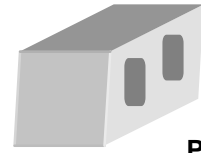




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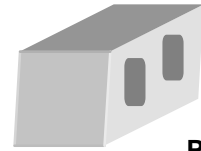
Attachment #1 – PHOTO A & B

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

Product Data literature for all products evaluated



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FOR: Larry Wolf
cc: Mark Williams, Manufacturer's Representative, Specialty Materials, Inc.
Steve Dean
Paul Tessier

SUBJECT: Modern Concrete
Louisville, KY

DATE: September 11, 2001

PROJECT: 0108-04 BP

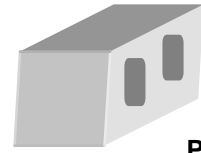
SAMPLES SUBMITTED: Five different colors of concrete split-face CMUs (faces only)

<u>Sample</u>	<u>Color</u>	<u>Size</u>
(3) Split-face CMU	"Light Gray"	8" x 8" x 16"
(3) Split-face CMU	"Dark Gray"	8" x 8" x 16"
(3) Split-face CMU	"Maroon"	8" x 8" x 16"
(3) Split-face CMU	"Tan"	8" x 8" x 16"
(3) Split-face CMU	"Light Brown"	8" x 8" x 16"

Submitted by: Steve Dean



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PURPOSE OF TESTING

Five different integrally colored split-face CMUs 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[®] 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[®] 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[®] 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[®] 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.

Aggregate Exposure 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.

Surface Pigment Alteration/Removal* 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.

Matrix Erosion 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.

Staining 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.**

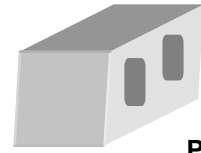
Integrally colored concrete masonry units (CMUs) frequently have high amounts of pigments concentrated on the surface of the cured concrete unit. Variation of surface pigment concentrations from one CMU to the next creates a blotchy appearance in the completed wall. Allowed to remain on the surface of 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[®] Custom Masonry Sealer was evaluated for its ability to provide water repellency to the submitted samples.



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CLEANING PRODUCTS EVALUATED

SAMPLE	Sure Klean [®] Custom Masonry Cleaner
All colors of split-face CMUs	1:2
	1:4
	1:6

SURFACE ALTERATION PRODUCTS EVALUATED

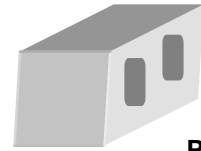
SAMPLE	Sure Klean [®] Custom Masonry Cleaner
All colors of split-face CMUs	1:2
	1:4
	1:6

WATER REPELLENT PRODUCTS EVALUATED

SAMPLE	PRODUCT
All colors of split-face CMUs	Sure Klean [®] Custom Masonry Sealer



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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

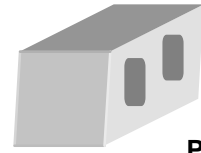
Dilution ratios refer to mixtures of parts concentrated cleaner : parts fresh water. Chemical cleaners were evaluated using the following procedure:

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.



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Test Results – Cleaning

Sample	Cleaner	Dilution	Cure	Effectiveness
All colors of split-face CMUs	Custom Masonry Cleaner	1:2	3 day	100%
		1:4		100%
		1:6		100%
		1:2	7 day	100%
		1:4		100%
		1:6		100%
		1:2	14 day	100%
		1:4		100%
		1:6		100%

CONCLUSIONS – Cleaning

Based on the test data, all of the submitted CMUs were efficiently cleaned with each dilution of Sure Klean[®] Custom Masonry Cleaner. Use higher concentrations and surface agitation to maximize aggregate exposure. Use low concentration and surface agitation to minimize aggregate exposure.

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

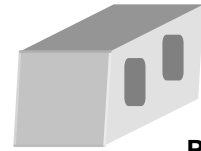
RECOMMENDED PRODUCTS AND DILUTIONS – Cleaning

Based on these evaluations, all dilutions of Sure Klean[®] Custom Masonry Cleaner tested can be recommended for job-site testing on the split-face CMUs submitted by Modern Concrete, Louisville, KY. They all are effective in removing excess mortar, and they all assist in improving the color and uniformity of these CMUs. 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 Sure Klean[®] Custom Masonry Cleaner diluted with 6 parts fresh water.



