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Attachments

 Technical Services TECH Note RILEM Tube Test Procedures

 Product Data literature for all products evaluated

Submitted Information

For: James Holt
Cc:

Subject: Henry Brick Co.
Selma, AL

Date:

Project: 0803-02 PTP

Samples Submitted: 1 type of clay brick

Name	Color	Finish/Coating	Size
"Gleason Blend"	Dark Red	None	7 1/2" x 2 1/4" x 3 1/2"

Submitted by: James Holt

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

One type of clay brick was submitted to AMT Laboratories by PROSOCO, Inc. with a request to determine the optimal cleaning/cure time combination to most efficiently remove Type N 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 was evaluated.

New Construction Cleaning – Enviro Klean[®] Safety Klean and Sure Klean[®] Vana Trol[®] were tested at various dilutions to determine the optimal cleaning/cure time combination to most efficiently remove Type N 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 N 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 N mortar after 7, 14 and 21 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 Blok-Guard[®] & Graffiti Control II, Sure Klean[®] Weather Seal Siloxane WB Concentrate and Sure Klean[®] Weather Seal Siloxane PD were evaluated on the submitted samples for their ability to provide water repellency.

Graffiti Control – Sure Klean[®] Weather Seal Blok-Guard[®] & Graffiti Control II was evaluated for its ability to provide graffiti control. Sure Klean[®] Fast Acting Stripper and Defacer Eraser[®] Graffiti Wipe were evaluated for their ability to remove graffiti.

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

Sample	Product	Dilution
"Gleason Blend"	Sure Klean® Vana Trol®	1:6, 1:8
	Enviro Klean® Safety Klean	1:2, 1:3

Protective Water Repellent Products Evaluated

Sample	Product	Dilution
"Gleason Blend"	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate
	Sure Klean® Weather Seal Siloxane PD	Concentrate
	Sure Klean® Weather Seal Siloxane WB Concentrate	(1:9)

Graffiti Repellents Evaluated

Sample	Product	Dilution
"Gleason Blend"	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate

Graffiti Cleaners Evaluated

Sample	Product	Dilution
"Gleason Blend"	Sure Klean® Fast Acting Stripper	Concentrate
	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 N mortar from the submitted clay brick while limiting surface alterations to the decorative finish.

Type N mortar was prepared in compliance with the manufacturer’s instructions, applied to the brick surface and allowed to cure for 7, 14 and 21 days. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type N masonry mortar was visually evaluated after 7, 14 and 21 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.

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

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
Enviro Klean® Safety Klean	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 N Mortar Removal)

“Gleason Blend”				
Product	Dilution	7 day	14 day	21 day
Enviro Klean® Safety Klean	1:2	95%	85%	100%
Enviro Klean® Safety Klean	1:3	70%	75%	95%
Sure Klean® Vana Trol®	1:6	100%	95%	99%
Sure Klean® Vana Trol®	1:8	100%	85%	90%

Test Results – Limiting Surface Alterations

Substrate: Clay Brick		Pigment Color: "Gleason Blend"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Enviro Klean® Safety Klean	1:2	1	0	0	0
Enviro Klean® Safety Klean	1:3	1	0	0	0
Sure Klean® Vana Trol®	1:6	1	0	0	0
Sure Klean® Vana Trol®	1:8	1	0	0	0

0 – no change**1 – slight change****3 – heavy change****2 – moderate change****4 – excessive change**

Photographs – New Construction Cleaning

“Gleason Blend” Clay Brick; 7 Day Cleaning



Sure Klean[®]
Vana Trol[®] (1:6)

Sure Klean[®]
Vana Trol[®] (1:8)

Enviro Klean[®]
Safety Klean (1:2)

Enviro Klean[®]
Safety Klean (1:3)

Untreated Control

“Gleason Blend” Clay Brick; 14 Day Cleaning



Sure Klean[®]
Vana Trol[®] (1:6)

Sure Klean[®]
Vana Trol[®] (1:8)

