



## PROSOCO, Inc.

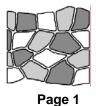
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## Attachments

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





## **Submitted Information**

For: cc:	Mark O'Keefe Paul Tessier
Subject:	Rox Pro, Inc. McClellan, CA
Date:	April 29 <sup>th</sup> , 2005
Project:	0501-11 PTP

Samples Submitted: 6 different types of natural stone

Sample	Color	Size
"#03 Sierra Blue Stone"	Green	12" x 12" x ½"
"#14 Placer Gold Prairie"	Gold/White	6" x 14" x ½"
"#18 Black Mountain Stone"	Black	12" x 12" x ½"
"#24 Autumn Horizon"	Rust/Gray	Random
"#48 Twilight Mica Shift"	Black/Silver	Random
"#59 Alpine Jade"	Green	6" x 6" x ½"

Submitted by: Mark O'Keefe





## Purpose of Testing

Six types of natural stone were submitted to PROSOCO, Inc.'s Testing Laboratory with a request to determine if application of the cleaning products evaluated will produce any surface alterations during new construction cleaning operations. Additionally, the effectiveness of water repellents, stain repellents, and color enhancing treatments suitable for natural stone were evaluated.

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

To simulate new construction soiling, the samples were placed on a bench with finished surface facing upward. Hollow cylinders measuring 50 mm in diameter and 75 mm tall were positioned on top of the samples and filled with a wet mixture of Type S or 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 S mortar after 3, 7, and 14 days of curing and Type N mortar after 7, 14, and 21 days of curing.

**Limiting Surface Alterations** – Enviro Klean<sup>®</sup> Safety Klean and Sure Klean<sup>®</sup> Vana Trol<sup>®</sup> 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.

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

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

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

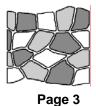
<u>Staining</u> is the visual examination for changes that are the result of a chemical reaction that leaves a staining precipitate.

**Water Repellent Evaluation** – Sure Klean<sup>®</sup> Weather Seal SL100 Water Repellent, Stand Off<sup>®</sup> SLX100 Water & Oil Repellent and Stand Off<sup>®</sup> Impregnator were evaluated on the submitted samples for their ability to provide water repellency.

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

**Color Enhancement** – ConcreteScience<sup>®</sup> SpecSeal WB-Flat was evaluated for its ability to provide color enhancement to the submitted samples.





## **Products Evaluated**

Products Evaluated for New Construction Cleaning and Limiting Surface Alterations

Sample	Treatment	Dilution
All Submitted Samples	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6, 1:8
All Submitted Samples	Enviro Klean <sup>®</sup> Safety Klean	1:2, 1:3

## Water Repellent Products Evaluated

Sample	Treatment	Dilution
	Sure Klean <sup>®</sup> Weather Seal SL100 Water Repellent	Concentrate
All Submitted Samples	Stand Off <sup>®</sup> SLX100 Water & Oil Repellent	Concentrate
	Stand Off <sup>®</sup> Impregnator	Concentrate

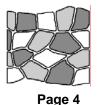
## Stain Repellent Products Evaluated

Sample	Treatment	Dilution
	Stand Off <sup>®</sup> Stone, Tile, & Masonry Protector (STMP)	Concentrate
All Submitted Samples	Stand Off <sup>®</sup> SLX100 Water & Oil Repellent	Concentrate
	Stand Off <sup>®</sup> Impregnator	Concentrate

## **Color Enhancement Products Evaluated**

Sample	Treatment	Dilution
All Submitted Samples	ConcreteScience <sup>®</sup> SpecSeal WB-Flat	Concentrate





## **New Construction Cleaning**

These cleaning trials were conducted to determine the optimal cleaning/cure time combination to most efficiently remove Type S or Type N mortar from the submitted samples.

Type S or Type N cementitious mortar was prepared in compliance with the manufacturer's instructions, applied to the natural stone surface and allowed to cure for 3, 7 and 14 days for Type S mortar and 7, 14 and 21 days for Type N mortar. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type S mortar was visually evaluated after 3, 7 and 14 days of curing and Type N mortar after 7, 14 and 21 days of curing.

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

**Sure Klean**<sup>®</sup> **Vana Trol**<sup>®</sup> – 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**<sup>®</sup> **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.

