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Attachments

 Technical Services TECH Note RILEM Tube Test Procedures

 Product Data literature for all products evaluate

Submitted Information

For: Ivonne Cotilla, Claymex Brick & Tile
Cc: Coburn Bond
 Steve Dean
 Brian Koenings
 Al Morris

Subject: Claymex Brick and Tile
 Eagle Pass, TX

Date: April 23, 2008

Project: 0803-06 PTP

Samples Submitted: 20 types of clay brick

Name	Color	Size
"Vernon"	Brown	7 ½" x 2 ¼" x 3 ½"
"Rusty"	Red	7 ½" x 2 ¼" x 3 ½"
"Urbana"	Brown	7 ½" x 2 ¼" x 3 ½"
"Victoria"	Red	7 ½" x 2 ¼" x 3 ½"
"Old Jalisco"	Peach	7 ½" x 2 ¼" x 3 ½"
"Loredo"	Buff	7 ½" x 2 ¼" x 3 ½"
"Cottonwood"	Red	7 ½" x 2 ¼" x 3 ½"
"Loundonville"	Red	7 ½" x 2 ¼" x 3 ½"
"Crockett"	Brown	7 ½" x 2 ¼" x 3 ½"
"New Heaven"	Red/Brown	7 ½" x 2 ¼" x 3 ½"
"Sonora"	Red/Brown	7 ½" x 2 ¼" x 3 ½"
"Almendra"	Red	7 ½" x 2 ¼" x 3 ½"
"Red Hill"	Orange	7 ½" x 2 ¼" x 3 ½"
"Dover"	Brown	7 ½" x 2 ¼" x 3 ½"
"Adobe"	Buff	7 ½" x 2 ¼" x 3 ½"
"Providence"	Brown	7 ½" x 2 ¼" x 3 ½"
"Richland"	Red	7 ½" x 2 ¼" x 3 ½"
"Heritage"	Red	7 ½" x 2 ¼" x 3 ½"
"Magnolia"	Buff	7 ½" x 2 ¼" x 3 ½"
"Old Denver"	Orange	7 ½" x 2 ¼" x 3 ½"

Submitted by: Coburn Bond

Introduction

Architectural Materials Testing (AMT) Laboratories is a Boyer Industries company that provides laboratory testing and consulting services for the construction industry. Laboratory testing includes evaluating chemical cleaning products and protective treatments for a variety of new and existing architectural materials.

This report includes descriptions of the PROSOCO, Inc. products and test methods that were used. Following test results and conclusions, the report provides recommendations for the most effective products and procedures.

Purpose of Testing

Twenty types of clay brick were submitted to AMT Laboratories by PROSOCO, Inc. 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 suitable for clay brick were evaluated.

New Construction Cleaning – Sure Klean® Vana Trol®, Sure Klean® 101 Lime Solvent, and Sure Klean® 600 Detergent 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:

Surface Finish Removal 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.

Substrate Deterioration 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.

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

Staining 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 Siloxane WB Concentrate and Sure Klean® Weather Seal Siloxane PD were evaluated on the submitted clay brick for their ability to provide water repellency.

Products Evaluated**Products Evaluated for New Construction Cleaning**

Sample	Product	Dilution
"Heritage" and "Victoria"	Sure Klean® Vana Trol®	1:6, 1:8
	Sure Klean® 101 Lime Solvent	1:6, 1:8
All other submitted clay brick	Sure Klean® Vana Trol®	1:6, 1:8
	Sure Klean® 600 Detergent	1:6, 1:8

Protective Water Repellent Products Evaluated

Sample	Product	Dilution
All submitted clay brick	Sure Klean® Weather Seal Siloxane PD	Concentrate
	Sure Klean® Weather Seal Siloxane WB Concentrate	1:9

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 masonry mortar 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.

Description of Products Evaluated – 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.

Sure Klean® 600 Detergent – A general purpose, concentrated acidic cleaner for brick, tile and concrete surfaces. 600 Detergent dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking.

Sure Klean® 101 Lime Solvent – A concentrated acidic cleaner for dark-colored brick and tile surfaces which are not subject to metallic oxidation. Safely removes excess mortar and construction dirt. 101 Lime Solvent is safer than muriatic acid on colored mortar and dark-colored new masonry surfaces.