Enviro Klean[®]
Safety Klean (1:2)

Enviro Klean[®]
Safety Klean (1:3)

Untreated Control

Photographs – New Construction Cleaning

“Gleason Blend” Clay Brick; 21 Day Cleaning



Sure Klean®
Vana Trol® (1:6)

Sure Klean®
Vana Trol® (1:8)

Enviro Klean®
Safety Klean (1:2)

Enviro Klean®
Safety Klean (1:3)

Untreated Control

Photographs – Limiting Surface Alterations

“Gleason Blend” Clay Brick; Limiting Surface Alterations



**Sure Klean®
Vana Trol® (1:6)**

**Sure Klean®
Vana Trol® (1:8)**

**Enviro Klean®
Safety Klean (1:2)**

**Enviro Klean®
Safety Klean (1:3)**

**Uncleaned
Surface**

Conclusions – New Construction Cleaning

Based on the test results, all PROSOCO, Inc. products tested performed well in removing excess mortar from the submitted clay brick even after allowing the mortar to remain on the surface of the brick for 21 days. Each of the cleaners evaluated removed a slight amount of the sandy surface from 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 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 Henry Brick Company, Selma, AL 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 N mortar, 21 day cleaning)
"Gleason Blend"	Enviro Klean [®] Safety Klean (1:3) or Sure Klean [®] Vana Trol [®] (1:8)

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 Blok-Guard® & Graffiti Control II – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II 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.

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. All 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 windblown 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

"Gleason Blend"	Results in mL loss	Ranking
Untreated Control	1.4	--
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	0.9	BA
Sure Klean® Weather Seal Siloxane PD	0.2	AA
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	1.0	BA

Photographs – Protective Water Repellents

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



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

**Sure Klean[®]
Weather Seal
Siloxane PD**

Conclusions – Protective Water Repellents

Test results indicate that Sure Klean® Weather Seal Siloxane PD exhibited above average water repellency on the submitted clay brick. Sure Klean® Weather Seal Siloxane WB Concentrate and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II exhibited below average water repellency on the submitted clay brick. Sure Klean® Weather Seal Siloxane PD and Sure Klean® Weather Seal Siloxane WB Concentrate did not alter the appearance of the clay brick in any way. Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II provided a slight color enhancement to the submitted brick.

Recommendations – Protective Water Repellents

Recommendations for water repellent treatments for the type of clay brick submitted by Henry Brick Company, Selma, AL 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
"Gleason Blend"	Sure Klean® Weather Seal Siloxane PD

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

This evaluation compares the effectiveness of graffiti control treatments 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 II – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II is easy to apply with low-pressure spray, brush or roller.

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 (Black)
Permanent Marker (Green)
Permanent Marker (Red)

Sample Preparation – Graffiti Control

Sections of the clay brick samples were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions and then allowed to cure for at least one day. 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 II. 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:
 - Fast Acting Stripper20 minutes
 - Graffiti Wipe5 minutes
3. Pressure rinse thoroughly until water runs clear.*
4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

