



# PALLET CARD PROGRAM

## LABORATORY REPORT

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**FOR:** Rick Sorrells

cc: Paul Tessier

**SUBJECT:** U. S. Brick – Mineral Wells Plant  
Mineral Wells, TX

**DATE:** April 3, 2000

**PROJECT:** 9907-06 PC

**SAMPLES SUBMITTED:**

- Five new red clay bricks labeled "Santa Rosa"  
Size: 9 1/2"x 3"x 2 3/4"
- Five new red clay bricks labeled "Hudson Valley"  
Size: 9 1/2"x 3"x 2 3/4"
- Five new red clay bricks labeled "Hill Country"  
Size: 9 1/2"x 3"x 2 3/4"
- Five new red clay bricks labeled "Bordeaux"  
Size: 9 1/2"x 3"x 2 3/4"
- Five new red clay bricks labeled "Westminster"  
Size: 9 1/2"x 3"x 2 3/4"

Submitted by: Rick Sorrells  
U. S. Brick



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### PURPOSE OF TEST:

Samples of brick units were submitted to PROSOCO's Testing Laboratory with a request to identify and evaluate the effects and effectiveness of suitable cleaners and the performance of surface treatments.

- A. **Protective Water Repellent** - PROSOCO's Weather Seal Siloxane WB, Sure Klean<sup>®</sup> Custom Masonry Sealer, and Weather Seal Siloxane PD were evaluated for their ability to provide weather resistance on the submitted brick samples.
- B. **Adverse Effects Testing** - The products evaluated was a sampling of the most popular Sure Klean<sup>®</sup> New Construction Cleaners, and were tested to assess any adverse effects -- such as damage to the protective surface coating, erosion/etching of the masonry unit, or discoloration -- created by the cleaning process.

### ADVERSE EFFECTS PRODUCTS EVALUATED

Sample	Vana Trol <sup>®</sup>	600 Detergent	101 Lime Solvent
All submitted brick samples	1:4	1:4	1:4
	1:6	1:6	1:6
	1:8	1:8	1:8

### WATER REPELLENT PRODUCTS EVALUATED

Sample	Weather Seal Siloxane PD	Custom Masonry Sealer	Weather Seal Siloxane WB (1:9)
All submitted brick samples	Concentrate	Concentrate	Concentrate



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### SECTION A - PROTECTIVE WATER REPELLENTS

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

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

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

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### DESCRIPTIONS OF PRODUCTS EVALUATED - Protective Surface Treatments

**Sure Klean<sup>®</sup> Weather Seal Siloxane WB (1:9)** - A clear, self-emulsifying siloxane water repellent concentrate for weatherproofing architectural concrete block and other highly porous masonry. A single application of Weather Seal Siloxane WB was diluted with 9 parts by volume fresh water for this testing. Weather Seal Siloxane WB penetrates and fills voids within the substrate to form an effective barrier against water intrusion, and resulting efflorescence, leaching, mildew, atmospheric staining, freeze/thaw spalling, etc. into exterior walls that are exposed to normal weathering conditions. When applied properly Weather Seal Siloxane WB diluted with 9 parts fresh water by volume will not significantly change the natural color or texture of the surface. Formulated to meet all known VOC restrictions.

**Sure Klean<sup>®</sup> 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<sup>®</sup> Weather Seal Siloxane PD (concentrate)**- A clear, oligomeric alkylalkoxy siloxane penetrating water repellent for use on concrete, brick and clay tile surfaces. Treatment with Weather Seal Siloxane provides superior protection against moisture intrusion and resulting efflorescence, leaching, mildew and atmospheric staining, and freeze/thaw spalling.



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

Submitted samples were cut into cubes, oven dried and allowed to re-absorb atmospheric humidity for 24 hours prior to treatment.

**Method of Application** - In an effort to simulate field application rates, all samples were immersed in the designated surface treatment for two, 10-second immersions. This treatment has been proven to simulate a "wet-on-wet" field application.

Data derived in this section was obtained from RILEM II.4 water absorption tube test results.



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### TEST METHODS - Protective Water Repellents

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

The water absorption tube test was performed. This evaluation simulates 98 mile per hour wind driven rain conditions for a period of 20 minutes. 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:

1. AA = “Above Average” correlates to less than or equal to 20% of the maximum untreated absorption. Example, if the “untreated control” result is less than 5 milliliters (> 5 ml), then “above average” performance would have to be less than or equal to 1 milliliters.
2. A = “Average” correlates to less than or equal to 50% of the maximum untreated absorption.
3. BA = “Below Average” correlates to greater than 50% of the maximum untreated absorption.

### TEST RESULTS - Protective Water Repellents

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

Brick Style	Treatment	Tube Test Results 5.0 ml	Ranking
Hudson Valley	Untreated Control	3.5	----
Hudson Valley	Weather Seal Siloxane PD	0.5	AA
Hudson Valley	Weather Seal Siloxane WB (1:9)	0.0	AA
Hudson Valley	Custom Masonry Sealer	1.5	A
Westminster	Untreated Control	3.5	----
Westminster	Weather Seal Siloxane PD	0.0	AA
Westminster	Weather Seal Siloxane WB (1:9)	0.0	AA
Westminster	Custom Masonry Sealer	0.5	AA
Hill Country	Untreated Control	2.0	----
Hill Country	Weather Seal Siloxane PD	0.0	AA
Hill Country	Weather Seal Siloxane WB (1:9)	0.0	AA
Hill Country	Custom Masonry Sealer	0.5	AA



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Bordeaux	Untreated Control	> 5.0	----
Bordeaux	Weather Seal Siloxane PD	0.0	AA
Bordeaux	Weather Seal Siloxane WB (1:9)	0.0	AA
Bordeaux	Custom Masonry Sealer	0.0	AA
Santa Rosa	Untreated Control	> 5.0	----
Santa Rosa	Weather Seal Siloxane PD	0.0	AA
Santa Rosa	Weather Seal Siloxane WB (1:9)	0.0	AA
Santa Rosa	Custom Masonry Sealer	0.0	AA

### CONCLUSIONS - Protective Water Repellents

Weather Seal Siloxane PD ranked above average in water repellent protection on all brick types evaluated.

