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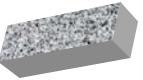
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#### ATTACHMENTS

Product Data literature for all products evaluated

Material Safety Data Sheets for all products evaluated





## PROSOCO, Inc.

- FOR: Kathy Smieja Kevin Gwinn CC: Mike Dickey
- SUBJECT: **Boulder Stone Company** Plymouth, MN 55441
- DATE: July 13, 2001

#### **PROJECT:** 0105-06 PC

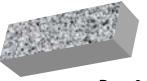
#### SAMPLES SUBMITTED: 13 types of concrete simulated stone

Sample	Color/Finish	Size
(A)	White	8.5" x 4" x 2.5"
(B)	White	7.5" x 5.5" x 2.5
(C)	Brown	10" x 6" x 2.25"
(D)	Gray	7" x 2" x 1/5"
(E)	Buff	8" x 4" x 1"
(F)	Tan	13" x 3.25" x 2"
(G)	Buff	13.5" x 4" x 1"
(H)	Tan	15.5" x 5" x 1/25"
(I)	Orange	13.75" x 2" x 1.25"
(J)	Charcoal	7" x 3.75" x 1.25"
(K)	White	9.5" x 4" x 1.5"
(L)	White	12" x 4" x 1.25"
(M)	Brown	8" x 6" x 1.75"

Submitted by: Kevin Gwinn

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#### PURPOSE OF TESTING:

Samples of 13 different concrete simulated stones were submitted to PROSOCO, Inc.'s Testing Laboratory 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, suitable for concrete simulated stone as well as treatments for color enhancement will be evaluated.

**A. New Construction Cleaning** – Sure Klean<sup>®</sup> Manufactured Stone Cleaner,\* Sure Klean<sup>®</sup> Vana Trol<sup>®</sup>, and Enviro Klean<sup>®</sup> Mortar & Grout Remover were evaluated for removal of laboratory applied Ash Grove<sup>®</sup> type "S" mortar.

To simulate new construction soiling, the concrete stone pieces are placed on a bench with finished surface facing upward. Hollow cylinders measuring 50 mm in diameter and 75 mm tall are positioned on top of each tile and filled with a wet mixture of type "S" mortar. The wet mortar-filled cylinder is allowed to remain in contact with the tile for 10 minutes before removal.

Soiled samples are allowed to dry before test cleaning.

Heavy deposits of mortar are removed with dry scraping after 24 hours. Prepared cleaning solutions are then evaluated for their effectiveness in removing residual mortar staining after 14 days of curing.

**B.** Surface Alteration Testing - Sure Klean<sup>®</sup> Manufactured Stone Cleaner, Sure Klean<sup>®</sup> Vana Trol<sup>®</sup>, and Enviro Klean<sup>®</sup> Mortar & Grout Remover 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 Alteration was evaluated visually based upon perceived discoloration or erosion/etching of the tile.

<u>Surface Finish Removal</u> is the visual examination of the brick 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 brick 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 brick.

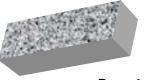
<u>Color Change</u> is the visual examination comparing the color of the untreated control surface to color of surfaces cleaned with selected products at given dilutions.

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

- **C. Water Repellent Evaluation** Sure Klean<sup>®</sup> Weather Seal Siloxane PD and Stand Off<sup>®</sup> Paver Enhancer were evaluated on the submitted samples for their ability to provide water repellency using PROSOCO Test 8 Capillary Absorption.
- **D.** Color Enhancement -- Stand Off<sup>®</sup> Gloss N' Guard and Stand Off<sup>®</sup> Paver Enhancer were evaluated on the submitted samples for their ability to enhance the natural color of the tiles in relative comparison to the untreated tile's water-saturated appearance.

\*In the original report, this product was called Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner. This report was revised when the product name was changed.





