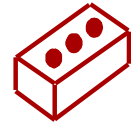




# PALLET CARD PROGRAM LABORATORY REPORT



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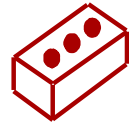
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### ATTACHMENTS

- SOP TEC015-1 RILEM Tube Testing
- SOP TEC014-1 ASTM C 67 Immersion Testing
- Technical Services TECH Note RILEM Test Method No. II.4
- Product Data literature for all products evaluated
- Material Safety Data Sheets for all products evaluated



# PALLET CARD PROGRAM LABORATORY REPORT



ProSoCo, Inc.

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**FOR:** Thad Cleckler  
US Brick  
2911 Hwy 281 North, Ste 101  
San Antonio, TX 78260

**cc:** Paul Tessier  
Steve Dean  
Renee DeGrand

**SUBJECT:** US Brick – Ogden Plant  
Schertz, Texas

**DATE:** October 16, 1998

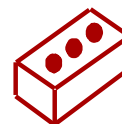
**PROJECT:** 9808-17 PC

**SAMPLES SUBMITTED:** Eight new red limestone aggregate concrete brick  
(Trinity)  
Size: 3" x 3" x 10"  
Eight new buff limestone aggregate concrete brick  
(Hillstone)  
Size: 3" x 3" x 10"  
Eight new white limestone aggregate concrete brick  
(White Antique)  
Size: 2 ½" x 3" x 9 ¾"  
Eight new grey limestone aggregate concrete brick  
(Greystone)  
Size: 2 ½" x 3" x 9 ¾"

**SAMPLES SUBMITTED BY:** Thad Cleckler  
US Brick  
2911 Hwy 281 North, Suite 101  
San Antonio, TX 78260



# PALLET CARD PROGRAM LABORATORY REPORT



## PURPOSE OF TESTING:

Samples of four concrete brick types were submitted to ProSoCo's Testing Laboratory with a request to determine if application of the products evaluated will produce any adverse effects during new construction cleaning operations. Additionally, the effectiveness of water repellents, suitable for concrete brick masonry, will be evaluated.

- A. Adverse Effects** - Sure Klean<sup>®</sup> Custom Masonry Cleaner, Sure Klean<sup>®</sup> Heavy Duty Concrete Cleaner and Sure Klean<sup>®</sup> Vana Trol<sup>®</sup> were tested at various dilutions to determine if they would produce any adverse effects during the cleaning process. Adverse effects were evaluated visually and were based upon damage to the surface coating, if present, discoloration or erosion/etching of the masonry unit.
- B. Protective Water Repellents** - Sure Klean<sup>®</sup> Weather Seal Siloxane PD, Sure Klean<sup>®</sup> Weather Seal Natural Stone Treatment, Sure Klean<sup>®</sup> Custom Masonry Sealer and Sure Klean<sup>®</sup> Weather Seal Heavy Duty Blok-Guard<sup>®</sup> S were evaluated for their ability to provide water repellency to the submitted samples.

## ADVERSE EFFECTS PRODUCTS EVALUATED

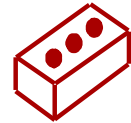
Sample	Sure Klean <sup>®</sup> Custom Masonry Cleaner	Sure Klean <sup>®</sup> HD Concrete Cleaner	Sure Klean <sup>®</sup> Vana Trol <sup>®</sup>
All submitted brick samples	1:2	1:4	1:4
All submitted brick samples	1:4	1:6	1:6
All submitted brick samples	1:6	1:8	1:8

## WATER REPELLENT PRODUCTS EVALUATED

Sample	Weather Seal Siloxane PD	Natural Stone Treatment	Custom Masonry Sealer	Heavy Duty Blok-Guard S
All submitted brick samples	Concentrate	Concentrate	Concentrate	Concentrate



# PALLET CARD PROGRAM LABORATORY REPORT



## SECTION A - ADVERSE EFFECTS:

### DESCRIPTION OF PRODUCTS EVALUATED - Adverse Effects:

**Sure Klean® Custom Masonry Cleaner** - A general purpose, concentrated, acidic cleaner for concrete surfaces. Removes concrete splashes, excess mortar, mud, retarders, heavy efflorescence, embedded stains, rust and surface soiling from textured custom masonry surfaces. Liquid concentrate for dilution with 2-8 parts water. Apply by brush or low-pressure spray.

