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 Technical Services TECH Note RILEM Tube Test Procedures

 Product Data literature for all products evaluated

Submitted Information

For: James Holt
cc: Michael Trotta
 John Bourne
 Paul Tessier

Subject: SEALTECH Block – Ohio Facility
 Bolivar, OH

Date: April 20, 2006

Project: 0511-12 PTP

Samples Submitted: 3 types of split-face and 5 types of smooth-face CMU's; 2 types of concrete brick

| Type | Name | Color | Integral Water Repellent | Size |
|-----------------|-----------------|--------------|--------------------------|---------------|
| Split-face CMU | "Antique White" | White | Krete HQ(S) Plus | 8" x 16" x 2" |
| Smooth-face CMU | "Antique White" | White | Krete HQ(S) Plus | 8" x 16" x 2" |
| Split-face CMU | "Brown" | Brown | Krete HQ(S) Plus | 8" x 16" x 2" |
| Smooth-face CMU | "Brown" | Brown | Krete HQ(S) Plus | 8" x 16" x 2" |
| Smooth-face CMU | "Lightweight" | Gray | Krete HQ(S) Plus | 8" x 16" x 2" |
| Split-face CMU | "Midnight" | Charcoal | Krete HQ(S) Plus | 8" x 16" x 2" |
| Smooth-face CMU | "Midnight" | Charcoal | Krete HQ(S) Plus | 8" x 16" x 2" |
| Smooth-face CMU | "Natural" | Light Gray | Krete HQ(S) Plus | 8" x 16" x 2" |
| Concrete Brick | "Autumn Blend" | Orange | Krete HQ(S) Plus | 4" x 16" x 2" |
| Concrete Brick | "Bolivar Blend" | Red/Charcoal | Krete HQ(S) Plus | 4" x 16" x 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

Three types of split-face and five types of smooth-face integrally colored concrete masonry units (CMU's), and two types of concrete brick all with large, small and fine aggregate were submitted for testing using PROSOCO's new construction cleaning, water repellent, and graffiti control products.

New Construction Cleaning – Sure Klean® Custom Masonry Cleaner and Sure Klean® Concrete Brick Cleaner were evaluated to determine the optimal concentration of cleaner for removal of laboratory applied mortar which also leaves the external surface looking most like the natural through-body color of the CMU and the limiting any potential surface alterations to the submitted concrete 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 sample and filled with a wet mixture of Type S mortar. The wet, mortar-filled cylinder was allowed to remain in contact with the samples for 10 minutes before removal.

Heavy deposits of mortar were removed with dry scraping after 24 hours. Prepared cleaning solutions were then evaluated for their effectiveness in removing residual Type S mortar staining after 3 days, 7 days, and 14 days of curing.

Concrete Masonry Units (CMU's) – Color uniformity of the CMU's was evaluated by comparing aggregate exposure and surface pigment alteration/removal of each cleaned surface compared to the natural through-body color of the CMU.

Aggregate Exposure is the visual examination comparing aggregate exposure of the interior, through-body section of the CMU to surfaces cleaned with selected product(s) at given dilutions.

Surface Pigment Alteration/Removal is the visual examination comparing the pigmentation of the interior, through-body section of the CMU to surfaces cleaned with selected product(s) at given dilutions.

The following is the scale used for reporting results of both categories:

| | |
|--|---------------------------------------|
| 0 – Worst match to through-body | 3 – Good match to through-body |
| 1 – Poor match to through-body | 4 – Best match to through-body |
| 2 – Fair match to through-body | |

NOTE: When cleaning integrally colored CMU's.

Integrally colored concrete masonry units (CMU's) frequently have high amounts of pigments concentrated on the surface of the cured concrete unit. Variation of surface pigment concentrations from one CMU to the next creates a blotchy appearance in the completed wall. Allowed to remain on the surface of the CMU, the weakly bound pigment will weather and streak, further detracting from the appearance of the completed CMU wall.

In addition to removing excess mortar and construction related soiling, the goal of any cleaning operation undertaken on an integrally colored CMU should include removal of unnaturally high concentrations of surface pigment. By revealing the natural through-body color on the integrally colored unit, the overall color uniformity and weathering resistance of the completed CMU wall is improved.

Concrete Brick – A visual examination was also made to determine if the tested cleaners caused any surface alterations to the submitted concrete brick, based on the following:

Surface Finish Removal is the visual examination of the sample 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 sample 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 sample.

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® Custom Masonry Sealer, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II and Sure Klean® Weather Seal Siloxane WB Concentrate diluted with nine parts water were evaluated for their ability to provide water repellency to the submitted samples.

Graffiti Control – Sure Klean® Custom Masonry Sealer and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II were evaluated for their ability to control graffiti on the submitted samples. Sure Klean® Fast Acting Stripper and Defacer Eraser® Graffiti Wipe were evaluated for their ability to remove graffiti from the submitted samples.

Products Evaluated

New Construction Cleaning Products Evaluated

| Sample | Product | Dilution |
|------------------------------|------------------------------------|---------------|
| All Submitted CMU's | Sure Klean® Custom Masonry Cleaner | 1:2, 1:4, 1:6 |
| All Submitted Concrete Brick | Sure Klean® Concrete Brick Cleaner | 1:2, 1:3 |

Water Repellent Products Evaluated

| Sample | Product | Dilution |
|--|--|-------------|
| All Submitted CMU's and Concrete Brick | Sure Klean® Custom Masonry Sealer | Concentrate |
| | Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | Concentrate |
| | Sure Klean® Weather Seal Siloxane WB Concentrate | 1:9 |

Graffiti Control Products Evaluated

| Sample | Product | Dilution |
|--|--|-------------|
| All Submitted CMU's and Concrete Brick | Sure Klean® Custom Masonry Sealer | Concentrate |
| | Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | Concentrate |

Graffiti Removal Products Evaluated

| Sample | Product | Dilution |
|--|----------------------------------|-------------|
| All Submitted CMU's and Concrete Brick | Sure Klean® Fast Acting Stripper | Concentrate |
| | Defacer Eraser® Graffiti Wipe | Concentrate |

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

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 CMU's and concrete brick while providing the best color uniformity when compared to the through-body color of the CMU's and while limiting surface alterations to the submitted concrete brick.

