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Attachments

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





PROSOCO, Inc.

Submitted Information

For: Jack James

cc: Thad Cleckler (Hanson Brick)

Paul Tessier

Subject: Hanson Brick – Mineral Wells Plant

Mineral Wells, TX

Date:

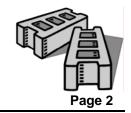
Project: 0511-06 PTP

Samples Submitted: 11 types of clay brick

Name	Finish	Color/Coating	Size
"Bordeaux"	Wire-cut	Red/Brown	9½" × 2¾" × 2½"
"Brownstone"	Wire-cut	Brown	9½" × 2¾" × 2½"
"Fireside"	Wire-cut	Red/Brown	9½" × 2¾" × 2½"
"Hudson Valley"	Wire-cut	Red/Black	9½" × 2¾" × 2½"
"Ole Country"	Wire-cut	Brown/Dark Brown/Tan	9½" × 2¾" × 2½"
"Red River"	Wire-cut	Red/Dark Red	9½" × 2¾" × 2½"
"Rembrandt"	Wire-cut	Red/Brown/Tan	9½" × 2¾" × 2½"
"Santa Fe Trail"	Wire-cut	Brown/Red	9½" × 2¾" × 2½"
"Tuscany"	Wire-cut	Red/Brown	9½" × 2¾" × 2½"
"Victorian II"	Wire-cut	Red/Brown/Yellow/Gray/White	$9\frac{1}{2}$ " × $2\frac{3}{4}$ " × $2\frac{1}{2}$ "
"Winslow"	Wire-cut	Brown/Tan/Yellow/Gray/White	9½" × 2¾" × 2½"

Submitted by: Jack James





Purpose of Testing

Eleven types of clay brick were submitted to PROSOCO, Inc.'s Testing Laboratory with a request to determine the optimal cleaning/cure time combination to most efficiently remove Type S mortar from the submitted clay brick while limiting surface alterations to the decorative finish. Additionally, the effectiveness of water repellents and graffiti control products suitable for clay brick were evaluated.

New Construction Cleaning – Sure Klean[®] Vana Trol[®] and Enviro Klean[®] Safety Klean were tested at various dilutions to determine the optimal cleaning/cure time combination to most efficiently remove Type S mortar from the submitted clay brick while limiting surface alterations to the decorative finish. The surface alteration evaluation was visually determined based upon perceived discoloration or erosion/etching of the clay brick.

To simulate new construction soiling, all 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 each brick and filled with a wet mixture of Type S cementitious mortar. The wet mortar-filled cylinder was allowed to remain in contact with the brick for 10 minutes before removal. Soiled brick were allowed to dry before test cleaning.

Heavy deposits of mortar were removed with dry scraping after 24 hours. Prepared cleaning solutions were then evaluated for their effectiveness in removing any residual Type S mortar after 3, 7, and 14 days of curing. A visual examination was also made to determine if the tested cleaners caused any surface alterations to the submitted clay brick based on the following:

<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.

Protective Water Repellents – Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control and Sure Klean[®] Weather Seal Siloxane PD were evaluated on the submitted clay brick for their ability to provide water repellency.

Graffiti Control – Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control and Defacer Eraser[®] Sacrificial Coating SC-1 were evaluated on the submitted clay brick for their ability to provide graffiti control. Sure Klean[®] Fast Acting Stripper and Defacer Eraser[®] Graffiti Wipe were evaluated for their ability to remove graffiti from the submitted clay brick.