## Test Method – New Construction Cleaning

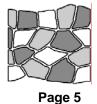
Dilution ratios refer to mixtures of concentrated cleaner : fresh water. Chemical cleaners were evaluated using the following procedure:

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

3.	Allow the appropriate dwell time, as specified.	
	Vana Trol <sup>®</sup>	3-5 minutes
	Safety Klean	
4.	Pressure rinse thoroughly.*	

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



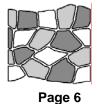


## <u>Test Results</u> – New Construction Cleaning; Type S Mortar

<u>% removal</u>

"#03 Sierra Blue Stone"				
Product	Dilution	3 day	7 day	14 day
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%
Sule Rieall Valla ITO	1:8	100%	100%	100%
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%
Enviro Riean Salety Riean	1:3	100%	100%	100%
"#14	Placer Gol	d Prairie"		
Product	Dilution	3 day	7 day	14 day
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%
Sule Riean Vana 110	1:8	100%	100%	100%
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%
Enviro Riean Salety Riean	1:3	100%	100%	100%
"#18 E	Black Mount	ain Stone'	9	
Product	Dilution	3 day	7 day	14 day
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%
Sure Klean Vana ITO	1:8	100%	100%	100%
Envire Kleen <sup>®</sup> Cofety Kleen	1:2	100%	100%	100%
Enviro Klean <sup>®</sup> Safety Klean	1:3	100%	100%	100%
"#2	4 Autumn H	lorizon"		
Product	Dilution	3 day	7 day	14 day
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%
Sure Riean Vana Hoi	1:8	100%	100%	100%
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%
Enviro Realit Salety Realit	1:3	100%	100%	100%
"#48	Twilight M	ica Shift"		
Product	Dilution	3 day	7 day	14 day
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%
Sure Mean Vana 110	1:8	100%	100%	100%
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%
Enviro Riean Salety Riean	1:3	100%	100%	100%
"#59 Alpine Jade"				
Product	Dilution	3 day	7 day	14 day
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%
	1:8	100%	100%	100%
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%
Enviro Riean Salety Riean	1:3	100%	100%	100%





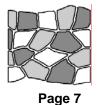
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## Test Results – New Construction Cleaning; Type N Mortar

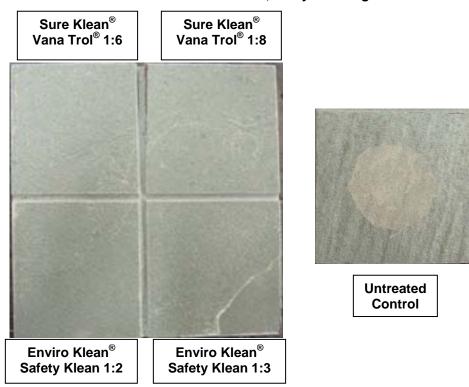
"#03 Sierra Blue Stone"					
Product	Dilution	7 day	14 day	21 day	
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%	
Sure Klean vana Troi	1:8	100%	100%	100%	
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%	
Enviro Riean Salety Riean	1:3	100%	100%	100%	
"#14	Placer Gol	d Prairie"		·	
Product	Dilution	7 day	14 day	21 day	
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%	
	1:8	100%	100%	100%	
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%	
Enviro Riean Salety Riean	1:3	100%	100%	100%	
"#18 E	Black Mount	ain Stone'	,		
Product	Dilution	7 day	14 day	21 day	
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%	
Sure Riean Vana 110	1:8	100%	100%	100%	
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%	
Enviro Riean Salety Riean	1:3	100%	100%	100%	
"#2	4 Autumn H	lorizon"			
Product Dilution 7 day 14 day 21 day					
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%	
	1:8	100%	100%	100%	
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%	
Enviro Mean Galety Mean	1:3	100%	100%	100%	
"#48	Twilight M	ica Shift"	1	1	
Product	Dilution	7 day	14 day	21 day	
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%	
	1:8	100%	100%	100%	
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%	
Enviro Mean Galety Mean	1:3	100%	100%	100%	
"#59 Alpine Jade"					
Product	Dilution	7 day	14 day	21 day	
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	100%	100%	100%	
	1:8	100%	100%	100%	
Enviro Klean <sup>®</sup> Safety Klean	1:2	100%	100%	100%	
LINIO Near Galety Near	1:3	100%	100%	100%	