Type S mortar was prepared in compliance with the manufacturer's instructions, applied to the samples' 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 the optimal dilution of the tested cleaners that provides the best color uniformity when compared to the through-body color of the CMU's and limiting surface alterations to the submitted concrete brick.

Description of Products Evaluated – New Construction Cleaning

Sure Klean® Custom Masonry Cleaner – A general purpose, concentrated acidic cleaner for most custom masonry and colored concrete. Removes concrete splashes, excess mortar, mud, heavy efflorescence and surface soiling, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 2-6 parts water. Apply by brush or low-pressure spray.

Sure Klean® Concrete Brick Cleaner – Removes common construction and atmospheric staining from concrete brick and other architectural concrete surfaces. This general-purpose, non-etching, acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Concrete Brick Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

Test Method – New Construction Cleaning

Chemical cleaners were evaluated using the following procedure:

1. Pre-wet the surface with water.
2. Apply at the appropriate dilutions.
3. Allow appropriate dwell time, as specified.

| | |
|--|-------------|
| Sure Klean® Custom Masonry Cleaner | 3 minutes |
| Sure Klean® Concrete Brick Cleaner | 3-5 minutes |
4. Reapply the product and moderately agitate with a brush.
5. Pressure rinse thoroughly.*
6. Allow the sample to dry for at least 18 hours and visually examine.
7. Break each CMU sample in half and compare the color of the through-body surfaces to the cleaned surfaces for the best match.
8. Visually compare the cleaned surfaces of the concrete brick to an untreated surface to determine any surface alterations.

***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)**

| “Antique White” Split-face CMU | | | | |
|--|-----------------|--------------|--------------|---------------|
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |
| “Antique White” Smooth-face CMU | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |
| “Brown” Split-face CMU | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |
| “Brown” Smooth-face CMU | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |
| “Lightweight” Smooth-face CMU | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |
| “Midnight” Split-face CMU | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |
| “Midnight” Smooth-face CMU | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |
| “Natural” Smooth-face CMU | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 100% | 100% | 100% |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 100% | 100% | 100% |

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

| “Autumn Blend” Concrete Brick | | | | |
|---------------------------------------|-----------------|--------------|--------------|---------------|
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Concrete Brick Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Concrete Brick Cleaner | 1:3 | 100% | 100% | 100% |
| “Bolivar Blend” Concrete Brick | | | | |
| Product | Dilution | 3 day | 7 day | 14 day |
| Sure Klean® Concrete Brick Cleaner | 1:2 | 100% | 100% | 100% |
| Sure Klean® Concrete Brick Cleaner | 1:3 | 100% | 100% | 98% |

Test Results – Color Uniformity

| Substrate: Split-face CMU | | Pigment Color: “Antique White” | | |
|------------------------------------|-----------------|---------------------------------------|---|--|
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 4 | 4 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 4 | 4 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |
| Substrate: Smooth-face CMU | | Pigment Color: “Antique White” | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 4 | 4 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 4 | 4 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |
| Substrate: Split-face CMU | | Pigment Color: “Brown” | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |
| Substrate: Smooth-face CMU | | Pigment Color: “Brown” | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |

Scale used for reporting results of both categories

- 0 – **Worst** match to through-body 3 – **Good** match to through-body
 1 – **Poor** match to through-body 4 – **Best** match to through-body
 2 – **Fair** match to through-body

Test Results – Color Uniformity

| Substrate: Smooth-face CMU | | Pigment Color: "Lightweight" | | |
|------------------------------------|----------|------------------------------|------------------------------------|--|
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |
| Substrate: Split-face CMU | | Pigment Color: "Midnight" | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |
| Substrate: Smooth-face CMU | | Pigment Color: "Midnight" | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 2 | 2 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |
| Substrate: Smooth-face CMU | | Pigment Color: "Natural" | | |
| Product | Dilution | Aggregate Exposure | Surface Pigment Alteration/Removal | |
| Sure Klean® Custom Masonry Cleaner | 1:2 | 4 | 4 | |
| Sure Klean® Custom Masonry Cleaner | 1:4 | 4 | 4 | |
| Sure Klean® Custom Masonry Cleaner | 1:6 | 4 | 4 | |

Scale used for reporting results of both categories

- 0 – **Worst** match to through-body 3 – **Good** match to through-body
 1 – **Poor** match to through-body 4 – **Best** match to through-body
 2 – **Fair** match to through-body

Test Results – Limiting Surface Alterations

| Substrate: Concrete Brick | | Pigment Color: "Autumn Blend" | | | |
|------------------------------------|----------|--------------------------------|-------------------------|--------------|----------|
| Product | Dilution | Surface Finish Removal | Substrate Deterioration | Color Change | Staining |
| Sure Klean® Concrete Brick Cleaner | 1:2 | 2 | 2 | 2 | 0 |
| Sure Klean® Concrete Brick Cleaner | 1:3 | 2 | 2 | 1 | 0 |
| Substrate: Concrete Brick | | Pigment Color: "Bolivar Blend" | | | |
| Product | Dilution | Surface Finish Removal | Substrate Deterioration | Color Change | Staining |
| Sure Klean® Concrete Brick Cleaner | 1:2 | 2 | 2 | 2 | 0 |
| Sure Klean® Concrete Brick Cleaner | 1:3 | 2 | 2 | 1 | 0 |