Test Method – New Construction Cleaning

New construction 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®	3-5 minutes
Sure Klean® 600 Detergent.....	3-5 minutes
Sure Klean® 101 Lime Solvent	3-5 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**Cleaning Effectiveness (% Type S Mortar Removal)**

“Heritage”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 101 Lime Solvent	1:6	75%	25%	40%
Sure Klean® 101 Lime Solvent	1:8	50%	15%	40%
Sure Klean® Vana Trol®	1:6	75%	40%	10%
Sure Klean® Vana Trol®	1:8	80%	45%	25%
“Victoria”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 101 Lime Solvent	1:6	85%	90%	90%
Sure Klean® 101 Lime Solvent	1:8	90%	90%	90%
Sure Klean® Vana Trol®	1:6	90%	90%	90%
Sure Klean® Vana Trol®	1:8	90%	90%	90%
“Vernon”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	40%	75%	75%
Sure Klean® 600 Detergent	1:8	50%	75%	75%
Sure Klean® Vana Trol®	1:6	60%	65%	80%
Sure Klean® Vana Trol®	1:8	60%	75%	75%
“Rusty”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	50%	50%	60%
Sure Klean® 600 Detergent	1:8	45%	50%	60%
Sure Klean® Vana Trol®	1:6	70%	75%	50%
Sure Klean® Vana Trol®	1:8	70%	75%	50%
“Urbana”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	90%	90%	85%
Sure Klean® 600 Detergent	1:8	90%	90%	85%
Sure Klean® Vana Trol®	1:6	90%	90%	85%
Sure Klean® Vana Trol®	1:8	90%	90%	85%

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“Old Jalisco”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	90%	90%	85%
Sure Klean® 600 Detergent	1:8	90%	90%	75%
Sure Klean® Vana Trol®	1:6	90%	90%	85%
Sure Klean® Vana Trol®	1:8	90%	90%	65%
“Loredo”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	65%	80%	85%
Sure Klean® 600 Detergent	1:8	60%	85%	75%
Sure Klean® Vana Trol®	1:6	75%	90%	85%
Sure Klean® Vana Trol®	1:8	75%	90%	85%
“Cottonwood”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	90%	85%	85%
Sure Klean® 600 Detergent	1:8	90%	90%	85%
Sure Klean® Vana Trol®	1:6	95%	95%	90%
Sure Klean® Vana Trol®	1:8	95%	95%	90%
“Loudonville”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	75%	65%	75%
Sure Klean® 600 Detergent	1:8	75%	67%	75%
Sure Klean® Vana Trol®	1:6	75%	75%	75%
Sure Klean® Vana Trol®	1:8	65%	75%	75%
“Crockett”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	50%	50%	50%
Sure Klean® 600 Detergent	1:8	60%	50%	45%
Sure Klean® Vana Trol®	1:6	80%	75%	75%
Sure Klean® Vana Trol®	1:8	80%	75%	60%

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“New Heaven”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	90%	90%	90%
Sure Klean® 600 Detergent	1:8	90%	90%	90%
Sure Klean® Vana Trol®	1:6	90%	90%	75%
Sure Klean® Vana Trol®	1:8	90%	90%	75%
“Sonora”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	95%	75%	80%
Sure Klean® 600 Detergent	1:8	95%	85%	60%
Sure Klean® Vana Trol®	1:6	95%	95%	75%
Sure Klean® Vana Trol®	1:8	95%	95%	75%
“Almendra”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	80%	90%	75%
Sure Klean® 600 Detergent	1:8	80%	90%	75%
Sure Klean® Vana Trol®	1:6	75%	90%	75%
Sure Klean® Vana Trol®	1:8	75%	90%	55%
“Red Hill”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	90%	80%	75%
Sure Klean® 600 Detergent	1:8	80%	75%	75%
Sure Klean® Vana Trol®	1:6	90%	90%	90%
Sure Klean® Vana Trol®	1:8	90%	90%	90%
“Dover”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	75%	85%	90%
Sure Klean® 600 Detergent	1:8	65%	75%	90%
Sure Klean® Vana Trol®	1:6	80%	90%	90%
Sure Klean® Vana Trol®	1:8	80%	90%	90%