## <u>% removal</u>



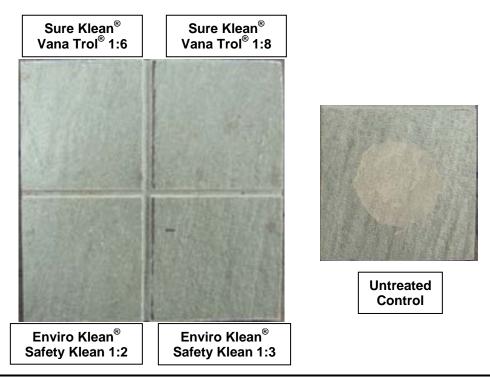


## Photographs – New Construction Cleaning; Type S Mortar



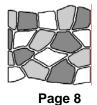
## "#03 Sierra Blue Stone"; 3 Day Cleaning

"#03 Sierra Blue Stone"; 7 Day Cleaning



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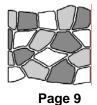


Photographs – New Construction Cleaning; Type S Mortar

"#03 Sierra Blue Stone"; 14 Day Cleaning

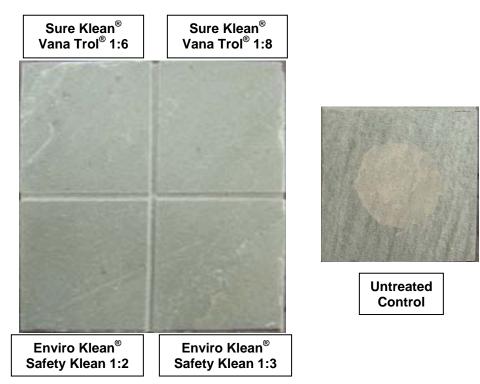


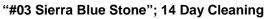


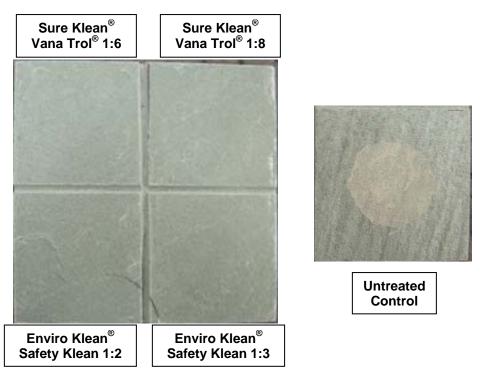


Photographs – New Construction Cleaning; Type N Mortar

"#03 Sierra Blue Stone"; 7 Day Cleaning

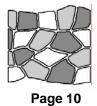






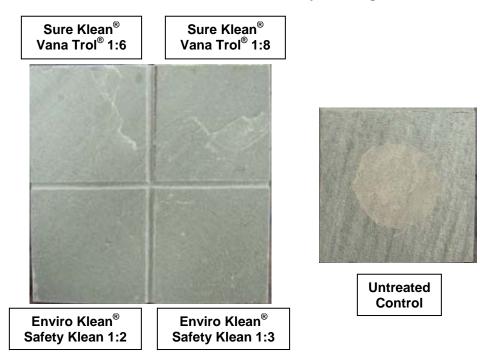
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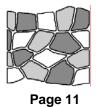


## Photographs – New Construction Cleaning; Type N Mortar

"#03 Sierra Blue Stone"; 21 Day Cleaning







## **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 14 days using Type S mortar and 21 days using Type N mortar 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 3 days of construction when using Type S mortar and within 7 days of construction when using Type N mortar.

## **Recommendations** – New Construction Cleaning

Recommendations for cleaning for the natural stone submitted by Rox Pro, Inc., McClellan, CA are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while limiting surface alterations.

Sample	New Construction Cleaning (Type S mortar, 14 day cleaning)	New Construction Cleaning (Type N mortar, 21 day cleaning)
All Submitted Samples	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup> (1:6) OR (1:8) OR Enviro Klean <sup>®</sup> Safety Klean (1:2) OR (1:3)	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup> (1:6) OR (1:8) OR Enviro Klean <sup>®</sup> Safety Klean (1:2) OR (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 3 days of construction for Type S mortar and within 7 days of construction for Type N mortar. 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.