The following is the scale used for reporting results of all categories:

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

Photographs – New Construction Cleaning

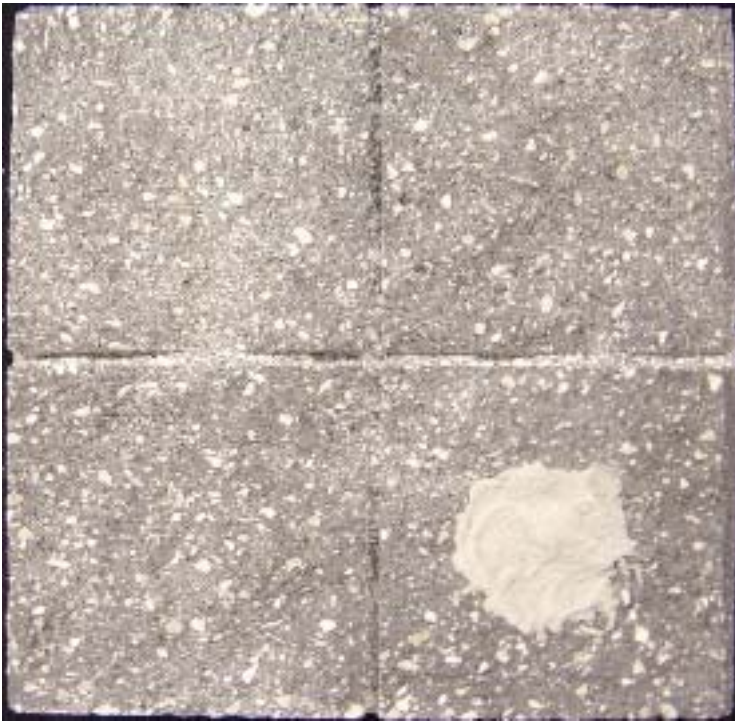
"Midnight" Split-face CMU; 3 Day Cleaning

**Sure Klean®
Custom Masonry
Cleaner (1:2)**

**Sure Klean®
Custom Masonry
Cleaner (1:4)**

**Sure Klean®
Custom Masonry
Cleaner (1:6)**

**Untreated
Control**



“Midnight” Split-face CMU; 7 Day Cleaning

**Sure Klean®
Custom Masonry
Cleaner (1:2)**

**Sure Klean®
Custom Masonry
Cleaner (1:4)**

**Sure Klean®
Custom Masonry
Cleaner (1:6)**

**Untreated
Control**



Photographs – New Construction Cleaning

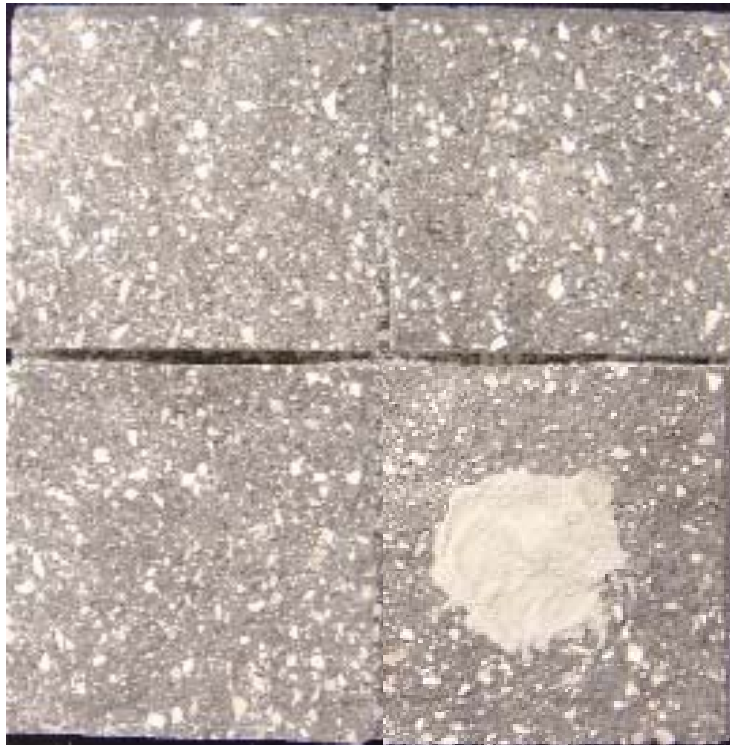
“Midnight” Split-face CMU; 14 Day Cleaning