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“Adobe”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	75%	90%	90%
Sure Klean® 600 Detergent	1:8	80%	90%	90%
Sure Klean® Vana Trol®	1:6	90%	90%	90%
Sure Klean® Vana Trol®	1:8	90%	90%	90%
“Providence”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	95%	95%	95%
Sure Klean® 600 Detergent	1:8	95%	95%	95%
Sure Klean® Vana Trol®	1:6	95%	95%	95%
Sure Klean® Vana Trol®	1:8	95%	95%	95%
“Richland”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	100%	95%	90%
Sure Klean® 600 Detergent	1:8	100%	95%	90%
Sure Klean® Vana Trol®	1:6	95%	100%	90%
Sure Klean® Vana Trol®	1:8	100%	95%	90%
“Magnolia”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	95%	95%	75%
Sure Klean® 600 Detergent	1:8	95%	95%	75%
Sure Klean® Vana Trol®	1:6	95%	75%	85%
Sure Klean® Vana Trol®	1:8	95%	85%	85%
“Old Denver”				
Product	Dilution	3 day	7 day	14 day
Sure Klean® 600 Detergent	1:6	90%	95%	75%
Sure Klean® 600 Detergent	1:8	90%	95%	75%
Sure Klean® Vana Trol®	1:6	75%	90%	85%
Sure Klean® Vana Trol®	1:8	75%	90%	85%

Test Results – Limiting Surface Alterations

Substrate: Clay Brick		Pigment Color: “Heritage”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 101 Lime Solvent	1:6	2	1	1	0
Sure Klean® 101 Lime Solvent	1:8	2	1	1	0
Sure Klean® Vana Trol®	1:6	2	1	1	0
Sure Klean® Vana Trol®	1:8	2	1	1	0
Substrate: Clay Brick		Pigment Color: “Victoria”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 101 Lime Solvent	1:6	0	0	0	0
Sure Klean® 101 Lime Solvent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Vernon”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	1	0	0	0
Sure Klean® 600 Detergent	1:8	1	0	0	0
Sure Klean® Vana Trol®	1:6	1	0	0	0
Sure Klean® Vana Trol®	1:8	1	0	0	0
Substrate: Clay Brick		Pigment Color: “Rusty”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0

0 – No Change **3 – Change – Heavy**
1 – Change – Slight **4 – Change – Excessive**
2 – Change – Moderate

Test Results – Limiting Surface Alterations

Substrate: Clay Brick		Pigment Color: “Urbana”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Old Jalisco”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Loredo”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Cottonwood”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0

0 – No Change 3 – Change – Heavy
1 – Change – Slight 4 – Change – Excessive
2 – Change – Moderate

Test Results – Limiting Surface Alterations

Substrate: Clay Brick		Pigment Color: “Loudonville”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	1	1	2	0
Sure Klean® 600 Detergent	1:8	1	1	2	0
Sure Klean® Vana Trol®	1:6	1	0	1	0
Sure Klean® Vana Trol®	1:8	1	0	1	0
Substrate: Clay Brick		Pigment Color: “Crockett”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	1	0	0	1
Sure Klean® 600 Detergent	1:8	1	0	0	1
Sure Klean® Vana Trol®	1:6	1	0	0	1
Sure Klean® Vana Trol®	1:8	1	0	0	1
Substrate: Clay Brick		Pigment Color: “New Heaven”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Sonora”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0

0 – No Change 3 – Change – Heavy
1 – Change – Slight 4 – Change – Excessive
2 – Change – Moderate

Test Results – Limiting Surface Alterations

Substrate: Clay Brick		Pigment Color: “Almendra”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Red Hill”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Dover”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Adobe”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	1	1	0	1
Sure Klean® 600 Detergent	1:8	1	1	0	1
Sure Klean® Vana Trol®	1:6	1	1	0	1
Sure Klean® Vana Trol®	1:8	1	1	0	1

0 – No Change 3 – Change – Heavy
1 – Change – Slight 4 – Change – Excessive
2 – Change – Moderate