## **Limiting Surface Alterations**

## **Description of Products Evaluated** – Limiting Surface Alterations

**Sure Klean<sup>®</sup> Vana Trol<sup>®</sup>** – 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<sup>®</sup> 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.

## Test Method – Limiting Surface Alterations

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

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

3.	. Allow the appropriate dwell time, as specified.	
	Vana Trol <sup>®</sup>	3-5 minutes
	Safety Klean	3-5 minutes
Λ	Pressure rinse thoroughly *	

4. Pressure rinse thoroughly.\*

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





## **Test Results – Limiting Surface Alterations**

Substrate: Natural Stone	Pigment Co	olor: "#03 Sierra l	Blue Stone"						
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	0	0	0	0				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:8	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:2	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:3	0	0	0	0				
Substrate: Natural Stone	Pigment Co	olor: "#14 Placer	Gold Prairie"						
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	0	0	0	0				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:8	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:2	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:3	0	0	0	0				
Substrate: Natural Stone	Pigment Co	olor: "#18 Black N	Nountain Stone"						
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	0	0	0	0				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:8	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:2	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:3	0	0	0	0				
Substrate: Natural Stone	Pigment Co	olor: "#24 Autumr	n Horizon"						
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	0	0	0	0				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:8	1:8	0	0	0	0			
Enviro Klean <sup>®</sup> Safety Klean	1:2	0 0		0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:3	0	0	0	0				
Substrate: Natural Stone	Pigment Co	olor: "#48 Twiligh	t Mica Shift"						
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	0	0	0	0				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:8	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:2	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:3	0	0	0	0				
Substrate: Natural Stone	Pigment Co	olor: "#59 Alpine	Jade"						
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:6	0	0	0	0				
Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	1:8	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:2	0	0	0	0				
Enviro Klean <sup>®</sup> Safety Klean	1:3	0	0	0	0				
0 – No change 3 – change – heavy 1 – change – slight 4 – change - excessive 2 – change – moderate									





## **Photographs** – Limiting Surface Alterations









## **<u>Conclusions</u>** – 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. The natural stone 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.

## **Recommendations** – Limiting Surface Alterations

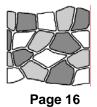
Product recommendations for limiting surface alterations to the natural stone submitted by Rox Pro, Inc., McClellan, CA are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while limiting surface alterations.

Sample	Limiting Surface Alterations
All Submitted Samples	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup> (1:6) OR (1:8) OR Enviro Klean <sup>®</sup> Safety Klean (1:2) OR (1:3)

Excessive pressure and water volume may combine to damage or remove decorative finishes. 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.





## PROSOCO, Inc.

## Protective Water Repellents

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

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

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

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

**Sure Klean<sup>®</sup> 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 GFRC, integrally colored pre-cast concrete and many types of natural stone.

**Stand Off<sup>®</sup> 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<sup>®</sup> 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.

## Sample Preparation – Protective Water Repellents

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





## Test Methods – Protective Water Repellents

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

The water absorption tube test simulating wind driven and wind blown rain conditions was performed. Tests were run with 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:

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

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

**<u>BA</u>** = "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 <u>AA</u> Above Average water repellent performance would require loss of no more than 5 ml X 20% = 1 ml.

