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#### **ATTACHMENTS**

Attachment #1 - PHOTO A & B

Technical Services TECH Note RILEM Test Method No. II.4

Product Data literature for all products evaluated

Material Safety Data Sheets for all products evaluated





FOR: Charles Scriven Rob Poitevent

Mike Burdette Paul Tessier

**SUBJECT:** Profile Framing & Molding

Marietta, GA

**DATE:** July 20, 2001

**PROJECT:** 0106-17 BP

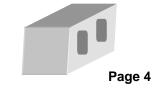
**SAMPLES SUBMITTED:** Three gray split-face concrete CMUs

Block Color Size

Concrete split-face CMU Gray 8" x 16" x 8"

Submitted by: Mike Burdette





#### PURPOSE OF TESTING

Three integrally colored, gray, split-face concrete blocks with large, small and fine aggregate were submitted for testing using PROSOCO, Inc.'s new construction cleaning and water repellent products.

**A.** Cleaning Concrete Masonry Units – Sure Klean<sup>®</sup> Custom Masonry Cleaner was tested at various dilutions for the removal of laboratory applied mortar from the CMUs.

To simulate new construction soiling, all CMUs are placed on a bench with finished surface facing upward. Hollow cylinders measuring 50 mm in diameter and 75 mm tall are positioned on top of each CMU and filled with a wet mixture of Ash Grove<sup>®</sup> Type S cementitious mortar. The wet, mortar-filled cylinder is allowed to remain in contact with the CMU for 10 minutes before removal.

Soiled CMUs are allowed to dry before test cleaning.

Heavy deposits of mortar are removed with dry scraping after 24 hours. Prepared cleaning solutions are then evaluated for their effectiveness in removing residual Ash Grove <sup>®</sup> Type S mortar staining after 3 days, 7 days, and 14 days of curing.

Refer to "\*Note: When cleaning integrally colored CMU" in the following section, "Surface Alteration Testing."

**B. Surface Alteration Testing** – Sure Klean<sup>®</sup> Fast Acting Stripper was tested to determine if its use to remove an in-plant acrylic sealer would otherwise cause any visual alterations to the surface of the CMU.

Sure Klean® Custom Masonry Cleaner was tested at various dilutions to determine if a cleaning program implemented to remove excess mortar and related new construction soiling would otherwise alter the appearance of cleaned surfaces. Surface Alteration was evaluated visually based upon perceived discoloration or erosion/etching of the masonry unit.

<u>Aggregate Exposure</u> is the visual examination of the CMU comparing aggregate exposure of the untreated control surface to surfaces cleaned with selected product(s) at given dilutions.

<u>Surface Pigment Alteration/Removal\*</u> is the visual examination of the CMU comparing the surface pigmentation of the untreated control to surfaces cleaned with selected product(s) at given dilutions.

<u>Matrix Erosion</u> is the visual examination comparing the untreated control surface to surfaces cleaned with selected products at given dilutions looking for any potential erosion/digestion of the cementitious matrix of the CMU.

<u>Staining</u> is the visual examination for changes that are the result of a chemical reaction that leaves a staining precipitate.

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

0 – no change 3 – heavy 1 – slight 4 – excessive

2 - moderate

#### \* NOTE: When cleaning integrally colored CMU.

Integrally colored concrete masonry units (CMUs) 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.

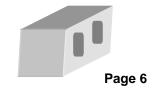
In addition to removing excess mortar and construction related soiling, the goal of any cleaning operation undertaken on integrally colored CMU should include removal of unnaturally high concentrations of surface pigment. By revealing the natural through-body color on the integrally colored unit, the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





**C. Protective Water Repellents** – Sure Klean<sup>®</sup> Custom Masonry Sealer was evaluated for its ability to provide water repellency to the submitted samples.