#### **CLEANING PRODUCTS**

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

SAMPLE	Sure Klean <sup>®</sup> Manufactured Stone Cleaner	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	Enviro Klean <sup>®</sup> Mortar & Grout Remover
All Types of Simulated Stone	1:3	1:10	1 lb / 1 gallon

#### SURFACE ALTERATION PRODUCTS EVALUATED

SAMPLE	Sure Klean <sup>®</sup> Manufactured Stone Cleaner	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>	Enviro Klean <sup>®</sup> Mortar & Grout Remover
All Types of Simulated Stone	1:3	1:10	1 lb / 1 gallon

#### WATER REPELLENT PRODUCTS EVALUATED

SAMPLE	TREATMENT	
	Sure Klean <sup>®</sup> Weather Seal Siloxane PD	
All Types of Simulated Stone	Sure Klean <sup>®</sup> Paver Enhancer	

#### COLOR ENHANCING PRODUCTS EVALUATED

SAMPLE	TREATMENT	
	Stand Off <sup>®</sup> Gloss N' Guard	
All Types of Simulated Stone	Sure Klean <sup>®</sup> Paver Enhancer	





#### SECTION A – NEW CONSTRUCTION CLEANING

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

These cleaning trials were conducted to determine the optimal cleaning/cure time combination to most efficiently remove mortar from the submitted tiles.

The Ash Grove<sup>®</sup> Type "S" mortar was prepared in compliance with the manufacturers instructions, applied to the surface and allowed to cure for 14 days prior to removal with high pressure water rinse using pressure rinsing equipment and chemical assist.

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. Can be used on most light colored brick, natural stone, and cast stone.

**Sure Klean<sup>®</sup> Manufactured Stone Cleaner** – Removes common construction and atmospheric staining from manufactured stone and other architectural concrete surfaces. This general-purpose, non-etching, acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Manufactured Stone Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

**Enviro Klean<sup>®</sup> Mortar & Grout Remover** – A safe and effective way to remove excess mortar, grout and job dirt from masonry. Mixes with water at the job site to clean most brick, concrete, tile and stone surfaces. Ideal for colored mortars and grouts.

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

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

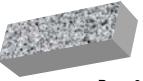
2.	Apply the cleaner.	
3.	Allow the appropriate dwell time, as specified.	
	Manufactured Stone Cleaner 3 minutes	-
	Vana Trol <sup>®</sup>	S
	Mortar & Grout Remover	s
1	Pressure rinse thoroughly *	

Pressure rinse thoroughly.\*

Pre-wet the surface with water

\*Pressure rinsing was conducted at approximately 800 psi with a warm water flow rate of 1.9 gallons per minute.

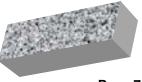




### **Test Results - New Construction Cleaning**

	(A) white		
CLEANER	DILUTION		% REMOVAL
Manufactured Stone Cleaner	1:3		99%
Vana Trol <sup>®</sup>	1:10	14 DAY	95%
Mortar & Grout Remover	1 lb / 1 gallon		99%
	(B) white		
CLEANER	DILUTION		% REMOVAL
Manufactured Stone Cleaner	1:3		96%
Vana Trol <sup>®</sup>	1:10	14 DAY	100%
Mortar & Grout Remover	1 lb / 1 gallon		99%
	(C) brown		
CLEANER	DILUTION		% REMOVAL
Manufactured Stone Cleaner	1:3		97%
Vana Trol <sup>®</sup>	1:10	14 DAY	99%
Mortar & Grout Remover	1 lb / 1 gallon		100%
	(D) gray		
CLEANER	DILUTION		% REMOVAL
Manufactured Stone Cleaner	1:3		100%
Vana Trol <sup>®</sup>	1:10	14 DAY	100%
Mortar & Grout Remover	1 lb / 1 gallon		100%
	(E) buff	· · · · ·	
CLEANER	DILUTION		% REMOVAL
Manufactured Stone Cleaner	1:3		95%
Vana Trol <sup>®</sup>	1:10	14 DAY	99%
Mortar & Grout Remover	1 lb / 1 gallon	1	100%