**Sure Klean[®]
Custom Masonry
Cleaner (1:2)**

**Sure Klean[®]
Custom Masonry
Cleaner (1:4)**

**Sure Klean[®]
Custom Masonry
Cleaner (1:6)**

**Untreated
Control**



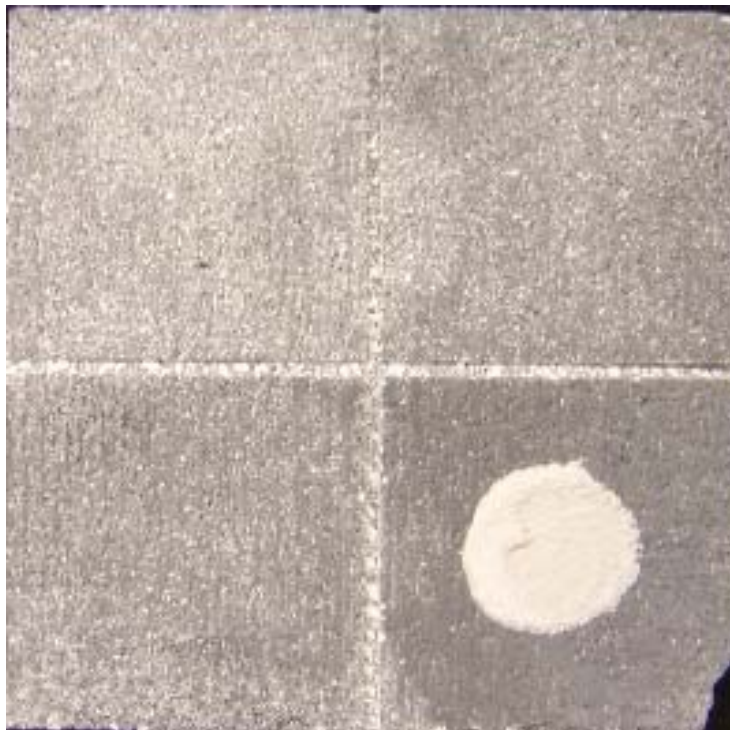
“Midnight” Smooth-face CMU; 3 Day Cleaning

**Sure Klean[®]
Custom Masonry
Cleaner (1:2)**

**Sure Klean[®]
Custom Masonry
Cleaner (1:4)**

**Sure Klean[®]
Custom Masonry
Cleaner (1:6)**

**Untreated
Control**

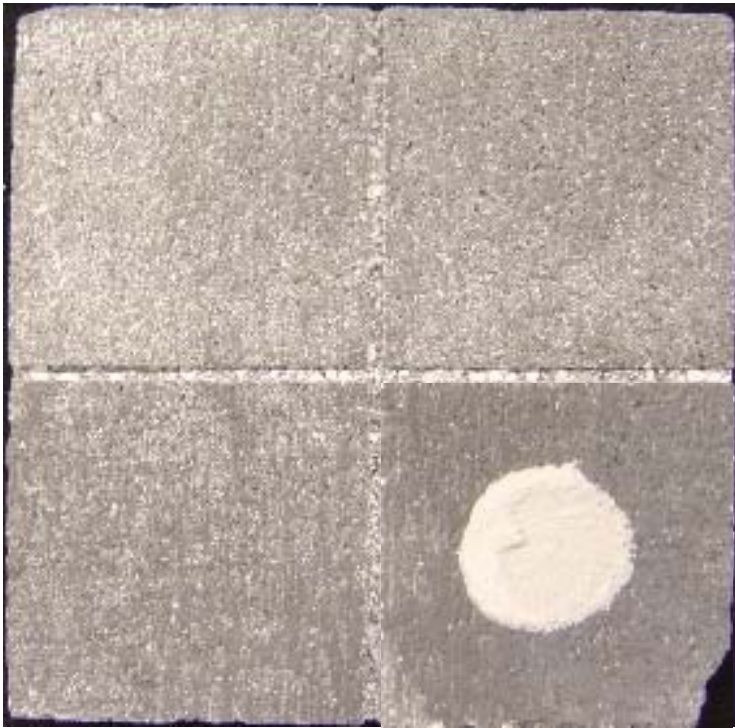


Photographs – New Construction Cleaning

“Midnight” Smooth-face CMU; 7 Day Cleaning

**Sure Klean[®]
Custom Masonry
Cleaner (1:2)**

**Sure Klean[®]
Custom Masonry
Cleaner (1:4)**



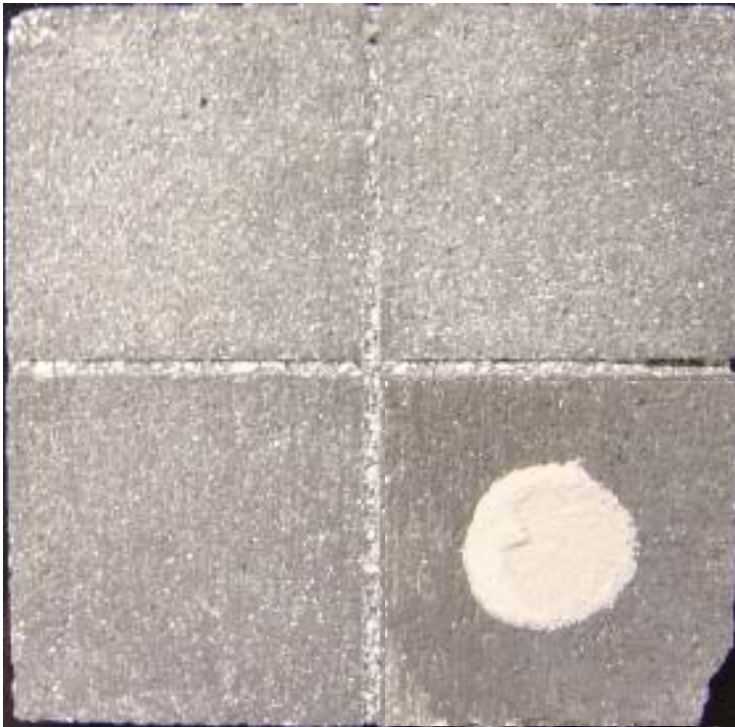
**Sure Klean[®]
Custom Masonry
Cleaner (1:6)**