Test Results – Limiting Surface Alterations

Substrate: Clay Brick		Pigment Color: “Providence”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Richland”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Magnolia”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	0	0	0	0
Sure Klean® 600 Detergent	1:8	0	0	0	0
Sure Klean® Vana Trol®	1:6	0	0	0	0
Sure Klean® Vana Trol®	1:8	0	0	0	0
Substrate: Clay Brick		Pigment Color: “Old Denver”			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Sure Klean® 600 Detergent	1:6	1	1	1	1
Sure Klean® 600 Detergent	1:8	1	1	1	1
Sure Klean® Vana Trol®	1:6	1	1	1	1
Sure Klean® Vana Trol®	1:8	1	1	1	1

0 – No Change **3 – Change – Heavy**
1 – Change – Slight **4 – Change – Excessive**
2 – Change – Moderate

Photographs – New Construction Cleaning

“Dover” Clay Brick; 3 Day Cleaning



**Sure Klean®
Vana Trol® (1:6)**

**Sure Klean®
Vana Trol® (1:8)**

**Sure Klean® 600
Detergent (1:6)**

**Sure Klean® 600
Detergent (1:8)**

“Dover” Clay Brick; 7 Day Cleaning



**Sure Klean®
Vana Trol® (1:6)**

**Sure Klean®
Vana Trol® (1:8)**

**Sure Klean® 600
Detergent (1:6)**

**Sure Klean® 600
Detergent (1:8)**

Photographs – New Construction Cleaning

“Dover” Clay Brick; 14 Day Cleaning



**Sure Klean[®]
Vana Trol[®] (1:6)**

**Sure Klean[®]
Vana Trol[®] (1:8)**

**Sure Klean[®] 600
Detergent (1:6)**

**Sure Klean[®] 600
Detergent (1:8)**



Untreated Control

Photographs – Limiting Surface Alterations

“Dover” Clay Brick



**Sure Klean[®]
Vana Trol[®] (1:6)**

**Sure Klean[®]
Vana Trol[®] (1:8)**

**Sure Klean[®] 600
Detergent (1:6)**

**Sure Klean[®] 600
Detergent (1:8)**



**Uncleaned
Surface**

Conclusions – New Construction Cleaning

Based on the test results, most of the clay brick samples were effectively cleaned with Sure Klean® 101 Lime Solvent, Sure Klean® 600 Detergent, or Sure Klean® Vana Trol® even after allowing the mortar to remain on the surface of the brick for 14 days. "Heritage", "Rusty", and "Crockett" were more difficult to clean than the other submitted brick samples. Several of the clay brick tested exhibited light to moderate surface alterations after cleaning.

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 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 7 days of construction.

Recommendations – New Construction Cleaning

Recommendations for cleaning for each type of clay brick submitted by Claymex Brick & Tile, Eagle Pass, TX are provided in the charts 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)
"Heritage"	Sure Klean® 101 Lime Solvent (1:8)
"Victoria"	Sure Klean® 101 Lime Solvent (1:8) or Sure Klean® Vana Trol® (1:8)
"Vernon" and "Crockett"	Sure Klean® Vana Trol® (1:6)
"Rusty" and "New Heaven"	Sure Klean® 600 Detergent (1:8)
"Almendra"	Sure Klean® 600 Detergent (1:8) or Sure Klean® Vana Trol® (1:6)
"Urbana", "Dover", "Adobe", "Providence", "Richland"	Sure Klean® 600 Detergent (1:8) or Sure Klean® Vana Trol® (1:8)

Recommendations – New Construction Cleaning

Sample	New Construction Cleaning (Type S mortar, 14 day cleaning)
"Old Jalisco"	Sure Klean® 600 Detergent (1:6) or Sure Klean® Vana Trol® (1:6)
"Loredo"	Sure Klean® 600 Detergent (1:6) or Sure Klean® Vana Trol® (1:8)
"Cottonwood", "Loudonville", "Red Hill", "Magnolia", "Old Denver"	Sure Klean® Vana Trol® (1:8)
"Sonora"	Sure Klean® 600 Detergent (1:6)

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
-

Description of Products Evaluated – Protective Water Repellents

Sure Klean® Weather Seal Siloxane PD – A ready-to-use, water-based silane/siloxane water repellent for concrete, GFRG, 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.

Sure Klean® Weather Seal Siloxane WB Concentrate – A self-emulsifying water repellent concentrate designed for dilution with fresh water at the job site. This solvent-free blend of silanes and oligomeric alkoxy siloxanes mixes easily with water to produce a penetrating water repellent ideal for application to dense or porous masonry surfaces.