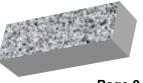


## PROSOCO, Inc.

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	(F) tan		
CLEANER	DILUTION		% REMOVAL
Ianufactured Stone Cleaner	1:3		80%
Vana Trol <sup>®</sup>	1:10	14 DAY	95%
Mortar & Grout Remover	1 lb / 1 gallon		99%
	(G) buff		
CLEANER	DILUTION		% REMOVAL
Ianufactured Stone Cleaner	1:3		90%
Vana Trol <sup>®</sup>	1:10	14 DAY	100%
Mortar & Grout Remover	1 lb / 1 gallon		99%
	(H) tan	<u> </u>	
CLEANER	DILUTION		% REMOVAL
Ianufactured Stone Cleaner	1:3		90%
Vana Trol <sup>®</sup>	1:10	14 DAY	95%
Mortar & Grout Remover	1 lb / 1 gallon		99%
	(I) orange		
CLEANER	DILUTION		% REMOVAL
Ianufactured Stone Cleaner	1:3		95%
Vana Trol <sup>®</sup>	1:10	14 DAY	99%
Mortar & Grout Remover	1 lb / 1 gallon		100%
	(J) charcoal		
CLEANER	DILUTION		% REMOVAL
Ianufactured Stone Cleaner	1:3		70%
Vana Trol <sup>®</sup>	1:10	14 DAY	90%
Mortar & Grout Remover	1 lb / 1 gallon		80%
	(K) White		
CLEANER	DILUTION		% REMOVAL
anufactured Stone Cleaner	1:3		96%
Vana Trol <sup>®</sup>	1:10	14 DAY	100%
Mortar & Grout Remover	1 lb / 1 gallon		100%

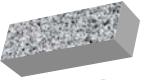




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	(L) White		
CLEANER	DILUTION	14 DAY	% REMOVAL
Manufactured Stone Cleaner	1:3		90%
Vana Trol <sup>®</sup>	1:10	1	100%
Mortar & Grout Remover	1 lb / 1 gallon	] [	100%
	(M) Brown		
CLEANER	DILUTION		% REMOVAL
Manufactured Stone Cleaner	1:3		95%
Vana Trol <sup>®</sup>	1:10	14 DAY	99%
Mortar & Grout Remover	1 lb / 1 gallon		100%





#### **CONCLUSIONS – Cleaning**

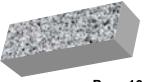
Based on the test results, Sure Klean<sup>®</sup> Manufactured Stone Cleaner, Sure Klean<sup>®</sup> Vana Trol<sup>®</sup> and Enviro Klean<sup>®</sup> Mortar & Grout Remover all performed relatively the same at removing mortar smears. Sure Klean<sup>®</sup> Manufactured Stone Cleaner on some samples removed large amounts of surface pigment which altered the appearance of the concrete simulated stone. Sure Klean<sup>®</sup> Vana Trol<sup>®</sup> removed a very small amount of surface pigment, for the most part leaving the original appearance of the concrete simulated stone.

It is also recommended that the selected cleaners always be used in the lowest possible concentration, typically a 1:10 dilution for Sure Klean<sup>®</sup> Vana Trol<sup>®</sup>. To facilitate easier removal of excess grout and construction dirt while minimizing any potential adverse effects on the finish rinse with low pressure (garden hose strength), and clean within 3 days of construction.

#### **RECOMMENDED PRODUCTS AND DILUTIONS - CLEANING:**

Sample	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>
All types of Simulated Stone	1:10





#### **SECTION B – Surface Alterations:**

#### **DESCRIPTION OF PRODUCTS EVALUATED – 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. Can be used on most light colored brick, natural stone, and cast stone.

Sure Klean<sup>®</sup> Manufactured Stone Cleaner – Removes common construction and atmospheric staining from manufactured stone and other architectural concrete surfaces. This general-purpose, non-etching, acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Manufactured Stone Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

**Enviro Klean<sup>®</sup> Mortar & Grout Remover** – A safe and effective way to remove excess mortar, grout and job dirt from masonry. Mixes with water at the job site to clean most brick, concrete, tile and stone surfaces. Mortar & Grout Remover is ideal for colored mortars and grouts.