Products Evaluated

New Construction Cleaning Products Evaluated

Sample	Product	Dilution
All Submitted Clay Brick	Sure Klean [®] Vana Trol [®]	1:6, 1:8
All Submitted Glay Blick	Enviro Klean [®] Safety Klean	1:2, 1:3

Protective Water Repellent Products Evaluated

Sample	Product	Dilution
All Submitted Clay Brick	Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	Concentrate
All Submitted Glay Brick	Sure Klean [®] Weather Seal Siloxane PD	Concentrate

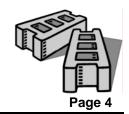
Graffiti Repellents Evaluated

Sample	Product	Dilution
All Submitted Clay Brick	Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	Concentrate
All Submitted Clay Brick	Defacer Eraser® Sacrificial Coating SC-1	Concentrate

Graffiti Removers Evaluated

Sample	Product	Dilution
All Submitted Clay Brick	Sure Klean [®] Fast Acting Stripper	Concentrate
All Submitted Clay Blick	Defacer Eraser [®] Graffiti Wipe	Concentrate





New Construction Cleaning

These cleaning trials were conducted to determine the optimal cleaning/cure time combination to most efficiently remove Type S mortar from the submitted clay brick while limiting surface alterations to the decorative finish.

Type S mortar was prepared in compliance with the manufacturer's instructions, applied to the brick surface and allowed to cure for 3, 7 and 14 days. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type S was visually evaluated after 3, 7 and 14 days of curing. A visual examination was also made to determine if the tested cleaners caused any surface alterations to the submitted clay brick.

<u>Description of Products Evaluated</u> – New Construction Cleaning

Sure Klean® Vana Trol® – A concentrated acidic cleaner for new masonry surfaces that are subject to vanadium, manganese and other metallic stains. Use on: gray, brown, white, and most light-colored brick; natural stone; cast stone. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-10 parts water. Apply by brush or low-pressure spray.

Enviro Klean® Safety Klean – An effective, safe, alternative to acidic compounds for cleaning brick, tile, and concrete surfaces. Safety Klean rids new masonry construction of excess mortar, dirt and other common job site soiling. It's ideal for projects where traditional acidic cleaners are not allowed. Non-fuming Safety Klean contains no hydrochloric or other traditional inorganic acids and is safe for use on and around most metal surfaces. Always test. Additionally, it is up to 70 percent more effective than citric and glycolic acids, and 50 percent more effective than phosphoric acid.

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.

Sure Klean [®] Vana Trol [®]	minutes
Enviro Klean [®] Safety Klean	minutes

4. Pressure rinse thoroughly.*

*Pressure Rinsing Equipment – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.



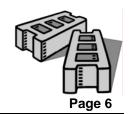


Test Results – New Construction Cleaning

% removal

	"Bordeau	x"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean [®] Vana Trol [®]	1:8	100%	100%	100%
Enviro Klean [®] Safety Klean	1:2	100%	100%	100%
Enviro Klean [®] Safety Klean	1:3	100%	100%	100%
	"Brownsto	ne"		•
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean [®] Vana Trol [®]	1:8	100%	100%	100%
Enviro Klean [®] Safety Klean	1:2	100%	100%	98%
Enviro Klean [®] Safety Klean	1:3	100%	100%	95%
·	"Fireside	"		•
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean [®] Vana Trol [®]	1:8	100%	100%	100%
Enviro Klean [®] Safety Klean	1:2	100%	100%	95%
Enviro Klean [®] Safety Klean	1:3	100%	100%	95%
·	"Hudson Va	lley"		•
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	99%	95%	90%
Sure Klean [®] Vana Trol [®]	1:8	98%	90%	90%
Enviro Klean [®] Safety Klean	1:2	99%	90%	85%
Enviro Klean [®] Safety Klean	1:3	95%	90%	80%
	"Ole Count	ry"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean [®] Vana Trol [®]	1:8	100%	100%	100%
Enviro Klean [®] Safety Klean	1:2	100%	100%	100%
Enviro Klean [®] Safety Klean	1:3	100%	100%	100%
	"Red Rive	r"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	98%	95%	95%
Sure Klean [®] Vana Trol [®]	1:8	98%	95%	85%
Enviro Klean [®] Safety Klean	1:2	98%	95%	95%
Enviro Klean [®] Safety Klean	1:3	95%	90%	85%
	"Rembran	dt"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	95%	95%
Sure Klean [®] Vana Trol [®]	1:8	100%	95%	90%
Enviro Klean [®] Safety Klean	1:2	100%	95%	95%
Enviro Klean [®] Safety Klean	1:3	100%	90%	85%