**Untreated
Control**

“Midnight” Smooth-face CMU; 14 Day Cleaning

**Sure Klean[®]
Custom Masonry
Cleaner (1:2)**

**Sure Klean[®]
Custom Masonry
Cleaner (1:4)**



**Sure Klean[®]
Custom Masonry
Cleaner (1:6)**

**Untreated
Control**

Photographs – New Construction Cleaning

“Bolivar Blend” Concrete Brick; 3 Day Cleaning



| | | |
|---|---|--------------------------|
| Sure Klean® Concrete Brick Cleaner (1:2) | Sure Klean® Concrete Brick Cleaner (1:3) | Untreated Control |
|---|---|--------------------------|

“Bolivar Blend” Concrete Brick; 7 Day Cleaning



| | | |
|---|---|--------------------------|
| Sure Klean® Concrete Brick Cleaner (1:2) | Sure Klean® Concrete Brick Cleaner (1:3) | Untreated Control |
|---|---|--------------------------|

“Bolivar Blend” Concrete Brick; 14 Day Cleaning



| | | |
|---|---|--------------------------|
| Sure Klean® Concrete Brick Cleaner (1:2) | Sure Klean® Concrete Brick Cleaner (1:3) | Untreated Control |
|---|---|--------------------------|

Photographs – Color Uniformity

“Midnight” Split-face CMU; Color Uniformity

**Sure Klean®
Custom Masonry
Cleaner (1:2)**

**Sure Klean®
Custom Masonry
Cleaner (1:4)**

**Sure Klean®
Custom Masonry
Cleaner (1:6)**

**Through-
body**



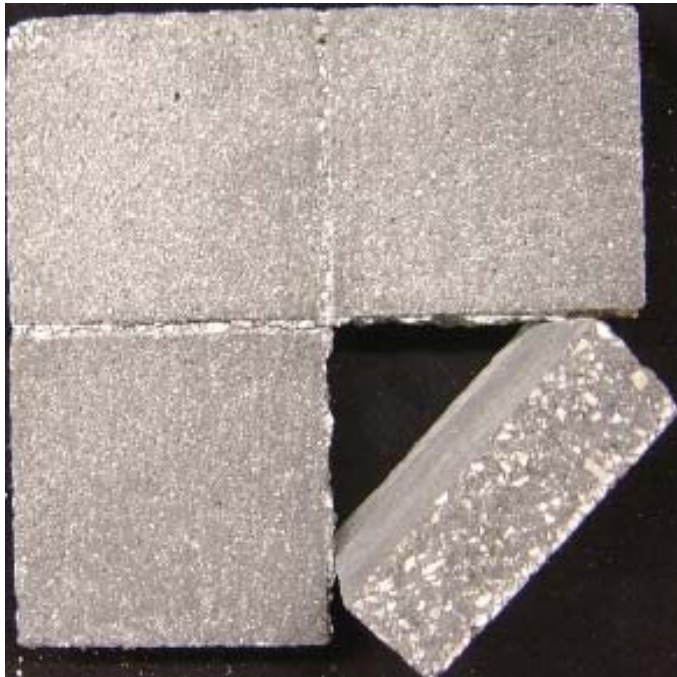
“Midnight” Smooth-face CMU; Color Uniformity

**Sure Klean®
Custom Masonry
Cleaner (1:2)**

**Sure Klean®
Custom Masonry
Cleaner (1:4)**

**Sure Klean®
Custom Masonry
Cleaner (1:6)**

**Through-
body**



Photographs – Limiting Surface Alterations**“Bolivar Blend” Concrete Brick; Limiting Surface Alterations**

**Sure Klean® Concrete
Brick Cleaner (1:2)**

**Sure Klean® Concrete
Brick Cleaner (1:3)**

Untreated Control

Conclusions – New Construction Cleaning

Based on the test data, all of the submitted CMU's were efficiently cleaned with Sure Klean® Custom Masonry Cleaner diluted with six parts water.

*All of the submitted concrete brick were efficiently cleaned with all dilutions of Sure Klean® Concrete Brick Cleaner. However, Sure Klean® Concrete Brick Cleaner diluted with both two and three parts water removed significant amounts of the sprayed-on pigment from the submitted concrete brick and is therefore not recommended for new construction cleaning operations.

Recommendations – New Construction Cleaning

Recommendations for cleaning for each type of CMU and concrete brick submitted by SEALTECH Block - Ohio Facility, Bolivar, OH are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while providing the best match to the through-body color of the submitted CMU's, or leaving the cleaned surface looking most like the untreated surface of the submitted concrete brick.

| Sample | New Construction Cleaning (Type S Mortar, 14 Day Cleaning) |
|------------------------------|---|
| All Submitted CMU's | Sure Klean® Custom Masonry Cleaner (1:6) |
| All Submitted Concrete Brick | *No Recommendations (See Conclusions Section Above) |

The most appropriate cleaner and dilution should be determined on the specific job-site, and will be dependent primarily on the nature and severity of soiling present at that location.

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 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® Custom Masonry Sealer – A clear, solvent-based silicone elastomer formulated to weatherproof custom masonry units, cast stone, architectural concrete block, pre-cast concrete, wood and porous masonry. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

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 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 samples were scored and allowed to dry for at least 24 hours prior to treatment. All treatments were applied by a wet-on-wet brushing application in accordance with the current PROSOCO, Inc. Product Data Sheet instructions and were allowed to cure for at least 72 hours.