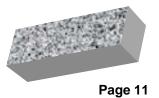
#### **TEST METHOD – Surface Alteration Testing:**

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

5.	Pre-wet the surface with water.
6.	Apply the cleaner.
7.	Allow the appropriate dwell time, as specified.
	Manufactured Stone Cleaner 3 minutes
	Vana Trol <sup>®</sup>
	Mortar & Grout Remover
8	Pressure rinse thoroughly *

- 8. Pressure rinse thoroughly.\*
- \* Pressure rinsing was conducted at approximately 800 psi with a warm water flow rate of 1.9 gallons per minute.





### **Surface Alteration Results:**

Substrate: (A)	Pigment Color: white				
Product	Dilution	Aggregate Exposure	Aggregate Surface Pigment Matrix		Staining
Manufactured Stone Cleaner	1:3	0	1	0	0
Vana Trol <sup>®</sup>	1:10	0	1	0	0
Mortar & Grout Remover	1 lb/1gal	0	1	0	0
Substrate: (B)	Pigment Color: white			1	
Product	Dilution	Aggregate Exposure			Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	0	0	0
Substrate: (C)	Pigment Co	Pigment Color: brown			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Manufactured Stone Cleaner	1:3	0	2	0	0
Vana Trol <sup>®</sup>	1:10	0	1	0	0
Mortar & Grout Remover	1 lb/1gal	0	2	0	0
Substrate: (D)	Pigment Color: gray				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	1	0	0
Mortar & Grout Remover	1 lb/1gal	0	0	0	0
Substrate: (E)	Pigment Color: buff			1	
Product	Dilution	Aggregate Exposure	Surface Pigment Matrix Alteration/Removal Erosion		Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	1	0	0
Substrate: (F)	Pigment Color: tan			1	
Product	Dilution	Aggregate Exposure	Aggregate Surface Pigment Matrix		Staining
Manufactured Stone Cleaner	1:3	0	1	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	1	0	0
0 – no change	3 – heavy change				

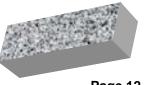
0 – no change

1 – slight change 2 – moderate change

3 – heavy change

4 – excessive change





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#### **Surface Alteration Results Continued:**

Substrate: (G)	Pigment Color: buff				
Product	Dilution	Aggregate Exposure	Surface PigmentMatrixAlteration/RemovalErosion		Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	0	0	0
Substrate: (H)	Pigment Co	olor: tan			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	0	0	0
Substrate: (I)	Pigment Color: orange				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	1	0	0
Substrate: (J)	Pigment Color: charcoal				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	0	0	0
Substrate: (K)	Pigment Color: white			•	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	0	0	0
Substrate: (L)	Pigment Co	olor: white	-		
Product	Dilution	Aggregate Exposure			Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	1	0	0
Mortar & Grout Remover	1 lb/1gal	0	1	0	0
0 – no change	· · · · ·	3 – heavy change	•		•

0 – no change 1 – slight change

3 – heavy change 4 – excessive change

2 – moderate change

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#### Surface Alteration Results Continued:

Substrate: (M)	Pigment Color: brown				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Manufactured Stone Cleaner	1:3	0	0	0	0
Vana Trol <sup>®</sup>	1:10	0	0	0	0
Mortar & Grout Remover	1 lb/1gal	0	0	0	0
0 – no change	•	3 – heavy change	4	•	•

1 – slight change

4 – excessive change

2 – moderate change

#### **CONCLUSIONS – Surface Alterations:**

Test results indicate, Sure Klean<sup>®</sup> Manufactured Stone Cleaner and Sure Klean<sup>®</sup> Mortar & Grout Remover removed large amounts of surface pigment altering the appearance of the concrete simulated stone. Sure Klean<sup>®</sup> Vana Trol<sup>®</sup> diluted with ten parts fresh water removed the least amount of surface pigment from the concrete simulated stone samples submitted.

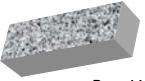
#### **RECOMMENDATIONS – Surface Alterations:**

Based on these evaluations, Sure Klean<sup>®</sup> Vana Trol diluted with ten parts fresh water is recommended for cleaning the submitted concrete simulated stone submitted by Boulder Stone Company.

It is also recommended that the selected cleaners always be used in the lowest possible concentration, typically a 1:10 dilution for Sure Klean<sup>®</sup> Vana Trol<sup>®</sup>. To facilitate easier removal of excess grout and construction dirt while minimizing any potential adverse effects on the finish rinse with low pressure (garden hose strength), and clean within 3 days of construction.