Weather Seal Siloxane WB (1:9) ranked above average in water repellent protection on all brick types evaluated.

Custom Masonry Sealer ranked above average in water repellent protection on all but the Hudson Valley style. Custom Masonry Sealer ranked average in water repellent protection on the Hudson Valley style.

### RECOMMENDATIONS - Water Repellents

We would recommend either Siloxane PD or Siloxane WB for water repellent protection all evaluated styles.

Apply all products in accordance with recommendations provided on container labels and product data sheets.



**SECTION B - ADVERSE EFFECTS EVALUATION**

The most popular Sure Klean<sup>®</sup> New Construction Cleaners were tested on the individual brick types to determine what, if any, adverse effects they might have on the various brick types. All products were tested at the most commonly used dilution ratios for new construction.

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**DESCRIPTION OF PRODUCTS EVALUATED – Adverse Effects:**

**Sure Klean<sup>®</sup> 600 Detergent** - A general purpose, concentrated acidic cleaner for brick, tile and concrete surfaces. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-25 parts water. Apply by brush or low-pressure spray.

**Sure Klean<sup>®</sup> 101 Lime Solvent** - A general purpose, concentrated acidic cleaner for dark-colored brick, tile and concrete surfaces. 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.

**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: grey, 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 4-25 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. Chemical cleaners were evaluated using the following procedure:

1. Prewet the surface with water.
  2. Apply the cleaner.
  3. Allow an appropriate exposure time:
 

600 Detergent (1:4,1:6, 1:8 dilution) .....	5 minutes
101 Lime Solvent (1:4,1:6, 1:8 dilution) .....	5 minutes
Vana Trol <sup>®</sup> (1:4,1:6, 1:8 dilution) .....	5 minutes
  4. Pressure rinse thoroughly.\*
  5. Allow the surface to dry thoroughly and visually examine.
- Pressure water rinsing was conducted at approximately 800 psi with a cold water flow rate of 2.1 gallons per minute.





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### TEST RESULTS - Adverse Effects Evaluation:

#### Santa Rosa

##### Effects

##### Vana Trol®

1:4 dilution	Slight removal of color
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 600 Detergent

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 101 Lime Solvent

1:4 dilution	Slight removal of color
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

#### Hudson Valley

##### Effects

##### Vana Trol®

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 600 Detergent

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 101 Lime Solvent

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

#### Hill Country

##### Effects

##### Vana Trol®

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 600 Detergent

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 101 Lime Solvent

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

#### Bordeaux

##### Effects

##### Vana Trol®

1:4 dilution	Slight removal of color
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 600 Detergent

1:4 dilution	Slight removal of color
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 101 Lime Solvent

1:4 dilution	Slight removal of color
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

#### Westminster

##### Effects

##### Vana Trol®

1:4 dilution	Slight removal of color
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### 600 Detergent

1:4 dilution	No adverse effects
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects

##### Effects

##### 101 Lime Solvent

1:4 dilution	Slight removal of color
1:6 dilution	No adverse effects
1:8 dilution	No adverse effects



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### CONCLUSIONS - Adverse Effects

VanaTrol<sup>®</sup> (1:4) and 101 Lime Solvent (1:4) produced a slight removal of the surface color from the Santa Rosa, Bordeaux, and Westminster styles. VanaTrol<sup>®</sup> (1:4) and 101 Lime Solvent (1:4) produced no adverse effects to all other evaluated styles. VanaTrol<sup>®</sup> (1:6, 1:8), 600 Detergent (1:4, 1:6, 1:8), and 101 Lime Solvent (1:6, 1:8) produced no adverse effects to all evaluated sample styles.

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### RECOMMENDATIONS - Adverse Effects

Based on the above test results, 600 Detergent (1:4, 1:6, 1:8), Vana Trol<sup>®</sup> (1:6, 1:8), or 101 Lime Solvent (1:6, 1:8) are recommended for general purpose and/or maintenance cleaning on all submitted brick types without causing adverse effects. Care should be exercised when using VanaTrol<sup>®</sup> and 101 Lime Solvent at dilutions lower than 1:6 on the Santa Rosa, Bordeaux, and Westminster styles. These styles are vulnerable to surface color alterations when exposed to VanaTrol<sup>®</sup> and 101 Lime Solvent at a 1:4 dilution ratio.

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 manufacture'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 data sheets for reference. Thorough on-site test cleaning must be conducted before attempting overall cleaning.



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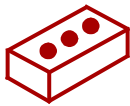
### RECOMMENDED PRODUCTS AND DILUTIONS - CLEANING:

Sample	Sure Klean® 101 Lime Solvent	Sure Klean® 600 Detergent	Sure Klean® Vana Troil®
Hill Country and Hudson Valley	1:4, 1:6, 1:8	1:4, 1:6, 1:8	1:4, 1:6, 1:8
Santa Rosa, Bordeaux, and Westminster	1:6, 1:8	1:4, 1:6, 1:8	1:6, 1:8

Dena M. Sampel  
Technical Services Analyst

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**

**U. S. Brick Inc. –  
Mineral Wells Plant**

*Project No. 9907-06 PC*

*Prepared For:*

Rick Sorrells  
**U. S. Brick**

*Prepared By:*



**PROSOCO, Inc.**