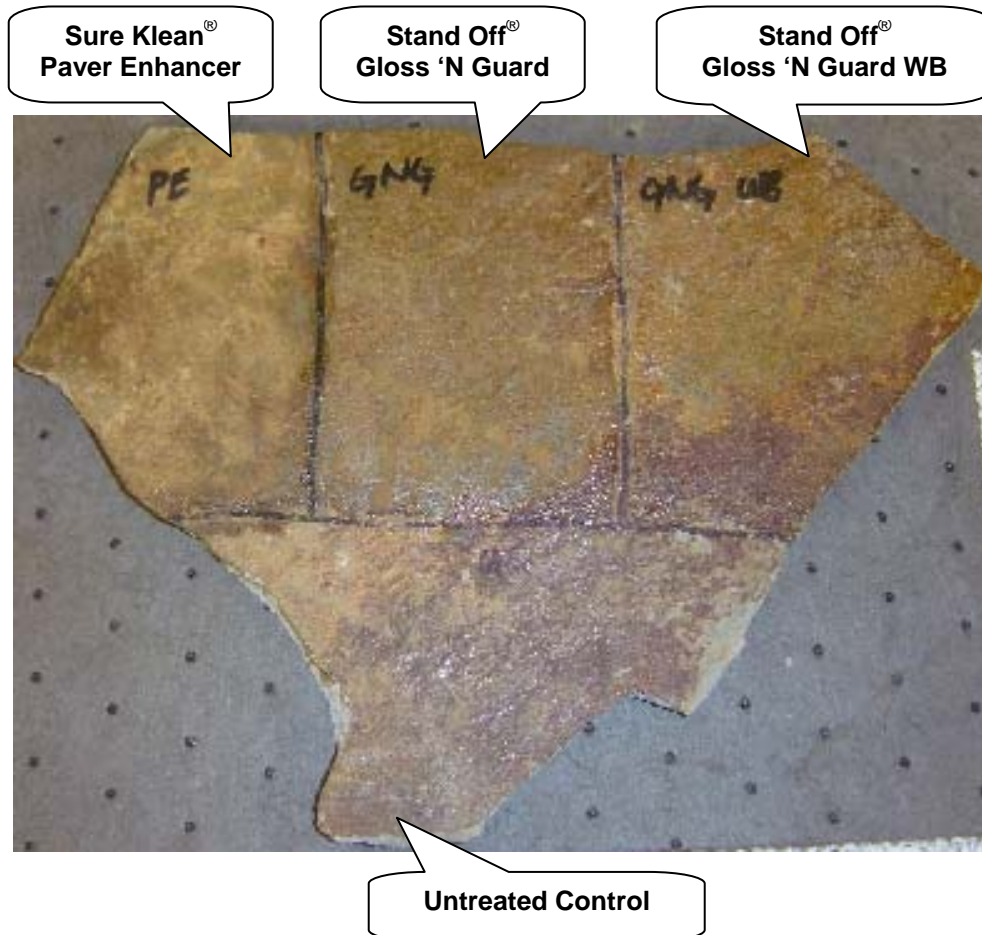
### TEST RESULTS- COLOR ENHANCEMENT

Sample	Sure Klean® Paver Enhancer	Stand Off® Gloss 'N Guard	Stand Off® Gloss 'N Guard WB
"Wolfcreek Flagstone"	1	2	2

Scale: 0- No enhancement; dull  
 1- Slight Enhancement  
 2- Moderate Enhancement  
 3- Significant Enhancement

### PHOTOGRAPH – Color Enhancement

"Wolfcreek Flagstone"; Treatments Applied





# PALLET TAG PROGRAM LABORATORY REPORT



## RECOMMENDATIONS – Color Enhancement

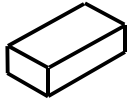
Recommendations for color enhancement for the “Wolfcreek Flagstone” submitted by Glacier Stone Supply, LLC, Kalispell, MT, are provided in the chart below. Recommendations are based on the treatment that proved most effective in providing color enhancement to the submitted samples.

Substrate	Color Enhancer
“Wolfcreek Flagstone”	Stand Off® Gloss ‘N Guard OR Stand Off® Gloss ‘N Guard WB

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

Christopher A. Moore  
Project Testing Laboratory Technician  
CAM





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***Laboratory Report***

**Pallet Tag Program Evaluation**

**Glacier Stone Supply, LLC  
Kalispell, MT**

***Project No. 0412-10 PTP***

***Prepared For:***

**Glacier Stone Supply, LLC  
3020 Highway 2 East  
Kalispell, MT 59901**

***Prepared By:***



***PROSOCO, Inc.  
January 2005***