Test Methods – Protective Water Repellents

Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes

The water absorption tube test simulating wind driven rain conditions was performed. This test simulates 60 mile per hour wind driven rain conditions for a period of 20 minutes. See Technical Services TECH Note RILEM Tube Test Procedures.

Test Results – Protective Water Repellents**Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes**

| RESULTS | |
|--|---------|
| “Antique White” Split-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 60 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Antique White” Smooth-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 60 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Brown” Split-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 59 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Brown” Smooth-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 60 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Lightweight” Smooth-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 58 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Midnight” Split-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 59 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Midnight” Smooth-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 60 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Natural” Smooth-face CMU | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 59 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |

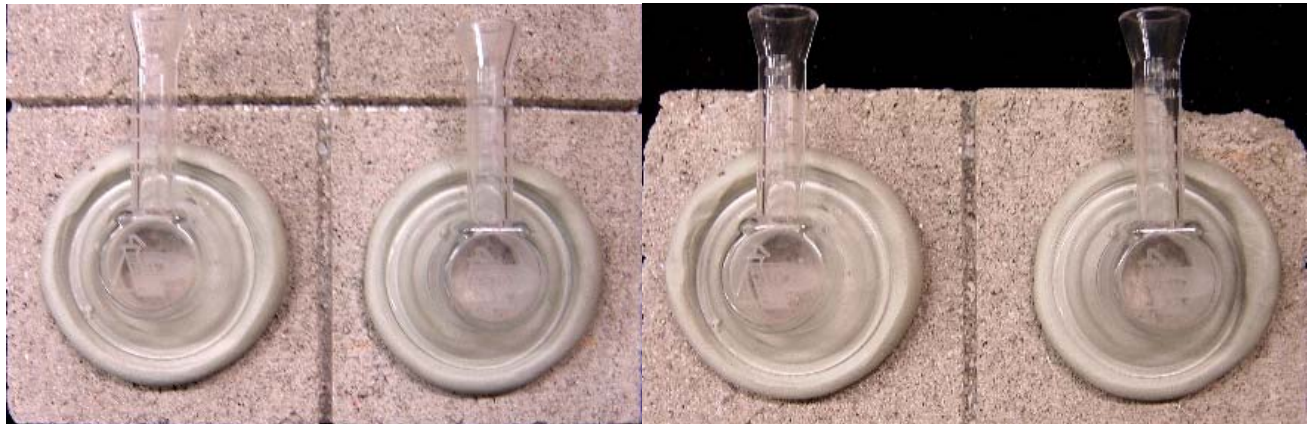
Test Results – Protective Water Repellents

Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes

| “Autumn Blend” Concrete Brick | |
|--|---------|
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 60 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |
| “Bolivar Blend” Concrete Brick | |
| Untreated Control | <40 mph |
| Sure Klean® Custom Masonry Sealer | 60 mph |
| Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | 60 mph |
| Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) | 60 mph |

Photographs – Protective Water Repellents

“Natural” Smooth-face CMU; 60 mph RILEM Testing, 20 minutes



| | | | |
|--|--------------------------|---|---|
| Sure Klean® Custom Masonry Sealer | Untreated Control | Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) |
|--|--------------------------|---|---|

Conclusions – Protective Water Repellents

Based upon laboratory evaluations, all treatments evaluated provided excellent water repellency to each of the submitted samples. In addition, Sure Klean® Custom Masonry Sealer and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II provided slight color enhancement to the submitted samples. Sure Klean® Weather Seal Siloxane WB Concentrate diluted with nine parts water did not alter the appearance of the submitted samples in any way.

Recommendations – Protective Water Repellents

Recommendations for water repellency treatment for each type of CMU and concrete brick submitted by SEALTECH Block - Ohio Facility, Bolivar, OH are provided in the chart below. Recommendations are based on the treatment that proved most effective at providing water repellency on all types submitted.

| Sample | Protective Water Repellents |
|--|--|
| All Submitted CMU's and Concrete Brick | *Sure Klean® Custom Masonry Sealer OR Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II OR Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) |

***NOTE:** Sure Klean® Custom Masonry Sealer is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not be 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. 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 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® Custom Masonry Sealer – A clear, solvent-based silicone elastomer formulated to weatherproof custom masonry units, cast stone, architectural concrete block, pre-cast concrete, wood and porous masonry. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

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

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.

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.

Graffiti Agents

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

Sample Preparation – Graffiti Control

Sections of the concrete block samples were treated with Sure Klean® Custom Masonry Sealer and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II in a wet-on-wet brushing application 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 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® Custom Masonry Sealer and 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:

| | |
|----------------------------|------------|
| Graffiti Wipe | 5 minutes |
| Fast Acting Stripper | 20 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

| “Antique White” Split-face CMU | | | | | |
|--|------------------|---------------------|---------------------|-------------------|-----------------------|
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 80% | 70% | 30% | 20% | 50% |
| Graffiti Wipe | 75% | 10% | 30% | 20% | 34% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 90% | 98% | 85% | 85% | 90% |
| Graffiti Wipe | 99% | 99% | 90% | 90% | 95% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 85% | 85% | 60% | 50% | 70% |
| Graffiti Wipe | 98% | 85% | 50% | 50% | 71% |
| “Antique White” Smooth-face CMU | | | | | |
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 85% | 70% | 30% | 20% | 51% |
| Graffiti Wipe | 98% | 30% | 20% | 20% | 42% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 98% | 99% | 90% | 95% | 96% |
| Graffiti Wipe | 99% | 99% | 90% | 95% | 96% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 98% | 85% | 70% | 50% | 76% |
| Graffiti Wipe | 99% | 80% | 70% | 50% | 75% |
| “Brown” Split-face CMU | | | | | |
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 85% | 98% | 20% | 70% | 68% |
| Graffiti Wipe | 95% | 20% | 20% | 70% | 51% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 98% | 100% | 99% | 99% | 99% |
| Graffiti Wipe | 99% | 100% | 90% | 95% | 96% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 95% | 98% | 50% | 85% | 82% |
| Graffiti Wipe | 99% | 85% | 50% | 50% | 71% |
| “Brown” Smooth-face CMU | | | | | |
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 75% | 98% | 30% | 80% | 71% |
| Graffiti Wipe | 85% | 30% | 20% | 60% | 49% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 99% | 98% | 80% | 95% | 93% |
| Graffiti Wipe | 100% | 98% | 95% | 95% | 97% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 95% | 95% | 50% | 90% | 83% |
| Graffiti Wipe | 100% | 90% | 60% | 70% | 80% |