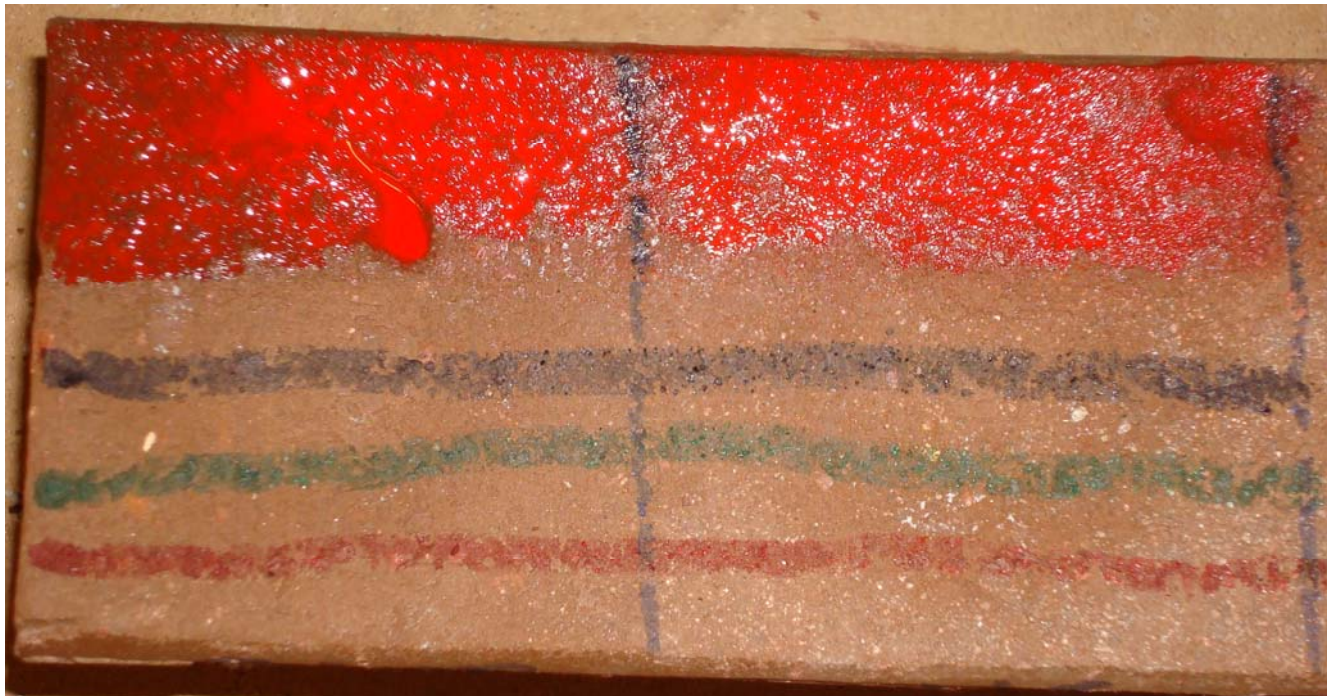
***Pressure Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.

Test Results – Graffiti Control

“Gleason Blend”					
	Graffiti Repellency (Graffiti Removal)				
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	95%	100%	95%	100%	97%
Graffiti Wipe	80%	90%	95%	98%	91%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	98%	100%	95%	98%	98%
Graffiti Wipe	85%	98%	98%	95%	94%