Test Results – New Construction Cleaning

% removal

	"Santa Fe T	rail"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean [®] Vana Trol [®]	1:8	100%	100%	100%
Enviro Klean [®] Safety Klean	1:2	100%	100%	100%
Enviro Klean [®] Safety Klean	1:3	100%	100%	100%
	"Tuscany	"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	98%	98%
Sure Klean [®] Vana Trol [®]	1:8	99%	95%	95%
Enviro Klean [®] Safety Klean	1:2	100%	98%	98%
Enviro Klean [®] Safety Klean	1:3	100%	95%	90%
	"Victorian	II"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	100%
Sure Klean [®] Vana Trol [®]	1:8	100%	100%	100%
Enviro Klean [®] Safety Klean	1:2	100%	100%	100%
Enviro Klean [®] Safety Klean	1:3	100%	100%	100%
	"Winslow	"		
Product	Dilution	3 day	7 day	14 day
Sure Klean [®] Vana Trol [®]	1:6	100%	100%	95%
Sure Klean [®] Vana Trol [®]	1:8	100%	100%	90%
Enviro Klean [®] Safety Klean	1:2	100%	100%	95%
Enviro Klean® Safety Klean	1:3	100%	100%	90%





PROSOCO, Inc.

Test Results – Limiting Surface Alterations

Substrate: Clay Brick	Pigment Co	olor: "Bordeaux"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0
Substrate: Clay Brick	Pigment Co	olor: "Brownstone	, "		
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0
Substrate: Clay Brick	Pigment Co	olor: "Fireside"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0
Substrate: Clay Brick	Pigment Color: "Hudson Valley"				
Product	Dilution	Surface Finish	Substrate Deterioration	Color	Staining
		Removal	Deterioration	Change	9
Sure Klean [®] Vana Trol [®]	1:6	Removal 0	0	Onange 0	0
Sure Klean [®] Vana Trol [®]				-	
Sure Klean [®] Vana Trol [®] Enviro Klean [®] Safety Klean	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:6 1:8	0	0	0	0
Sure Klean [®] Vana Trol [®] Enviro Klean [®] Safety Klean	1:6 1:8 1:2 1:3	0 0 0	0 0 0 0	0 0 0	0 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product	1:6 1:8 1:2 1:3	0 0 0 0	0 0 0 0	0 0 0	0 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol®	1:6 1:8 1:2 1:3 Pigment Co	0 0 0 0 0 Dior: "Ole Country Surface Finish	0 0 0 0 0 '"	0 0 0 0	0 0 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol®	1:6 1:8 1:2 1:3 Pigment Co	0 0 0 0 0 olor: "Ole Country Surface Finish Removal	0 0 0 0 v" Substrate Deterioration	0 0 0 0 0 Color Change	0 0 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol® Enviro Klean® Safety Klean	1:6 1:8 1:2 1:3 Pigment Co	0 0 0 0 0 Dior: "Ole Country Surface Finish Removal 0	0 0 0 0 " Substrate Deterioration 0	0 0 0 0 0 Color Change 0	0 0 0 0 0 Staining
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol®	1:6 1:8 1:2 1:3 Pigment Co Dilution 1:6 1:8	0 0 0 0 0 blor: "Ole Country Surface Finish Removal 0	0 0 0 0 "" Substrate Deterioration 0	O O O O Color Change O	0 0 0 0 0 Staining 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol® Enviro Klean® Safety Klean	1:6 1:8 1:2 1:3 Pigment Co Dilution 1:6 1:8 1:2 1:3	0 0 0 0 0 blor: "Ole Country Surface Finish Removal 0 0	0 0 0 0 " Substrate Deterioration 0 0	0 0 0 0 0 Color Change 0 0 0	0 0 0 0 0 Staining 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick	1:6 1:8 1:2 1:3 Pigment Co Dilution 1:6 1:8 1:2 1:3	0 0 0 0 0 Dior: "Ole Country Surface Finish Removal 0 0	0 0 0 0 " Substrate Deterioration 0 0	O O O O O O O O O O O O O O O O O O O	0 0 0 0 0 Staining 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol®	1:6 1:8 1:2 1:3 Pigment Co Dilution 1:6 1:8 1:2 1:3	0 0 0 0 0 Slor: "Ole Country Surface Finish Removal 0 0 0 0 Slor: "Red River" Surface Finish	0 0 0 0 " Substrate Deterioration 0 0 0 Substrate	O O O O Color Change O O O Color	0 0 0 0 0 Staining 0 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol®	1:6 1:8 1:2 1:3 Pigment Co Dilution 1:6 1:8 1:2 1:3 Pigment Co Dilution	0 0 0 0 0 solor: "Ole Country Surface Finish Removal 0 0 0 0 Surface Finish Removal 0 Removal	0 0 0 0 v" Substrate Deterioration 0 0 0 Substrate Deterioration	O O O O Color Change O O Color Change	0 0 0 0 Staining 0 0 0
Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol® Sure Klean® Vana Trol® Enviro Klean® Safety Klean Enviro Klean® Safety Klean Enviro Klean® Safety Klean Substrate: Clay Brick Product Sure Klean® Vana Trol®	1:6 1:8 1:2 1:3 Pigment Co Dilution 1:6 1:8 1:2 1:3 Pigment Co Dilution 1:6	0 0 0 0 0 Solor: "Ole Country Surface Finish Removal 0 0 0 Solor: "Red River" Surface Finish Removal 0	0 0 0 0 0 '' Substrate Deterioration 0 0 0 Substrate Deterioration 0	O O O O Color Change O O Color Change O O O O O O O O O O O O O O O O O O O	0 0 0 0 0 Staining 0 0 0 Staining