#### **CLEANING PRODUCTS EVALUATED**

BLOCK TYPE	Sure Klean <sup>®</sup> Custom Masonry Cleaner
	1:2
Gray split-face CMU	1:4
	1:6

#### SURFACE ALTERATION PRODUCTS EVALUATED

BLOCK TYPE	Sure Klean <sup>®</sup> Fast Acting Stripper	Sure Klean <sup>®</sup> Custom Masonry Cleaner
		1:2
Gray split-face CMU	Concentrate	1:4
		1:6

#### WATER REPELLENT PRODUCTS EVALUATED

BLOCK TYPE	PRODUCT	DILUTION
Gray split-face CMU	Sure Klean <sup>®</sup> Custom Masonry Sealer	Concentrate





#### **SECTION A – CLEANING INTEGRALLY COLORED CMUs**

#### **DESCRIPTION OF PRODUCTS EVALUATED – Cleaning**

These cleaning trials were conducted to determine the optimal cleaning/cure time combination.

**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.

#### **TEST METHOD – Cleaning**

Dilution ratios refer to mixtures of parts concentrated cleaner: parts fresh water. Chemical cleaners were evaluated using the following procedure:

- 1. Prewet the surface with water.
- 2. Apply the cleaner at the appropriate dilutions.
- 3. Allow appropriate exposure time:
  Custom Masonry Cleaner......3 minutes
- 4. Reapply the product and moderately agitate with a brush.
- 5. Pressure rinse thoroughly.\*
- 6. Allow the surface to dry for at least 18 hours and visually examine.
- \* Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.





Test Results - Cleaning

Block Type	Cleaner	Dilution Cure		Effectiveness	
		1:2		100%	
	Custom Masonry Cleaner	1:4	3 day	100%	
		1:6		100%	
		1:2		100%	
Gray split-face CMU		•	1:4	7 day	100%
		1:6		100%	
		1:2		100%	
		1:4	14 day	100%	
		1:6		100%	

#### **CONCLUSIONS – Cleaning**

Based on the test data, all of the submitted block samples were efficiently cleaned with each dilution of Sure Klean<sup>®</sup> Custom Masonry Cleaner. Use higher concentrations and surface agitation to maximize aggregate exposure. Use low concentration and minimal surface agitation to minimize aggregate exposure.

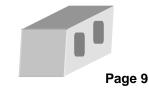
All dilutions of Sure Klean<sup>®</sup> Custom Masonry Cleaner tested affected the substrate in a similar manner, removing heavy concentrations of pigmented matrix from the split-face CMUs, exposing small and large aggregate, and enhancing the natural appearance of the integrally colored concrete masonry unit.

#### **RECOMMENDED PRODUCTS AND DILUTIONS – Cleaning**

Based on these evaluations, all of the dilutions of Sure Klean<sup>®</sup> Custom Masonry Cleaner tested can be recommended for job-site testing on the gray split-face CMUs submitted by Profile Framing & Molding, Marietta, GA. They all are effective in removing excess mortar, and they all assist in improving the color and uniformity of these concrete blocks. 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.

Note: To remove excess mortar while minimizing aggregate exposure and color enhancement, clean within 7 days of completion using Custom Masonry Cleaner diluted with 6 parts fresh water.





**SECTION B - SURFACE ALTERATIONS** 

#### **DESCRIPTION OF PRODUCTS EVALUATED - Surface Alterations**

**Sure Klean** Fast Acting Stripper – A thixotropic stripping compound designed for removing coatings and epoxies from masonry, wood and metal surfaces. It also removes oil, grease and waxes from concrete decks, tile and terrazzo floors. Fast Acting Stripper dissolves most spray paints, marking pens, lacquers and other graffiti.

**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.

#### **TEST METHOD - Surface Alterations**

Dilution ratios refer to mixtures of parts concentrated cleaner: parts fresh water. Chemical cleaners were evaluated using the following procedure:

#### **Procedure: (Fast Acting Stripper)**

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

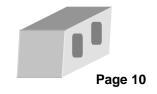
- Pressure rinse thoroughly until water runs clear.\*
- 4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

#### **Procedure: (Custom Masonry Cleaner)**

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

- 4. Reapply the products and moderately agitate with a brush.
- 5. Pressure rinse thoroughly.\*
- 6. Allow the surface to dry for at least 18 hours and visually examine.
- \* Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.