Photographs – Graffiti Control

“Gleason Blend”; Graffiti Applied



**Sure Klean®
Fast Acting
Stripper**

**Defacer
Eraser®
Graffiti Wipe**

**Sure Klean®
Fast Acting
Stripper**

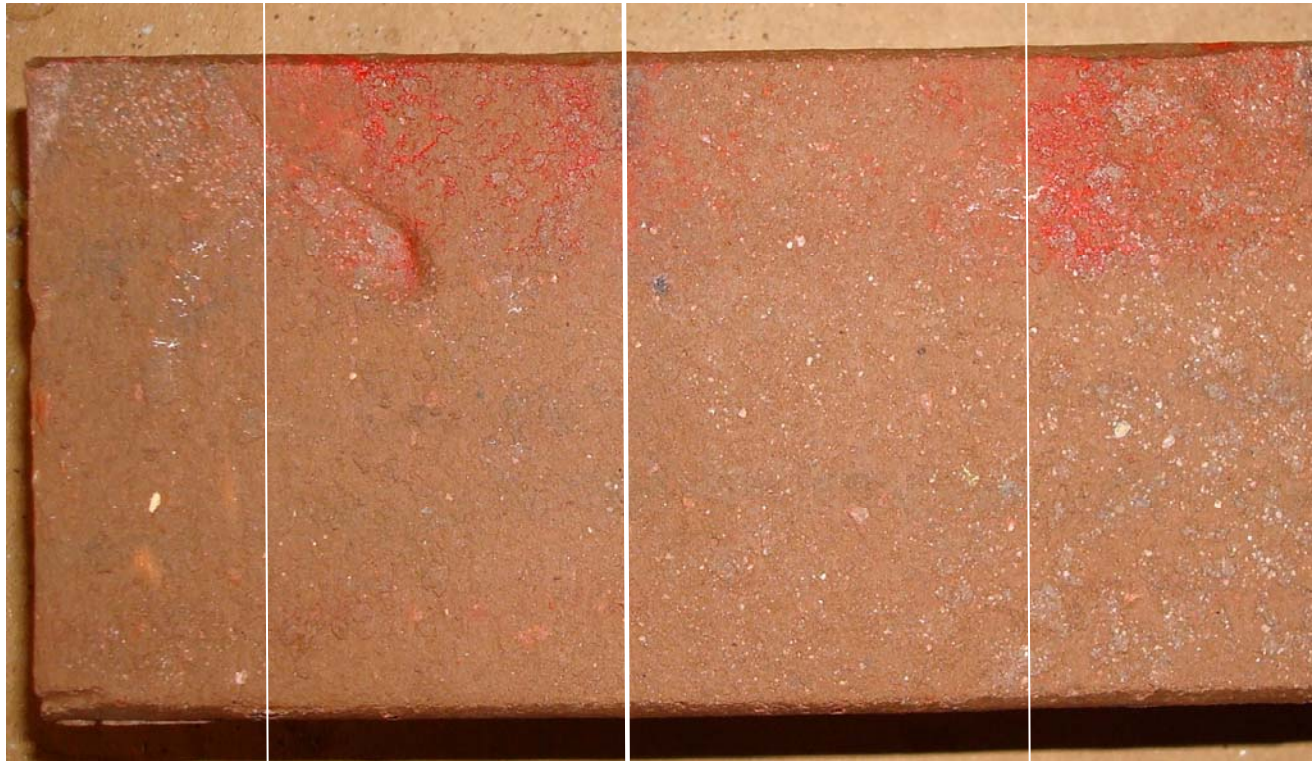
**Defacer
Eraser®
Graffiti Wipe**

**Sure Klean® Weather Seal
Blok-Guard® & Graffiti Control II**

Untreated Control

Photographs – Graffiti Control

“Gleason Blend”; Graffiti Removal



**Sure Klean[®]
Fast Acting
Stripper**

**Defacer
Eraser[®]
Graffiti Wipe**

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

**Sure Klean[®]
Fast Acting
Stripper**

**Defacer
Eraser[®]
Graffiti Wipe**

Untreated Control

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 II prior to graffiti application. Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II exhibited a slight color enhancement to the submitted clay brick. Sure Klean® Fast Acting Stripper was slightly more effective than Defacer Eraser® Graffiti Wipe when removing spray paint from the submitted samples. Sure Klean® Fast Acting Stripper removed a significant amount of the sandy finished of the clay brick.

Recommendations – Graffiti Control

Recommendations for graffiti control treatment for each type of clay brick submitted by Henry Brick Company, Selma, AL 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 Repellents	Graffiti Removers
"Gleason Blend"	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Sure Klean® Fast Acting Stripper or Defacer Eraser® Graffiti Wipe

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.

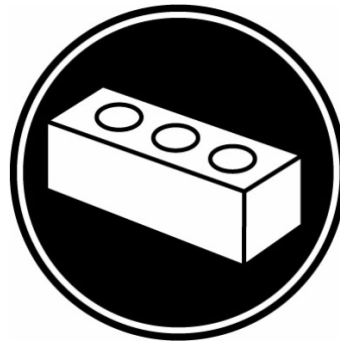


Alia Bober
Project Testing Technician



PALLET TAG PROGRAM
Laboratory Report

Henry Brick Company
3409 Water Ave.
Selma, AL 36702



Project No. 0803-02 PTP

Prepared For:
PROSOCO
SINCE 1939

Prepared By:
AMT Laboratories
July 2008