The most appropriate cleaner and dilution should be determined on the specific job-site, and will be dependent primarily on the nature and severity of soiling present at that location.





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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

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

**Sure Klean**<sup>®</sup> Weather Seal Siloxane PD – A pre-diluted, ready-to-use, water-based silane/siloxane water repellent. Designed for use on concrete and masonry surfaces. Siloxane PD penetrates more deeply than conventional water or solvent-based water repellents. Low odor and alkaline stable, Siloxane PD is ideal for field or in-plant application.

**Stand Off<sup>®</sup> 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. Penetrates and reacts with the surface to form a chemical bond, provided long-term durability, alkali resistance and superior breathability

#### **SAMPLE PREPARATION - Protective Water Repellents:**

The submitted samples were allowed to dry, and reabsorb atmospheric humidity for 24 hours prior to treatment. Stand Off<sup>®</sup> Paver Enhancer was applied in a single saturating application and Sure Klean<sup>®</sup> Weather Seal Siloxane PD was applied in a wet-on-wet application. All treatments were allowed to cure at least 14 days prior to testing.

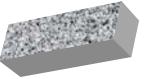
#### **TEST METHODS - Protective Water Repellents:**

#### Water Absorption (PROSOCO Test 8 – Capillary Absorption)

Water Absorption values of treated samples are determined by comparing the dry weight of the treated masonry samples with their weight after water uptake by capillary absorption through only the weathered surface for 1-minute, 4-minutes, 9-minutes, 16-minutes, 36-minutes and 64-miuntes timed intervals.

The 64-minutes absorption capacity may be correlated to the overall pore capacity of the substrate. This value (called the conservation capacity) assists in evaluating proposed application procedures for and rates of application of the conservation treatment.



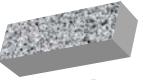


#### **TEST RESULTS - Protective Water Repellents:**

#### Water Absorption (PROSOCO Test 8 – Capillary Absorption)

% Effectiveness	
99.3%	
98.8%	
% Effectiveness	
99.1%	
98.8%	
% Effectiveness	
99.4%	
99.3%	
% Effectiveness	
97.2%	
98.0%	
00.070	
% Effectiveness	
98.7%	
99.0%	
% Effectiveness	
99.0%	
99.4%	
% Effectiveness	
98.5%	
98.8%	
% Effectiveness	
99.5%	
99.4%	





(I) Orange	% Weight Increase	% Effectiveness	
Untreated Control	10.87		
Siloxane PD	0.08	99.3%	
Paver Enhancer	0.18	98.3%	
(J) Charcoal	% Weight Increase	% Effectiveness	
Untreated Control	12.23		
Siloxane PD	0.09	99.3%	
Paver Enhancer	0.26	97.8%	
(K) White	% Weight Increase	% Effectiveness	
Untreated Control	10.99		
Siloxane PD	0.10	99.0%	
Paver Enhancer	0.16	98.6%	
(L) White	% Weight Increase	% Effectiveness	
Untreated Control	9.17		
Siloxane PD	0.14	98.5%	
Paver Enhancer	0.18	98.0%	
(M) Brown	% Weight Increase	% Effectiveness	
Untreated Control	5.04		
Siloxane PD	0.17	96.6%	
Paver Enhancer	0.13	97.5%	

#### **CONCLUSIONS - Protective Water Repellents:**

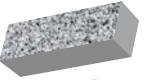
Based upon laboratory evaluations, both Sure Klean<sup>®</sup> Weather Seal Siloxane PD and Stand Off<sup>®</sup> Paver Enhancer provided above average water repellency on all simulated concrete stone samples provided by Boulder Stone. Sure Klean<sup>®</sup> Weather Seal Siloxane PD did not alter the appearance of the concrete in any way. Stand Off<sup>®</sup> Paver Enhancer offers color enhancement along with the water repellency.

#### **RECOMMENDATIONS - Protective Water Repellents:**

Based on evaluations, Sure Klean<sup>®</sup> Weather Seal Siloxane PD and Stand Off<sup>®</sup> Paver Enhancer can be recommended for job-site testing to provide water repellency.