Sample Preparation – Protective Water Repellents

The submitted brick were cut and allowed to dry for at least 24 hours prior to treatment. Both treatments were applied by brush in accordance with the current PROSOCO, Inc. Product Data Sheets and were 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 ml of water or more, then:

A rating of **AA** *Above Average* water repellent performance would require loss of less than or equal to:

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

A rating of **A** *Average* water repellent performance would require loss of less than or equal to:

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

A rating of **BA** *Below Average* water repellent performance would require loss of more than:

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

Test Results – Protective Water Repellents**Water Absorption Tube Test: Vertical RILEM II.4, 5.0 milliliters, 20 minutes****AA = Above Average****A = Average****BA = Below Average**

“Vernon”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Rusty”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Urbana”	Results in mL loss	Ranking
Untreated Control	-1.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.5 mL	<u>A</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Victoria”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Old Jalisco”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Loredo”	Results in mL loss	Ranking
Untreated Control	-0.5 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Cottonwood”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>

Test Results – Protective Water Repellents**Water Absorption Tube Test: Vertical RILEM II.4, 5.0 milliliters, 20 minutes****AA = Above Average****A = Average****BA = Below Average**

“Loudonville”	Results in mL loss	Ranking
Untreated Control	-2.5 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.5 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Crockett”	Results in mL loss	Ranking
Untreated Control	-4.5 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“New Heaven”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Sonora”	Results in mL loss	Ranking
Untreated Control	-2.5 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Almendra”	Results in mL loss	Ranking
Untreated Control	-3.5 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Red Hill”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Dover”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>

Test Results – Protective Water Repellents**Water Absorption Tube Test: Vertical RILEM II.4, 5.0 milliliters, 20 minutes**

AA = Above Average

A = Average

BA = Below Average

“Adobe”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Providence”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Richland”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Heritage”	Results in mL loss	Ranking
Untreated Control	-5.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Magnolia”	Results in mL loss	Ranking
Untreated Control	-5.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.5 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>
“Old Denver”	Results in mL loss	Ranking
Untreated Control	-0.0 mL	--
Sure Klean® Weather Seal Siloxane PD	-0.0 mL	<u>AA</u>
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	-0.0 mL	<u>AA</u>

Photographs – Protective Water Repellents

“Almendra” Clay Brick; Vertical RILEM II.4, 5.0 milliliters, 20 minutes



**Sure Klean® Weather
Seal Siloxane PD**

**Sure Klean® Weather
Seal Siloxane WB
Concentrate (1:9)**

Untreated Control

Conclusions – Protective Water Repellents

Test results indicate that both of the treatments evaluated exhibited above average water repellency on most of the submitted clay brick. The section of the “Urbana” clay brick treated with Sure Klean® Weather Seal Siloxane PD exhibited average water repellency. Neither of the treatments applied altered the appearance of any of the brick.

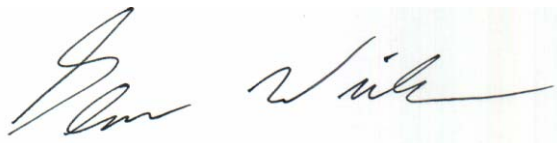
Recommendations – Protective Water Repellents

Recommendations for water repellent treatments for each type of clay brick submitted by Claymex Brick & Tile, Eagle Pass, TX, are provided in the chart below. Recommendations are based on the treatments that proved most effective and can provide water repellency on all types indicated.

Sample	Protective Water Repellents
“Urbana”	Sure Klean® Weather Seal Siloxane PD
All other submitted clay brick	Sure Klean® Weather Seal Siloxane PD or Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)

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.

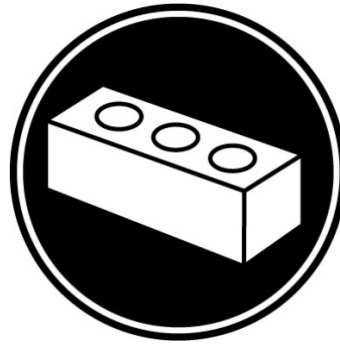


Glenn Winkler
Project Testing Laboratory Technician



PALLET TAG PROGRAM
Laboratory Report

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