**Sure Klean® Heavy Duty Concrete Cleaner** – A concentrated, general purpose acidic blend for concrete surfaces. Removes concrete splashes, excess mortar, retarders, heavy efflorescence, embedded stains, rust and surface soiling from textured concrete surfaces. Liquid concentrate for dilution with 2-8 parts water. Apply by brush or low-pressure spray.

**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 grey, 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.

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### TEST METHOD - Adverse Effects:

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

Sure Klean® Heavy Duty Concrete Cleaner and Sure Klean® VanaTrol® were both evaluated at dilutions of 1:4, 1:6 and 1:8. Sure Klean® Custom Masonry Cleaner was evaluated at dilutions of 1:2, 1:4 and 1:6. The following procedure was used:

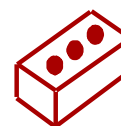
1. Prewet the surface with water.
2. Apply each cleaner at the appropriate dilutions.
3. Allow a 5-minute exposure time.
4. Reapply the products and moderately agitate with a brush.
5. Pressure rinse thoroughly.\*
6. Allow the surface to dry for at least 18 hours and visually examine.

\* Pressure rinsing was conducted at approximately 800 psi with a cold water flow rate of 2.1 gallons per minute.



# PALLET CARD PROGRAM

## LABORATORY REPORT



ProSoCo, Inc.

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### TEST RESULTS - Adverse Effects Evaluation:

#### Trinity

#### Effects

Custom Masonry Cleaner

1:2 dilution

1:4 dilution

1:6 dilution

slight removal of fines

slight removal of fines

slight removal of fines

Heavy Duty Concrete Cleaner

1:4 dilution

1:6 dilution

1:8 dilution

no adverse effects

no adverse effects

no adverse effects

Vana Trol<sup>®</sup>

1:4 dilution

1:6 dilution

1:8 dilution

very slight removal of fines

very slight removal of fines

very slight removal of fines

#### Hillstone

#### Effects

Custom Masonry Cleaner

1:2 dilution

1:4 dilution

1:6 dilution

very slight darkening

very slight darkening

very slight darkening

Heavy Duty Concrete Cleaner

1:4 dilution

1:6 dilution

1:8 dilution

very slight darkening

very slight darkening

very slight darkening

Vana Trol<sup>®</sup>

1:4 dilution

1:6 dilution

1:8 dilution

very slight darkening

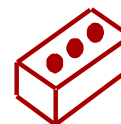
very slight darkening

very slight darkening



# PALLET CARD PROGRAM

## LABORATORY REPORT



ProSoCo, Inc.

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### TEST RESULTS - Adverse Effects Evaluation (cont'd):

#### White Antique

#### Effects

Custom Masonry Cleaner

1:2 dilution

1:4 dilution

1:6 dilution

slight removal of coating  
slight removal of coating  
very slight removal of coating

Heavy Duty Concrete Cleaner

1:4 dilution

1:6 dilution

1:8 dilution

moderate removal of coating  
moderate removal of coating  
moderate removal of coating

Vana Trol<sup>®</sup>

1:4 dilution

1:6 dilution

1:8 dilution

no adverse effects  
no adverse effects  
no adverse effects

#### Greystone

#### Effects

Custom Masonry Cleaner

1:2 dilution

1:4 dilution

1:6 dilution

no adverse effects  
no adverse effects  
no adverse effects

Heavy Duty Concrete Cleaner

1:4 dilution

1:6 dilution

1:8 dilution

no adverse effects  
no adverse effects  
no adverse effects

Vana Trol<sup>®</sup>

1:4 dilution

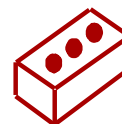
1:6 dilution

1:8 dilution

slight removal of fines  
slight removal of fines  
slight removal of fines



# PALLET CARD PROGRAM LABORATORY REPORT



## CONCLUSIONS - Adverse Effects:

On the Trinity brick, all dilutions of **Vana Trol**<sup>®</sup> and **Custom Masonry Cleaner** produced very slight to slight removal of fines. No adverse effects were produced with application of **Heavy Duty Concrete Cleaner** at dilutions equal to or greater than 1:4.