0 - No change

3 - change - heavy

1 - change - slight

4 - change - excessive

2 – change – moderate





PROSOCO, Inc.

Test Results – Limiting Surface Alterations

Substrate: Clay Brick	Pigment Color: "Rembrandt"				
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0
Substrate: Clay Brick	Pigment Co	olor: "Santa Fe T	rail"		
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0
Substrate: Clay Brick	Pigment Co	olor: "Tuscany"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0
Substrate: Clay Brick	Pigment Co	olor: "Victorian II"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0
Substrate: Clay Brick	Pigment Co	olor: "Winslow"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean [®] Vana Trol [®]	1:6	0	0	0	0
Sure Klean [®] Vana Trol [®]	1:8	0	0	0	0
Enviro Klean [®] Safety Klean	1:2	0	0	0	0
Enviro Klean [®] Safety Klean	1:3	0	0	0	0

0 – No change

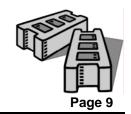
3 - change - heavy

1 - change - slight

4 - change - excessive

2 – change – moderate





Photographs - New Construction Cleaning

"Santa Fe Trail" Clay Brick; 3 Day Cleaning



"Santa Fe Trail" Clay Brick; 7 Day Cleaning



"Santa Fe Trail" Clay Brick; 14 Day Cleaning







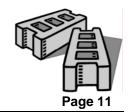
Page 1

Photographs – Limiting Surface Alterations

"Santa Fe Trail" Clay Brick; Limiting Surface Alterations







Conclusions – New Construction Cleaning

Based on the test results, all of the cleaners tested performed well in removing excess Type S mortar from the submitted clay brick even after allowing the mortar to remain on the surface of the brick for 14 days. In addition, test results indicate that none of the evaluated cleaners caused any noticeable surface alterations to any of the submitted clay brick.

It is recommended that the selected cleaners always be used in the lowest possible concentration. They should be rinsed with the lowest pressure of water as practical to minimize removal or alteration of the decorative finish. Excessive pressure and water volume may combine to damage or remove decorative finishes. To facilitate easier removal of excess mortar while minimizing any potential surface alterations to the decorative finish, clean within 3 days of construction for Type S mortar.