Test Results – Graffiti Control

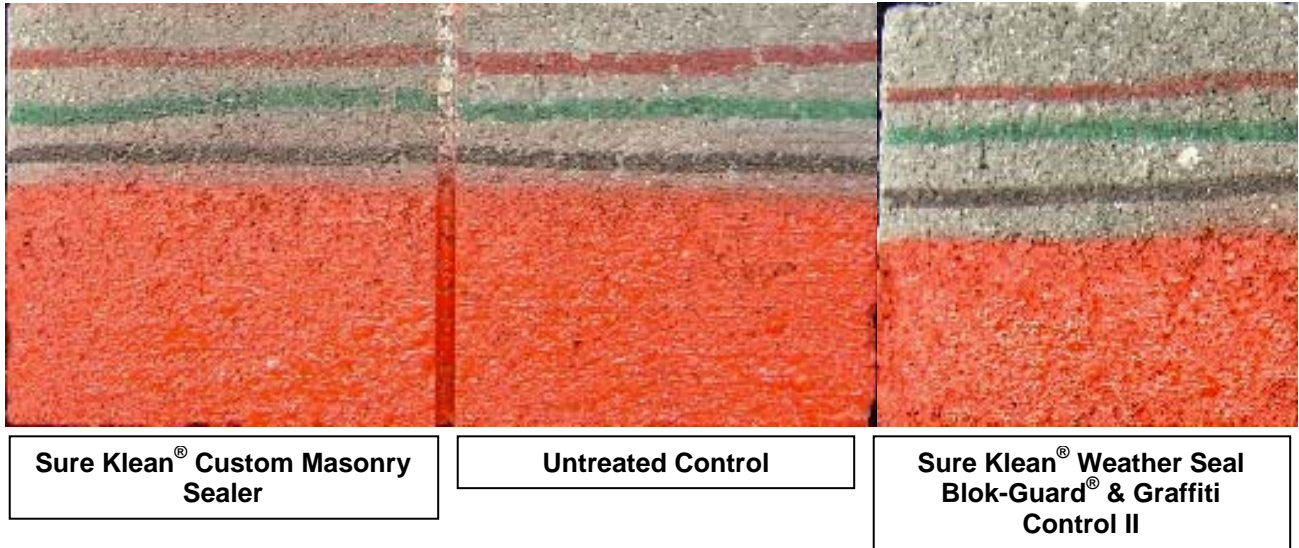
| “Lightweight” Smooth-face CMU | | | | | |
|--|------------------|---------------------|---------------------|-------------------|-----------------------|
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 85% | 90% | 80% | 50% | 76% |
| Graffiti Wipe | 85% | 20% | 50% | 40% | 49% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 98% | 95% | 85% | 85% | 91% |
| Graffiti Wipe | 99% | 90% | 85% | 80% | 89% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 85% | 98% | 85% | 85% | 88% |
| Graffiti Wipe | 99% | 80% | 85% | 50% | 79% |
| “Midnight” Split-face CMU | | | | | |
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 70% | 95% | 20% | 60% | 61% |
| Graffiti Wipe | 60% | 20% | 20% | 50% | 38% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 95% | 100% | 85% | 95% | 94% |
| Graffiti Wipe | 99% | 100% | 75% | 90% | 91% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 95% | 100% | 60% | 90% | 86% |
| Graffiti Wipe | 99% | 90% | 60% | 75% | 81% |
| “Midnight” Smooth-face CMU | | | | | |
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 75% | 95% | 80% | 90% | 85% |
| Graffiti Wipe | 50% | 20% | 30% | 50% | 38% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 95% | 100% | 90% | 95% | 95% |
| Graffiti Wipe | 99% | 95% | 80% | 90% | 91% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 95% | 100% | 80% | 95% | 93% |
| Graffiti Wipe | 99% | 90% | 30% | 60% | 70% |
| “Natural” Smooth-face CMU | | | | | |
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 75% | 75% | 40% | 30% | 55% |
| Graffiti Wipe | 50% | 20% | 20% | 30% | 30% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 90% | 95% | 85% | 85% | 89% |
| Graffiti Wipe | 99% | 70% | 80% | 50% | 75% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 90% | 85% | 50% | 70% | 74% |
| Graffiti Wipe | 99% | 40% | 50% | 50% | 60% |