Application of **Custom Masonry Cleaner**, **Heavy Duty Concrete Cleaner**, and **Vana Trol**<sup>®</sup> at all dilutions evaluated, resulted in very slight darkening to the Hillstone brick.

On the White Antique brick, **Heavy Duty Concrete Cleaner** at all dilutions produced a moderate removal of the coating while very slight to slight removal of coating was observed where **Custom Masonry Cleaner** had been applied. No adverse effects were observed when cleaning with **Vana Trol**<sup>®</sup> at all dilutions.

Cleaning with **Vana Trol**<sup>®</sup> (all dilutions) produced slight removal of fines on the Greystone brick. **Custom Masonry Cleaner** and **Heavy Duty Concrete Cleaner**, at all dilutions, produced no adverse effects on the Greystone brick.

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## RECOMMENDATIONS - Adverse Effects:

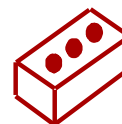
**Custom Masonry Cleaner**, **Heavy Duty Concrete Cleaner**, and **Vana Trol**<sup>®</sup> are recommended on the Trinity, Hillstone and Greystone brick for job site evaluations.

**Vana Trol**<sup>®</sup> and Custom Masonry Cleaner (=1:6) are recommended for job site evaluation on the White Antique brick.

To minimize potential for surface erosion, remove excess mortar, grout or similar cementitious soiling as soon as practical. 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.



# PALLET CARD PROGRAM LABORATORY REPORT



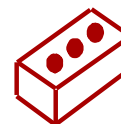
## RECOMMENDED PRODUCTS AND DILUTIONS - CLEANING:

Sample	Sure Klean® Custom Masonry Cleaner	Sure Klean® Vana Trol®	Sure Klean® Heavy Duty Concrete Cleaner
Trinity	=1:2	=1:4	=1:4
Hillstone	=1:2	=1:4	=1:4
White Antique	=1:6	=1:4	
Greystone	=1:2	=1:4	=1:4





# PALLET CARD PROGRAM LABORATORY REPORT



## SECTION B - PROTECTIVE WATER REPELLENTS:

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

**Sure Klean® Weather Seal Siloxane PD** - A low odor, alkaline stable, water-based blend of silanes and oligomeric alkoxy siloxanes. Weather Seal Siloxane PD is supplied pre-diluted and is designed for use on concrete and clay masonry surfaces. Weather Seal Siloxane PD penetrates more deeply than conventional water or solvent-based water repellents.

**Sure Klean® Weather Seal Natural Stone Treatment** – A general-purpose modified siloxane water repellent for use on limestone and marble as well as most other traditional masonry surfaces. Natural Stone Treatment penetrates deeply to provide long-lasting protection without altering the natural appearance of the substrate.

**Sure Klean® Custom Masonry Sealer** - A clear, solvent-based silicone elastomer formulated to weatherproof architectural concrete block, custom masonry units, cast stone, precast concrete, wood and porous masonry without altering the natural appearance. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

**Sure Klean® Weather Seal Heavy Duty Blok-Guard® S-** A clear, solvent-based silicone elastomer. Weatherproofs architectural concrete block and other porous masonry without altering the natural appearance. Weather Seal Heavy Duty Blok-Guard® S penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

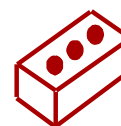
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### SAMPLE PREPARATION - Protective Water Repellents:

The submitted brick were cut, oven dried and allowed to reabsorb atmospheric humidity for 24 hours prior to treatment. The treatment method consisted of two 10-second immersions with a 20-second absorption period between immersions to simulate a wet-on-wet application. All treatments were allowed to cure for 14 days prior to testing.



# PALLET CARD PROGRAM LABORATORY REPORT



## TEST METHODS - Protective Water Repellents:

### Water Absorption: ASTM C 67, Immersion, 24 hours

Water absorption was determined by immersing treated and untreated samples in water for 24 hours. Samples were then weighed and the capillary weight gain recorded. See SOP TEC014-1 or ASTM C 67 for additional information.

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

The water absorption tube test was also performed. This evaluation simulates 98 mile per hour wind driven rain conditions for a period of 20 minutes. See SOP TEC015-1 and RILEM II.4 Tech Note for additional information.