#### **TEST RESULTS – Surface Alterations**

Substrate: Split-face CMU	Pigment Color: Gray				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Fast Acting Stripper	Conc.	0	0	0	0
Custom Masonry Cleaner	1:2	1	1	1	0
Custom Masonry Cleaner	1:4	1	1	1	0
Custom Masonry Cleaner	1:6	0	1	0	0

Scale used for reporting results of all categories

0 – no change

3 – heavy

1 – slight

4 - excessive

2 - moderate

#### **CONCLUSIONS - Surface Alterations**

Based on the test data, Sure Klean<sup>®</sup> Fast Acting Stripper would cause no visual surface alterations to the split-face CMUs if it were used to remove an in-plant acrylic sealer.

All dilutions of Sure Klean<sup>®</sup> Custom Masonry Cleaner tested affected the substrate in a similar manner, removing heavy concentrations of pigmented matrix from the split-face CMUs, exposing small and large aggregate, and enhancing the natural appearance.

NOTE: See Attachment #1 (page 13) "PHOTO A" for visual surface alterations.

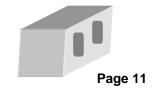
#### **RECOMMENDED PRODUCTS AND DILUTIONS – Surface Alterations**

Based on these evaluations, Sure Klean<sup>®</sup> Fast Acting Stripper can be recommended for job-site testing on the submitted CMUs to remove an in-plant acrylic sealer.

All of the dilutions of Sure Klean<sup>®</sup> Custom Masonry Cleaner tested can be recommended for job-site testing on the gray split-face CMUs submitted Profile Framing & Molding, Marietta, GA. They all are effective in removing excess mortar and assist in improving the color and uniformity of these concrete bricks. 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.

NOTE: To remove excess mortar while minimizing aggregate exposure and color enhancement, clean within 7 days of completion using Custom Masonry Cleaner diluted with 6 parts fresh water.





#### <u>SECTION C – PROTECTIVE WATER REPELLENTS</u>

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

#### **DESCRIPTIONS OF PRODUCTS EVALUATED – Protective Water Repellents**

**Sure Klean**<sup>®</sup> **Custom Masonry Sealer** – A clear, solvent-based silicone elastomer formulated to weatherproof custom masonry units, cast stone, and concrete block without altering the natural appearance. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering as well as long-lasting protection against many types of graffiti.

#### **SAMPLE PREPARATION – Protective Water Repellents**

The submitted blocks were scored, allowed to dry, and to reabsorb atmospheric humidity for 24 hours prior to treatment. The treatment method consisted of a wet-on-wet brush application. All treatments were allowed to cure at least 14 days prior to testing.

#### **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.





#### **TEST RESULTS – Protective Water Repellents**

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

	RESULTS
Gray Split-face CM	J
Untreated Control	<40 mph
Custom Masonry Sealer	60 mph

#### **CONCLUSIONS – Protective Water Repellents**

Based upon laboratory evaluations, Sure Klean<sup>®</sup> Custom Masonry Sealer provided above average water repellency on the submitted gray split-face CMU. Sure Klean<sup>®</sup> Custom Masonry Sealer also enhanced the color of the CMU.

NOTE: See Attachment 1 (page 13) "PHOTO B" for visual color enhancement.

#### **RECOMMENDATIONS – Protective Water Repellents**

Based on evaluations, Sure Klean<sup>®</sup> Custom Masonry Sealer can be recommended for job-site testing on the gray split-face CMU submitted by Profile Framing & Molding, Marietta, GA.

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.

Jason L. Anderson

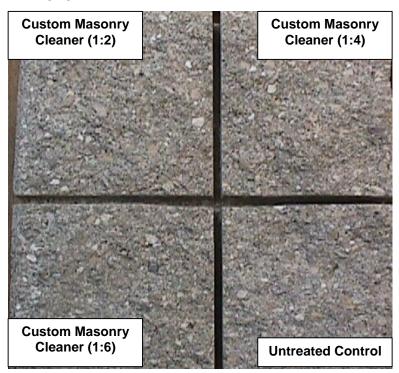
Materials Testing Technician

Jason La anderson

JLA/csm

#### Attachment #1

PHOTO A



РНОТО В





### Laboratory Report

### **Block Program Evaluation**

# Profile Framing & Molding Marietta, GA

Project No. 0106-17 BP

Prepared For:

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1815 Jackson Creek Drive NE
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Prepared By:



PROSOCO, Inc. July 2001