Test Results – Graffiti Control

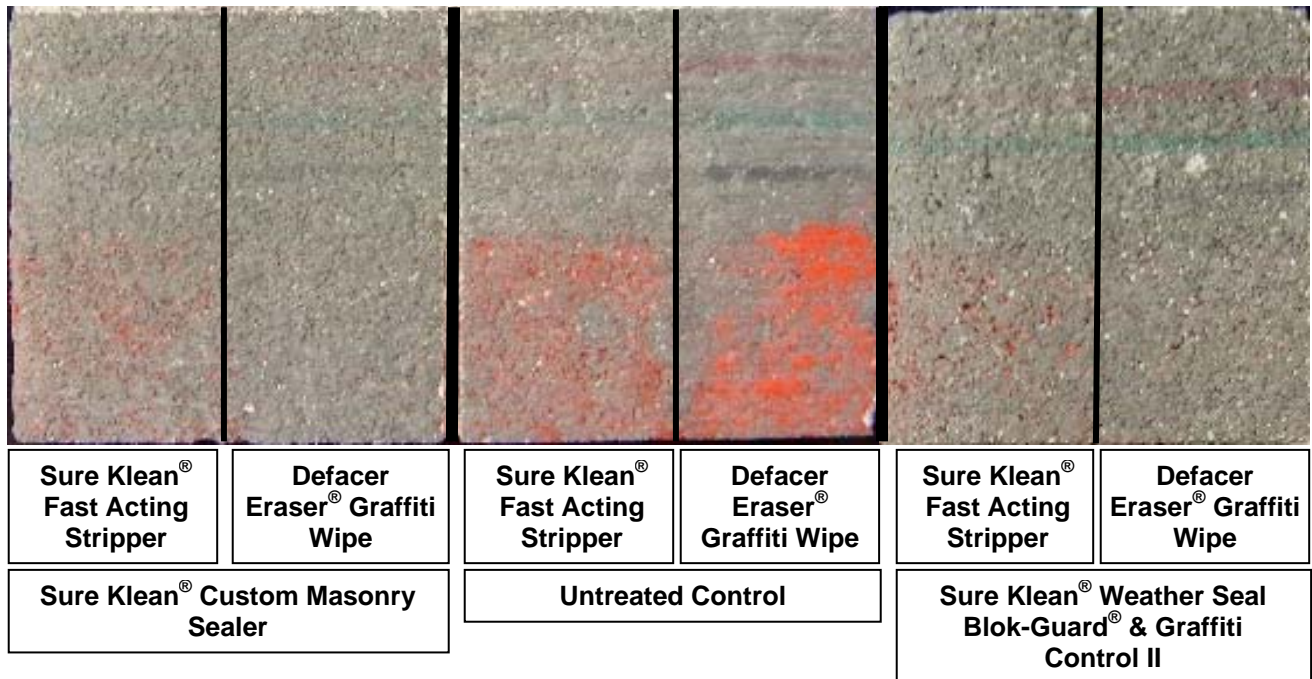
| “Autumn Blend” Concrete Brick | | | | | |
|--|------------------|---------------------|---------------------|-------------------|-----------------------|
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 85% | 90% | 60% | 70% | 76% |
| Graffiti Wipe | 90% | 10% | 20% | 20% | 35% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 98% | 99% | 70% | 90% | 89% |
| Graffiti Wipe | 100% | 70% | 30% | 70% | 68% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 95% | 95% | 70% | 90% | 88% |
| Graffiti Wipe | 100% | 80% | 30% | 70% | 70% |
| “Bolivar Blend” Concrete Brick | | | | | |
| Untreated Control | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 80% | 90% | 20% | 20% | 53% |
| Graffiti Wipe | 95% | 40% | 20% | 20% | 44% |
| Custom Masonry Sealer | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 90% | 100% | 95% | 90% | 94% |
| Graffiti Wipe | 100% | 100% | 90% | 90% | 95% |
| Blok-Guard® & Graffiti Control II | Red Paint | Black Marker | Green Marker | Red Marker | % Avg. Removal |
| Fast Acting Stripper | 90% | 100% | 50% | 95% | 84% |
| Graffiti Wipe | 100% | 90% | 50% | 80% | 80% |

Photographs – Graffiti Control

“Midnight” Smooth-face CMU; Before Graffiti Removal



“Midnight” Smooth-face CMU; After Graffiti Removal



Conclusions – Graffiti Control

Based upon laboratory evaluations, graffiti removal was improved when the submitted samples were treated with Sure Klean® Custom Masonry Sealer or Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II prior to graffiti application. In addition, both treatments provided a slight color enhancement to the submitted samples.

Recommendations – Graffiti Control

Recommendations for graffiti control treatment for each type of CMU and concrete brick submitted by SEALTECH Block - Ohio Facility, Bolivar, OH 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 submitted.

| Sample | Graffiti Repellents | Graffiti Removers |
|--|---|---|
| All Submitted CMU's and Concrete Brick | Sure Klean® Custom Masonry Sealer OR Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II | Defacer Eraser® Graffiti Wipe OR Sure Klean® Fast Acting Stripper |

***NOTE:** Sure Klean® Custom Masonry Sealer is manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). This product may not be 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.

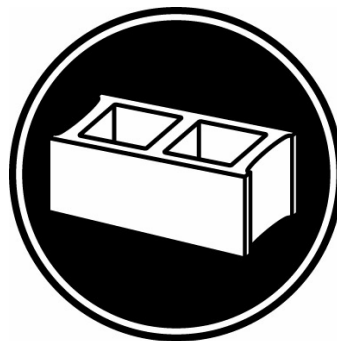


Christopher A. Moore
Project Testing Laboratory Technician
CAM



PALLET TAG PROGRAM
Laboratory Report

SEALTECH Block - Ohio Facility
509 Water Street
Bolivar, OH 44612



Project No. 0511-12 PTP

Prepared For:
PROSOCO
SINCE 1939

Prepared By:
AMT Laboratories
April 2006