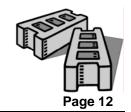
Recommendations – New Construction Cleaning

Recommendations for cleaning for each type of clay brick submitted by Hanson Brick – Mineral Wells Plant, Mineral Wells, TX 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)
"Bordeaux" "Brownstone" "Fireside" "Ole Country" "Santa Fe Trail" "Tuscany" "Victorian II" "Winslow"	Sure Klean [®] Vana Trol [®] (1:8) OR Enviro Klean [®] Safety Klean (1:3)
"Hudson Valley"	Sure Klean [®] Vana Trol [®] (1:8)
"Red River"	Sure Klean [®] Vana Trol [®] (1:6) OR Enviro Klean [®] Safety Klean (1:2)
"Rembrandt"	Sure Klean [®] Vana Trol [®] (1:8) OR Enviro Klean [®] Safety Klean (1:2)

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.





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

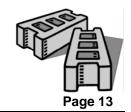
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control – A clear, solvent-based silicone elastomer formulated to weatherproof concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control protects masonry surfaces from repeated graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering. Graffiti removal is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control is easy to apply with low-pressure spray, brush or roller.

Sure Klean® Weather Seal Siloxane PD – A ready-to-use, water-based silane/siloxane water repellent for concrete, GFRC, and most masonry and stucco surfaces. Siloxane PD penetrates more deeply than conventional water repellents. It helps masonry resist cracking, spalling, staining and other damage related to water intrusion. Low odor and alkaline stable, Siloxane PD is ideal for field and in-plant application.

Sample Preparation - Protective Water Repellents

The submitted brick were cut and allowed to dry for at least 24 hours prior to treatment. Both Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control and Sure Klean[®] Weather Seal Siloxane PD were applied by a wet-on-wet brushing application in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions and allowed to cure for at least 72 hours prior to testing.





Test Methods - Protective Water Repellents

Water Absorption Tube Test: Vertical 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 vertical 5.0-milliliter head pressures. Filled to 5.0 milliliters, a water absorption tube produces a 98 mph dynamic wind pressure. See RILEM II.4 Tech Note for additional information.

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

- **AA** = "Above Average" correlates to less than or equal to 20% of the maximum untreated absorption.
- **A** = "Average" correlates to less than or equal to 50% of the maximum untreated absorption.
- **BA** = "Below Average" correlates to greater than 50% of the maximum untreated absorption.

EXAMPLE: If RILEM tubes applied to an untreated sample result in loss of 5.0 mL of water or more, then:

A rating of **AA** Above Average water repellent performance would be reported for treatments which result in of no more than:

$$5.0 \text{ mL} \times 20\% = 1.0 \text{ mL}$$

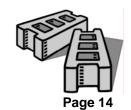
A rating of <u>A</u> Average water repellent performance would be reported for treatments which result in loss of no more than:

$$5.0 \text{ mL} \times 50\% = 2.5 \text{ mL}$$

A rating of <u>BA</u> Below Average water repellent performance would be reported for treatments which result in a loss of more than:

 $5.0 \text{ mL} \times 50\% = 2.5 \text{ mL}$



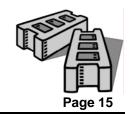


<u>Test Results</u> – Protective Water Repellents

Water Absorption Tube Test: Vertical RILEM II.4, 5.0 milliliters, 20 minutes \underline{AA} = Above Average \underline{A} = Average \underline{BA} = Below Average