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

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

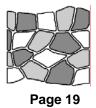




# Test Results – Protective Water Repellents

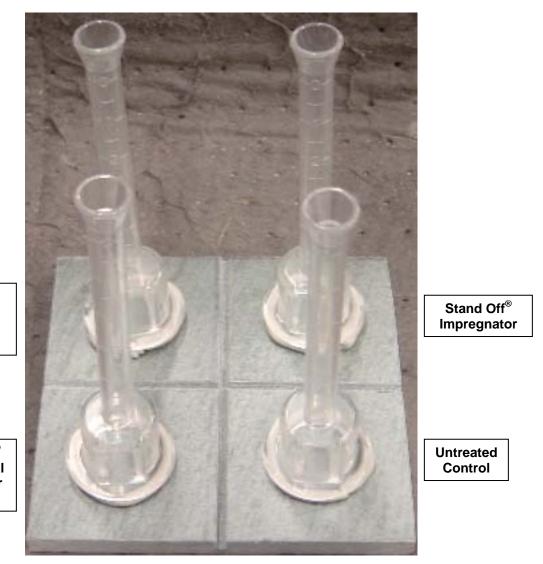
<u>A</u> = Above Average	<u>A</u> = Average	<u>BA</u> = Below Averag		
"#03 Sierra Blue Stone"	Results in mL loss	Ranking		
Untreated Control	-0.0			
SL100 Water Repellent	-0.0	AA		
SLX100 Water & Oil Repellent	-0.0	AA		
Impregnator	-0.0	AA		
"#14 Placer Gold Prairie"	Results in mL loss	Ranking		
Untreated Control	-0.0			
SL100 Water Repellent	-0.0	AA		
SLX100 Water & Oil Repellent	-0.0	AA		
Impregnator	-0.0	AA		
"#18 Black Mountain Stone"	Results in mL loss	Ranking		
Untreated Control	-0.0			
SL100 Water Repellent	-0.0	AA		
SLX100 Water & Oil Repellent	-0.0	AA		
Impregnator	-0.0	AA		
"#24 Autumn Horizon"	Results in mL loss	<u>Ranking</u>		
Untreated Control	-0.0			
SL100 Water Repellent	-0.0	AA		
SLX100 Water & Oil Repellent	-0.0	AA		
Impregnator	-0.0	AA		
"#48 Twilight Mica Shift"	Results in mL loss	Ranking		
Untreated Control	-0.0			
SL100 Water Repellent	-0.0	AA		
SLX100 Water & Oil Repellent	-0.0	AA		
Impregnator	-0.0	AA		
"#59 Alpine Jade"	Results in mL loss	Ranking		
Untreated Control	-0.0			
SL100 Water Repellent	-0.0	<u>AA</u>		
SLX100 Water & Oil Repellent	-0.0	AA		
Impregnator	-0.0	AA		





## Photographs - Protective Water Repellents

"#03 Sierra Blue Stone"; RILEM Testing



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

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





## <u>Conclusions</u> – Protective Water Repellents

Test results indicate that all of the water repellents tested exhibited above average water repellency on the submitted samples. Both Stand Off<sup>®</sup> SLX100 Water & Oil Repellent and Stand Off<sup>®</sup> Impregnator caused a slight color change to the submitted "#18 Black Mountain Stone." None of the evaluated treatments caused any color change on any of the other submitted samples.

## **Recommendations – Protective Water Repellents**

Recommendations for water repellent treatments for the natural stone submitted by Rox Pro, Inc., McClellan, CA 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.

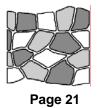
Water Repellents					
Sure Klean <sup>®</sup> Weather Seal SL100 Water Repellent OR					
Stand Off <sup>®</sup> SLX100 Water & Oil Repellent					
OR					
Stand Off <sup>®</sup> Impregnator*					

# \*NOTE: Stand Off<sup>®</sup> Impregnator is not available for sale or use in the state of California or in Maricopa County, Arizona.

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

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





## Stain Repellency

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

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

## Stain Repellent Treatments

**Stand Off**<sup>®</sup> **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<sup>®</sup> 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.

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

## Maintenance Cleaner

**Enviro Klean<sup>®</sup> 2010 All Surface Cleaner** – A "next-generation" product for cleaning and degreasing light-toheavily 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 homeuse 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.

## Staining Agents Evaluated

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

## Sample Preparation – Stain Repellency

Samples were cleaned with Enviro Klean<sup>®</sup> 2010 All Surface Cleaner diluted with 10 parts water, allowed to dry and absorb atmospheric moisture for 24 hours prior to treatment. The evaluated treatments were applied by brush to the submitted samples as recommended in the current PROSOCO, Inc. Product Guide.





## 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°) 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 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.