## TEST RESULTS - Protective Water Repellents:

### Water Absorption: ASTM C 67, Immersion, 24 hours

#### Trinity

	<u>% Weight Increase</u>	<u>% Reduced Water Absorption</u>
Untreated Control	5.81	-
Weather Seal Siloxane PD	1.83	68%
Natural Stone Treatment	0.55	91%
Custom Masonry Sealer	1.56	73%
Heavy Duty Blok-Guard® S	1.21	79%

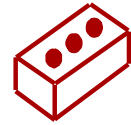
#### Hillstone

	<u>% Weight Increase</u>	<u>% Reduced Water Absorption</u>
Untreated Control	5.74	-
Weather Seal Siloxane PD	1.77	69%
Natural Stone Treatment	0.48	92%
Custom Masonry Sealer	1.99	65%
Heavy Duty Blok-Guard® S	2.13	63%



# PALLET CARD PROGRAM

## LABORATORY REPORT



ProSoCo, Inc.

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### TEST RESULTS - Protective Water Repellents: (cont'd)

#### White Antique

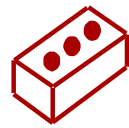
	<u>% Weight Increase</u>	<u>% Reduced Water Absorption</u>
Untreated Control	6.45	-
Weather Seal Siloxane PD	3.64	44%
Natural Stone Treatment	0.37	94%
Custom Masonry Sealer	3.55	45%
Heavy Duty Blok-Guard® S	1.52	76%

#### Greystone

	<u>% Weight Increase</u>	<u>% Reduced Water Absorption</u>
Untreated Control	5.86	-
Weather Seal Siloxane PD	2.14	64%
Natural Stone Treatment	0.78	87%
Custom Masonry Sealer	2.01	66%
Heavy Duty Blok-Guard® S	2.06	65%