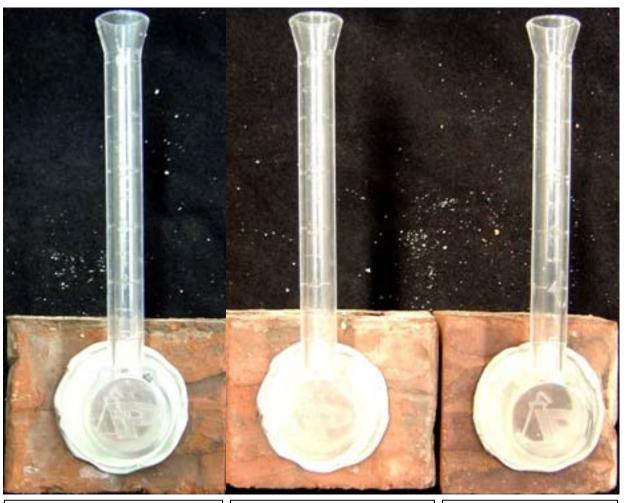
"Bordeaux"	Results in mL loss	Ranking
Untreated Control	-1.3	
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-0.7	BA
"Brownstone"	Results in mL loss	Ranking
Untreated Control	-0.2	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-0.0	AA
"Fireside"	Results in mL loss	Ranking
Untreated Control	-1.5	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-0.0	AA
"Hudson Valley"	Results in mL loss	Ranking
Untreated Control	-1.6	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean [®] Weather Seal Siloxane PD	-0.8	ВА
"Ole Country"	Results in mL loss	Ranking
Untreated Control	-0.5	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-0.2	A
"Red River"	Results in mL loss	Ranking
Untreated Control	-3.7	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-1.3	A
"Rembrandt"	Results in mL loss	Ranking
Untreated Control	-5.0	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-3.5	<u>BA</u>
"Santa Fe Trail"	Results in mL loss	Ranking
Untreated Control	-0.5	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-0.0	<u>AA</u>
"Tuscany"	Results in mL loss	Ranking
Untreated Control	-2.6	
Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-0.7	<u>A</u>
"Victorian II"	Results in mL loss	Ranking
Untreated Control	-5.0	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-2.6	BA
"Winslow"	Results in mL loss	Ranking
Untreated Control	-4.7	
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	-0.0	AA
Sure Klean® Weather Seal Siloxane PD	-2.2	<u>A</u>





Photographs – Protective Water Repellents

"Brownstone"; RILEM Testing



Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control

Untreated Control

Sure Klean[®] Weather Seal Siloxane PD





Conclusions – Protective Water Repellents

Test results indicate that at least one of the treatments evaluated exhibited above average water repellency on all of the submitted clay brick. In addition, Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control exhibited a slight color enhancement to the submitted clay brick. Sure Klean[®] Weather Seal Siloxane PD did not alter the appearance of any of the submitted samples.

Recommendations - Protective Water Repellents

Recommendations for water repellent treatments for each type of clay brick submitted by Hanson Brick – Mineral Wells Plant, Mineral Wells, TX are provided in the chart below. Recommendations are based on the treatments that proved most effective at providing water repellency on all types submitted.

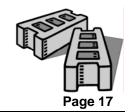
Sample	Protective Water Repellents
"Brownstone" "Fireside" "Santa Fe Trail"	*Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control OR Sure Klean [®] Weather Seal Siloxane PD
"Bordeaux" "Hudson Valley" "Ole Country" "Red River" "Rembrandt" "Tuscany" "Victorian II" "Winslow"	*Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control

*NOTE: Sure Klean® Weather Seal Blok-Guard® & Graffiti Control is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not suitable for sale in states and districts with more restrictive AIM VOC regulations.

It must be pointed out that in any installation, the brick are a single component of the masonry facade. The ability of a water repellent treatment to prevent the ingress of water is affected by a variety of other 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.





Graffiti Control

These trials were conducted to determine the optimal graffiti control treatment for the submitted clay brick samples. This evaluation compares the effectiveness of the treatments tested to the untreated surfaces of the submitted samples in preventing staining of enamel spray paint and permanent markers.

Description of Products Evaluated - Graffiti Control

Graffiti Control Treatments

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control – A clear, solvent-based silicone elastomer formulated to weatherproof concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control protects masonry surfaces from repeated graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering. Graffiti removal is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control is easy to apply with low-pressure spray, brush or roller.

Defacer Eraser® Sacrificial Coating SC-1 – A clear, water-based sacrificial coating for control of graffiti on most building surfaces. SC-1 acts as a graffiti barrier, preventing spray paints, crayons and ink from penetrating and staining the underlying surface. Graffiti is removed from protected surfaces by high-pressure hot water, Defacer Eraser® Graffiti Wipe or Sure Klean® Fast Acting Stripper. The coating must then be reapplied to restore the graffiti barrier.