NO ANGLE

## Stain Removal Evaluation

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





## Test Results – Surface Beading

	"#03 Blue Sierra Stone"													
Treatment	Coco- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee					
Untreated Control	4	-	-	4	4	4	5	5	4					
SLX100	1	-	-	1	1	2	3	3	1					
Impregnator	1	-	-	1	1	1	3	3	1					
STMP	3	-	-	3	3	3	3	3	3					
	1		"#14 Pla	cer Gold	Prairie"									
TreatmentCoco- ColaKetchupMustardRed WineBalsamicSoyOliveOil									Hot Coffee					
Untreated Control	4	-	-	4	4	4	5	5	4					
SLX100	1	-	-	1	1	1	2	2	1					
Impregnator	1	-	-	1	1	1	2	2	1					
STMP	2	-	-	2	3	3	3	3	3					
			"#18 Blac	k Mounta	in Stone"									
Treatment	Coco- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee					
Untreated Control	4	-	-	4	4	4	4	4	4					
SLX100	1	-	-	1	1	2	3	3	1					
Impregnator	1	-	-	1	1	1	3	3	1					
STMP	3	-	-	3	3	3	3	3	3					
	n		"#24 A	utumn Ho	orizon"			1						
Treatment	Coco- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee					
Untreated Control	4	-	-	4	4	4	5	5	4					
SLX100	1	-	-	2	2	1	2	2	1					
Impregnator	1	-	-	1	1	1	2	2	1					
STMP	3	-	-	3	3	3	3	3	3					
			"#48 Tw	ilight Mic	a Shift"									
Treatment	Coco- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee					
Untreated Control	5	-	-	5	5	5	5	5	5					
SLX100	2	-	-	1	1	1	2	2	1					
Impregnator	1	-	-	1	1	1	2	2	1					
STMP	4	-	-	3	3	3	3	3	3					
			"#59	Alpine J	ade"									
Treatment	Coco- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee					
Untreated Control	4	-	-	4	4	4	5	5	4					
SLX100	1	-	-	1	1	2	3	3	1					
Impregnator	1	-	-	1	2	2	2	2	1					
STMP	3	-	-	3	3	3	3	3	3					





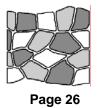
	"#03 Sierra Blue Stone"											
	Untreat	Untreated Control										
	Coca- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee			
24 hr	100%	100%	<1%	100%	100%	100%	<1%	<1%	100%			
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%			
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%			
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%			
	Stand C	Off <sup>®</sup> SLX1	00 Wate	r & Oil Re	epellent							
	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 C	Off <sup>®</sup> Impro	egnator									
	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 C	Off <sup>®</sup> Ston	e, Tile &	Masonry	Protector	r (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%			





	"#14 Placer Gold Prairie"											
	Untreat	Untreated Control										
	Coca- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee			
24 hr	100%	100%	100%	100%	100%	100%	<1%	<1%	100%			
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%			
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%			
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%			
	Stand C	Off <sup>®</sup> SLX1	00 Wate	r & Oil Re	epellent							
	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 C	Off <sup>®</sup> Impro	egnator									
	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 C	Off <sup>®</sup> Ston	e, Tile &	Masonry	Protector	r (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%			





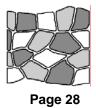
	"#18 Black Mountain Stone"										
	Untreat	Untreated Control									
	Coca- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee		
24 hr	100%	100%	10%	100%	100%	100%	<1%	<1%	100%		
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
	Stand C	Off <sup>®</sup> SLX1	00 Wate	r & Oil Re	epellent						
	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 C	Off <sup>®</sup> Impro	egnator								
	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 C	Off <sup>®</sup> Ston	e, Tile &	Masonry	Protecto	r (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%		





	"#24 Autumn Horizon"										
	Untreat	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%	<1%	<1%	100%		
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
	Stand C	Off <sup>®</sup> SLX1	00 Wate	r & Oil Re	epellent						
	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 C	Off <sup>®</sup> Impro	egnator								
	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 C	Off <sup>®</sup> Ston	e, Tile &	Masonry	Protector	r (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%		





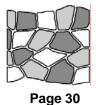
	#48 Twilight Mica Shift"										
	Untreat	Untreated Control									
	Coca- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee		
24 hr	100%	100%	10%	100%	100%	100%	<1%	<1%	100%		
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
	Stand C	Off <sup>®</sup> SLX1	00 Wate	r & Oil Re	epellent						
	Coca- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee		
24 hr	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
	Stand C	Off <sup>®</sup> Impro	egnator								
	Coca- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee		
24 hr	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%		
	Stand C	Off <sup>®</sup> Ston	e, Tile &	Masonry	Protecto	r (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%		





	"#59 Alpine Jade"									
	Untreated Control									
	Coca- Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee	
24 hr	100%	100%	100%	100%	100%	100%	<1%	<1%	100%	
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%	
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%	
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%	
	Stand Off <sup>®</sup> 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%	
	Stand Off <sup>®</sup> 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%	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 <sup>®</sup> 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%	