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.





#### SECTION D - COLOR ENHANCEMENT:

The testing described below evaluates the degree of color enhancement that the treatments provide to the tiles.

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

- 1. Ease of application
- 2. Color change
- 3. Removal of staining substances

#### **DESCRIPTIONS OF PRODUCT EVALUATED—Color Enhancement:**

**Stand Off**<sup>®</sup> **Gloss N' Guard**—A highly durable, VOC-compliant, 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**<sup>®</sup> **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. Penetrates and reacts with the surface to form a chemical bond, provided long-term durability, alkali resistance and superior breathability.

#### **SAMPLE PREPARATION – Color Enhancement:**

The submitted samples were allowed to dry, and reabsorb atmospheric humidity for 24 hours prior to treatment. Method of treatment consisted of one saturating application. All treatments were allowed to cure at least 72 hours prior to testing.

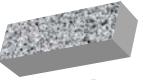
#### **TEST METHODS—Color Enhancement:**

Color enhancement is evaluated visually based on the appearance of the treatment applied. This includes color changes and/or darkening.

For purpose of this evaluation, treatments that produce "no enhancement" do not alter the natural appearance of the substrate and are rated with a value of 1. Untreated substrates are rated a value of 0. Treatments that provide the same degree of darkening as water-saturated examples of the substrate are rated with a value of 5.

A value of 2 is estimated to be 25% of the water-saturated degree of darkening. A value of 3 is estimated to be 50% of the water-saturated degree of darkening. A value of 4 is estimated to be 75% of the water-saturated degree of darkening.





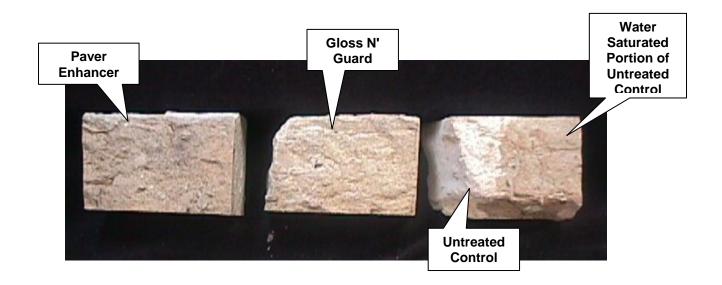
#### **TEST RESULTS: Color Enhancement**

All Submitted Concrete Simulated Stone			
Treatment	Enhancement		
Untreated Control	0		
Gloss N' Guard	2		
Paver Enhancer	3		

Scale used for reporting results:

- 0 Untreated Control 1 – No Enhancement
- 2 25% Darkening
- 3 50% Darkening 4 – 75% Darkening
- 5-100% Darkening

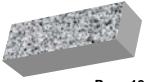
#### PHOTOGRAPHS: Color Enhancement (Sample A)



#### **CONCLUSIONS – Color Enhancement:**

Based upon laboratory evaluations, Stand Off<sup>®</sup> Gloss N' Guard was most effective at providing color enhancement. Stand Off<sup>®</sup> Paver Enhancer also enhanced the color of the tiles, but to a much lesser degree. Gloss N' Guard also left a high gloss finish, where as the Paver Enhancer did not leave a high gloss finish.





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#### **RECOMMENDATIONS – Color Enhancement:**

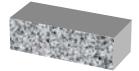
Based on evaluations, both Stand Off<sup>®</sup> Gloss N' Guard and Stand Off<sup>®</sup> Paver Enhancer can be recommended for job site testing to provide color enhancement.

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 color enhancing product and procedures for a particular project. See product literature for additional application and product information.

(armen M. Ninen

Project Testing Coordinator Carmen M. Niven

CMN/csm



Laboratory Report

# **Pallet Card Evaluation**

## **Boulder Stone Company**

Project No. 0105-06 PC

## Prepared For:

Kathy Smieja Hedberg Aggregates 1205 Nathan Lane North Plymouth, MN 55441

## **Prepared By:**



PROSOCO, Inc. July 2001