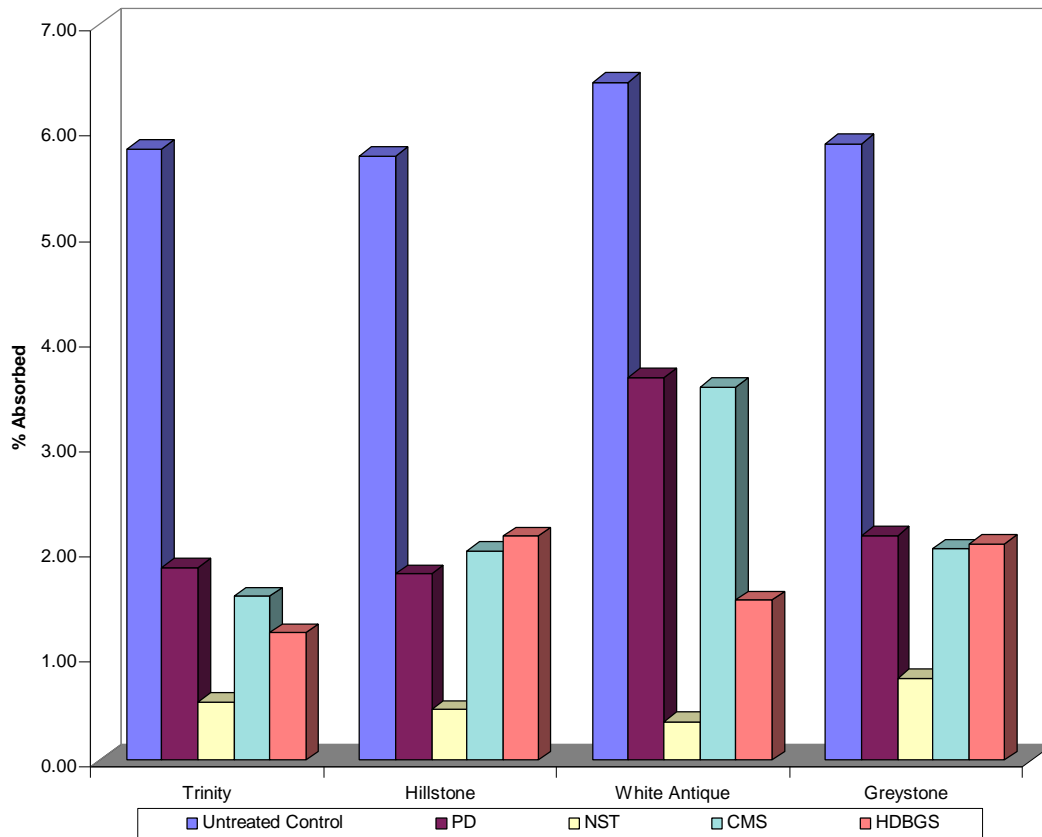


# PALLET CARD PROGRAM LABORATORY REPORT



## WATER ABSORPTION

ASTM C 67, Immersion, 24 hours

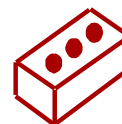


Graph 1



# PALLET CARD PROGRAM

## LABORATORY REPORT



ProSoCo, Inc.

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### TEST RESULTS - Protective Water Repellents:

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

#### Trinity

	<u>Results</u>
Untreated Control	0.50 milliliters
Weather Seal Siloxane PD	0.00 milliliters
Natural Stone Treatment	0.10 milliliters
Custom Masonry Sealer	0.40 milliliters
Heavy Duty Blok-Guard® S	0.50 milliliters

#### Hillstone

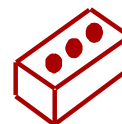
	<u>Results</u>
Untreated Control	1.20 milliliters
Weather Seal Siloxane PD	0.30 milliliters
Natural Stone Treatment	2.90 milliliters
Custom Masonry Sealer	1.10 milliliters
Heavy Duty Blok-Guard® S	1.50 milliliters

#### White Antique

	<u>Results</u>
Untreated Control	0.60 milliliters
Weather Seal Siloxane PD	0.00 milliliters
Natural Stone Treatment	0.00 milliliters
Custom Masonry Sealer	0.00 milliliters
Heavy Duty Blok-Guard® S	0.00 milliliters