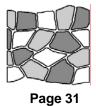


## Photographs - Stain Repellency

# Stand Off<sup>®</sup> SLX100 Water & Oil Repellent Stand Off<sup>®</sup> Impregnator Stand Off<sup>®</sup> Stope, Tile & Masonry Protector (STMP) Untreated Control

# "#14 Placer Gold Prairie" Natural Stone; Stains Applied





## Photographs - Stain Repellency



## "#14 Placer Gold Prairie" Natural Stone; Stains Removed





## 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 submitted samples. Stand Off<sup>®</sup> Stone, Tile & Masonry Protector (STMP) proved to be the most effective treatment in improving the oil stain resistance of the submitted "#48 Twilight Mica Shift" natural stone.

## **Recommendations** – Stain Repellency

Recommendations for stain resistance treatment for the natural stone submitted by Rox Pro, Inc., McClellan, CA 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	
"#03 Sierra Blue Stone" "#14 Placer Gold Prairie" "#18 Black Mountain Stone" "#24 Autumn Horizon" "#59 Alpine Jade"	Stand Off <sup>®</sup> SLX100 Water & Oil Repellent OR Stand Off <sup>®</sup> Impregnator* OR Stand Off <sup>®</sup> Stone, Tile & Masonry Protector (STMP)	Enviro Klean <sup>®</sup> 2010 All Surface Cleaner (1:10)	
"#48 Twilight Mica Shift"	Stand Off <sup>®</sup> Stone, Tile & Masonry Protector (STMP)		

# \*NOTE: Stand Off<sup>®</sup> Impregnator is not available for sale or use in the state of California or in Maricopa County, Arizona.

The ability of a stain repellent treatment to prevent staining is affected by a variety of factors. Therefore, onsite 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 Enhancement**

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

**ConcreteScience**<sup>®</sup> **SpecSeal WB-Flat** – A stabilized styrene acrylic co-polymer-based curing, sealing, compound. It's tough, chemical resistant, long lasting and non-yellowing. A surface coated with SpecSeal WB-Flat will bead water much like a freshly waxed car. The product is effective on vertical and horizontal, exterior and interior, above- and below-grade architectural concrete and masonry.

Easily applied SpecSeal WB-Flat quickly forms a hard clear film that is permanent, tough, chemical resistant, waterproof, dust proof, and non-yellowing VOC compliance. Independent lab analysis confirms that the product's non-yellowing characteristics outlast and outperform competitive products and equal the performance of pure acrylic systems.

## Sample Preparation – Color Enhancement

Samples were cleaned with Enviro Klean<sup>®</sup> 2010 All Surface Cleaner diluted with 10 parts water, allowed to dry and absorb atmospheric moisture for 24 hours prior to treatment.

## Test Method – Color Enhancement

ConcreteScience<sup>®</sup> SpecSeal WB-Flat was applied by brush in accordance with the application instructions in the current PROSOCO, Inc. Product Guide.





## Test Results - Color Enhancement

Sample	ConcreteScience <sup>®</sup> SpecSeal WB-Flat	
"#03 Sierra Blue Stone"	2	
"#14 Placer Gold Prairie"	3	
"#18 Black Mountain Stone"	3	
"#24 Autumn Horizon"	3	
"#48 Twilight Mica Shift"	3	
"#59 Alpine Jade"	2	

Scale: 0- No enhancement; dull

- 1- Slight Enhancement
- 2- Moderate Enhancement
- **3- Significant Enhancement**

## Photographs – Color Enhancement

"#18 Black Mountain Stone"; Color Enhancement Products Applied







## Recommendations – Color Enhancement

Recommendations for color enhancement for the natural stone submitted by Rox Pro, Inc., McClellan, CA are provided in the chart below. Recommendations are based on the treatment that proved most effective in providing color enhancement to the submitted samples.

Sample	Color Enhancement				
All Submitted Samples	ConcreteScience <sup>®</sup> SpecSeal WB-Flat				

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

Christopher A. Moore Project Testing Laboratory Technician

CAM



Laboratory Report

**Pallet Tag Program Evaluation** 

# Rox Pro, Inc. McClellan, CA

Project No. 0501-11 PTP

Prepared For:

Rox Pro, Inc. 4601 Lang Avenue McClellan, CA 95652

Prepared By:



PROSOCO, Inc. April 2005