Products Evaluated for Graffiti Removal

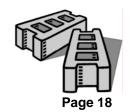
Sure Klean[®] Fast Acting Stripper – A thixotropic stripping compound formulated specifically for removal of high strength paints and coatings such as epoxies, polyurethanes, and floor enamels. Additionally, Fast Acting Stripper dissolves most spray paints, marking pens, lacquers and other graffiti.

Defacer Eraser[®] **Graffiti Wipe** – An easy-to-use graffiti remover that does not contain methanol, methylene chloride or other halogenated solvents prohibited on many projects. Graffiti Wipe removes a variety of graffiti stains from most smooth masonry, split-face concrete block, wood and metal surfaces.

Graffiti Agents

Interior/Exterior Spray Paint (Red) Permanent Marker (Green) Permanent Marker (Red) Permanent Marker (Black)





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Sample Preparation - Graffiti Control

Sections of the clay brick samples were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control and Defacer Eraser® Sacrificial Coating SC-1 by brush in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions and then allowed to cure for at least 24 hours. At the end of the one-day cure period, a visual adverse effects evaluation was made and then the graffiti agents were applied to the substrates.

Spray paint and markers were applied as graffiti agents to all treated surfaces no sooner than one day following application of Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control and Defacer Eraser[®] Sacrificial Coating SC-1. Removal of the graffiti agents was attempted 24 hours after application of the graffiti agents, using Defacer Eraser[®] Graffiti Wipe and Sure Klean[®] Fast Acting Stripper.

Test Method – Graffiti Control

Chemical cleaners were evaluated using the following procedure:

- 1. Apply the product to a dry surface, soiled with graffiti.
- 2. Allow appropriate dwell time:

- 3. Pressure rinse thoroughly until water runs clear.*
- 4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

*Pressure Rinsing Equipment – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.





Test Results - Graffiti Control

"Bordeaux"					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	95%	80%	90%	89%
Graffiti Wipe	70%	30%	80%	90%	68%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
·	•	"Brownstone"	,		
Untreated Control	Red Paint				% Avg. Removal
Fast Acting Stripper	99%	99%	99%	99%	99%
Graffiti Wipe	99%	20%	100%	100%	80%
Blok-Guard [®] & Graffiti Control	Red Paint				% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
Sacrificial Coating SC-1	Red Paint		Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
		"Fireside"			
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	99%	100%
Graffiti Wipe	100%	80%	100%	100%	95%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
	•	'Hudson Valley	y"		
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	95%	90%	90%	90%
Graffiti Wipe	90%	20%	90%	90%	73%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	98%	95%	99%	99%	98%
Graffiti Wipe	99%	95%	99%	99%	98%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	95%	100%	99%	99%	98%
Graffiti Wipe	100%	100%	99%	99%	100%
"Ole Country"					
Untreated Control	Red Paint	Black Marker	•	Red Marker	% Avg. Removal
Fast Acting Stripper	95%	90%	100%	100%	96%
Graffiti Wipe	70%	20%	100%	100%	73%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%





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Test Results - Graffiti Control