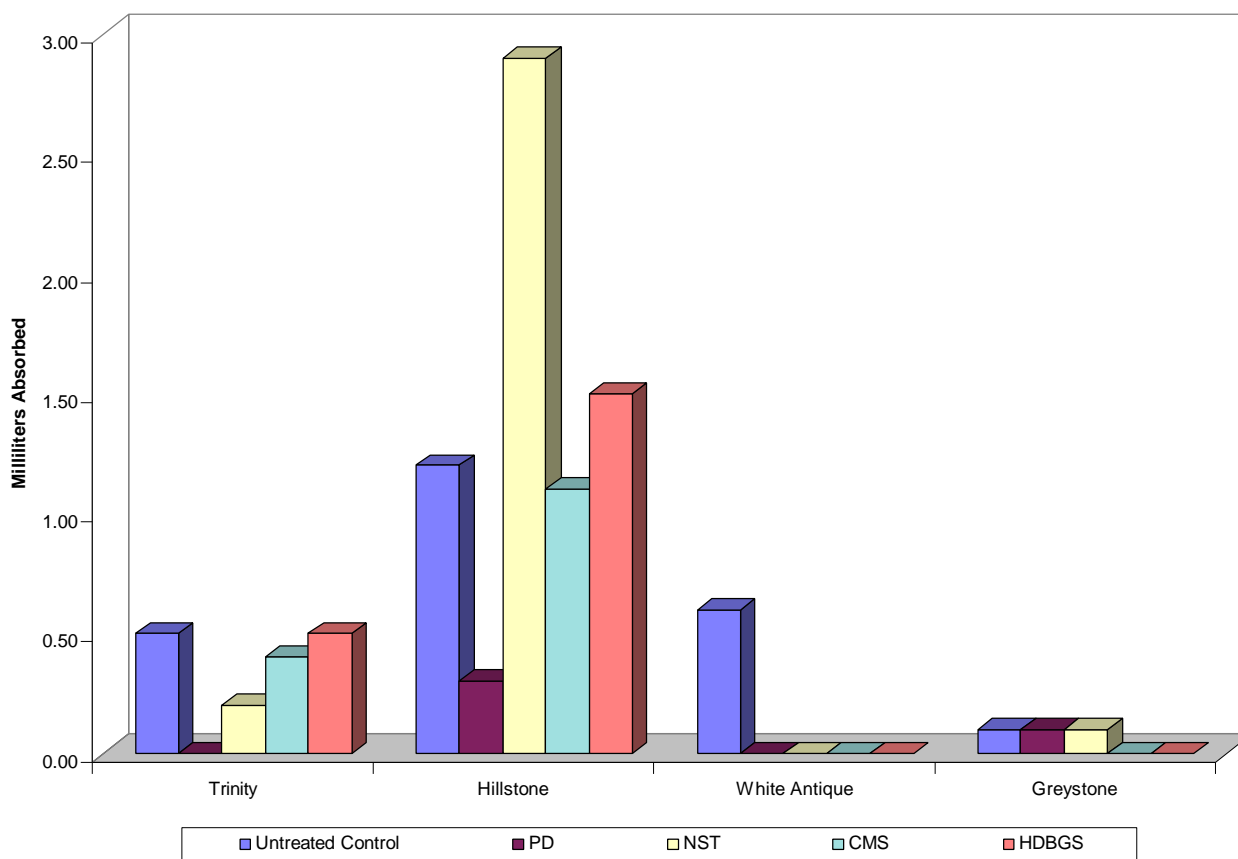
#### Greystone

	<u>Results</u>
Untreated Control	0.10 milliliters
Weather Seal Siloxane PD	0.10 milliliters
Natural Stone Treatment	0.10 milliliters
Custom Masonry Sealer	0.00 milliliters
Heavy Duty Blok-Guard® S	0.00 milliliters



## WATER ABSORPTION TUBE TEST

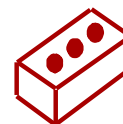
RILEM II.4, 5.0 Milliliter, 20 minutes



**Graph 2**



# PALLET CARD PROGRAM LABORATORY REPORT



## CONCLUSIONS - Protective Water Repellents:

Based upon laboratory evaluations via ASTM C 67, all of the submitted brick exhibited excellent water repellency when treated with **Weather Seal Natural Stone Treatment**. Acceptable water repellency was not achieved with Weather Seal Siloxane PD, Custom Masonry Sealer or Heavy Duty Blok-Guard<sup>®</sup> S. The limestone aggregate reported to be used in these brick is apparently of sufficient quantity to require the use of a water repellent treatment modified specifically for limestone and other calcareous masonries.

The data gathered from RILEM tube evaluations in many cases did not support and frequently contradicted the data gathered from immersion testing. The brick face textures and finishes on the submitted brick made it difficult on many brick to obtain a seal which did not leak between the brick face and the tube. For this reason, the accuracy of the RILEM results is questionable. Recommendations have been offered, therefore, based upon immersion testing.

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## RECOMMENDATIONS - Protective Water Repellents:

Based on the above test results, **Weather Seal Natural Stone Treatment** is recommended for testing at the job sites, where Trinity, Hillstone, White Antique and Greystone brick are utilized. When using **Weather Seal Natural Stone Treatment**, apply in a wet-on-wet saturating application to a clean, dry surface.

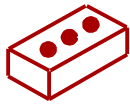
Apply **Weather Seal Natural Stone Treatment** in accordance with the manufacturer's recommendation provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate water repellent product and procedures for a particular project. See product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

C. Ryan Winders  
Technical Services Analyst

CRW/jj

**ALL SAMPLES SUPPLIED FOR THE ABOVE EVALUATION WILL BE DISPOSED OF NINETY (90) DAYS AFTER THE ISSUE DATE OF THIS REPORT. IF SAMPLES ARE TO BE RETAINED FOR ADDITIONAL TESTING OR RETURNED TO THE SENDER, PROVIDE WRITTEN INSTRUCTIONS TO THE LABORATORY WITHIN NINETY DAYS (90) OF THE ISSUE DATE OF THIS REPORT.**

Recommendations made within this report are based on laboratory test applications and observations. Final determination of the suitability of a product and/or procedure should be made only after thorough job testing on actual surfaces.



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**Laboratory Report**

**Pallet Card Evaluation**

**US Brick – Ogden Plant  
Schertz, Texas**

**Project No. 9808-17 PC**

**Prepared For:**

Thad Cleckler  
2711 Highway N., #101  
San Antonio, TX 78260

**Prepared By:**



**ProSoCo, Inc.  
October 1998**