"Red River"					
Untreated Control	Red Paint		Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	95%	95%	95%	95%	95%
Graffiti Wipe	95%	80%	80%	95%	88%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	80%	100%	100%	95%
		"Rembrandt"			
Untreated Control	Red Paint				% Avg. Removal
Fast Acting Stripper	70%	80%	20%	70%	60%
Graffiti Wipe	80%	60%	80%	90%	78%
Blok-Guard [®] & Graffiti Control	Red Paint				% Avg. Removal
Fast Acting Stripper	100%	100%	80%	90%	93%
Graffiti Wipe	100%	90%	80%	90%	90%
Sacrificial Coating SC-1	Red Paint		Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	99%	100%	80%	80%	90%
Graffiti Wipe	99%	90%	80%	90%	90%
	1	"Santa Fe Trai	l"		
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	70%	95%	90%	95%	88%
Graffiti Wipe	90%	20%	90%	95%	74%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	98%	99%	99%	99%	99%
Graffiti Wipe	100%	95%	99%	99%	98%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	100%	100%	100%	100%	100%
		"Tuscany"			
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	100%	90%	95%	94%
Graffiti Wipe	98%	20%	90%	95%	76%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	95%	100%	99%
Graffiti Wipe	100%	100%	95%	100%	99%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	100%	100%	100%	100%	100%
Graffiti Wipe	99%	100%	100%	100%	100%
"Victorian II"					
Untreated Control	Red Paint		•	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	95%	20%	60%	64%
Graffiti Wipe	80%	20%	30%	70%	50%
Blok-Guard [®] & Graffiti Control	Red Paint		Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	99%	40%	95%	80%
Graffiti Wipe	99%	80%	50%	85%	79%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	99%	99%	30%	90%	80%
Graffiti Wipe	100%	80%	30%	90%	75%





Test Results - Graffiti Control

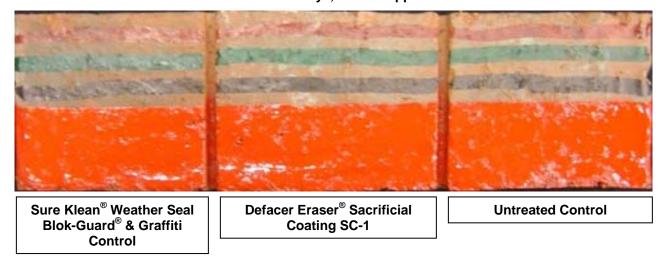
"Winslow"					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	60%	95%	30%	90%	69%
Graffiti Wipe	70%	20%	80%	80%	63%
Blok-Guard [®] & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	100%	90%	95%	93%
Graffiti Wipe	98%	95%	90%	95%	95%
Sacrificial Coating SC-1	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	100%	80%	95%	91%
Graffiti Wipe	99%	90%	80%	90%	90%





Photographs – Graffiti Control

"Ole Country"; Graffiti Applied



"Ole Country"; Graffiti Removed







PROSOCO, Inc.

Conclusions – Graffiti Control

Based upon laboratory evaluations, graffiti removal was improved when the submitted samples were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control and Defacer Eraser® Sacrificial Coating SC-1 prior to graffiti application. In addition, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control exhibited a slight color enhancement to the submitted clay brick. Defacer Eraser® Sacrificial Coating SC-1 did not alter the appearance of any of the submitted samples.

Recommendations - Graffiti Control

Recommendations for graffiti control treatment for each type of clay brick submitted by Hanson Brick – Mineral Wells Plant, Mineral Wells, TX are provided in the chart below. Recommendations are based on the treatment that proved most effective for providing graffiti repellency and the product that was most effective at removing the graffiti on all types of clay brick submitted.

Sample	Graffiti Repellent	Graffiti Removers
All Submitted Clay Brick	*Sure Klean [®] Weather Seal Blok-Guard [®] & Graffiti Control OR Defacer Eraser [®] Sacrificial Coating SC-1	Sure Klean [®] Fast Acting Stripper OR Defacer Eraser [®] Graffiti Wipe

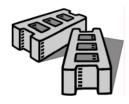
*NOTE: Sure Klean® Weather Seal Blok-Guard® & Graffiti Control is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not suitable for sale in states and districts with more restrictive AIM VOC regulations.

Apply all products in accordance with the manufacturer's recommendation provided on container labels and product data sheets. Because the severity of graffiti varies from location to location, on-site testing should be conducted to determine the most appropriate graffiti control product and procedure 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

Hanson Brick – Mineral Wells Plant Mineral Wells, TX

Project No. 0511-06 PTP

Prepared For:

Hanson Brick – Mineral Wells Plant 500 NE 14th Avenue Mineral Wells, TX 76067

Prepared By:

PROSOCO, Inc. February 2006