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SECTION B – SURFACE ALTERATIONS

DESCRIPTION OF PRODUCTS EVALUATED – Surface Alterations

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

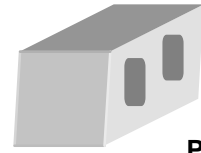
Dilution ratios refer to mixtures of parts concentrated cleaner : parts fresh water. Chemical cleaners were evaluated using the following procedure:

1. Prewet the surface with water.
2. Apply the cleaner at the appropriate dilutions.
3. Allow appropriate exposure time:
Custom Masonry Cleaner3 minutes
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.



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TEST RESULTS – Surface Alterations

Substrate: Split-face CMU		Pigment Color: “Light Gray”			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	1	2	1	0
Custom Masonry Cleaner	1:4	1	2	1	0
Custom Masonry Cleaner	1:6	1	2	1	0
Substrate: Split-face CMU		Pigment Color: “Dark Gray”			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	2	2	2	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	2	2	2	0
Substrate: Split-face CMU		Pigment Color: “Maroon”			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	2	2	2	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	2	2	2	0
Substrate: Split-face CMU		Pigment Color: “Tan”			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	1	1	1	0
Custom Masonry Cleaner	1:4	1	1	1	0
Custom Masonry Cleaner	1:6	1	1	1	0
Substrate: Split-face CMU		Pigment Color: “Light Brown”			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	1	2	1	0
Custom Masonry Cleaner	1:4	1	2	1	0
Custom Masonry Cleaner	1:6	1	2	1	0

Scale used for reporting results of all categories

0 – no change

1 – slight

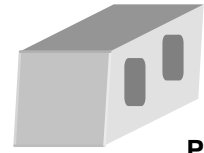
2 – moderate

3 – heavy

4 – excessive



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CONCLUSIONS – Surface Alterations

Based on test data, all dilutions of Sure Klean[®] Custom Masonry Cleaner tested affected the substrate in a similar manner, removing heavy concentrations of pigmented matrix from all of the CMUs, exposing small and large aggregate, and enhancing the natural appearance.

NOTE: See Attachment #1 “PHOTO A” for visual surface alterations.

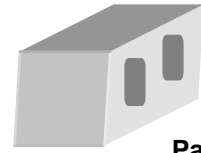
RECOMMENDED PRODUCTS AND DILUTIONS – Surface Alterations

Based on these evaluations, all dilutions of Sure Klean[®] Custom Masonry Cleaner tested can be recommended for job-site testing on the split-face CMUs submitted by Modern Concrete, Louisville, KY. They all are effective in removing excess mortar and assist in improving the color and uniformity of these CMUs. 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 Sure Klean[®] Custom Masonry Cleaner diluted with 6 parts fresh water.



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SECTION C – 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

DESCRIPTIONS 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, 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. Those CMUs requiring a second application were treated with the same procedure as above and then a second application was applied 1 hour later. All treatments were allowed to cure at least 72 hours prior to testing.

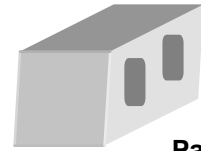
TEST METHODS – Protective Water Repellents

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.



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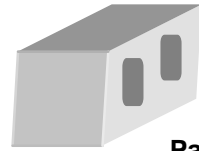
TEST RESULTS – Protective Water Repellents

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

	RESULTS
Split-face CMU "Light Gray"	
Untreated Control	<40 mph
Custom Masonry Sealer	60 mph
Split-face CMU "Dark Gray"	
Untreated Control	<40 mph
Custom Masonry Sealer	<40 mph
Custom Masonry Sealer (2 apps.)	<40 mph
Split-face CMU "Maroon"	
Untreated Control	<40 mph
Custom Masonry Sealer	60 mph
Split-face CMU "Tan"	
Untreated Control	<40 mph
Custom Masonry Sealer	56 mph
Split-face CMU "Light Brown"	
Untreated Control	<40 mph
Custom Masonry Sealer	60 mph



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CONCLUSIONS – Protective Water Repellents

Based upon laboratory evaluations, Sure Klean[®] Custom Masonry Sealer provided above average water repellency on all of the submitted split-face CMUs except for sample “dark gray”. Sure Klean[®] Custom Masonry Sealer also enhanced the natural color of the CMUs.

NOTE: See Attachment #1 “PHOTO B” for visual color enhancement.

RECOMMENDATIONS – Protective Water Repellents

Based on evaluations, Sure Klean[®] Custom Masonry Sealer can be recommended for job-site testing on all of the split-face CMUs except for sample “dark gray”, submitted by Modern Concrete, Louisville, KY.

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

JLA/

Attachment #1

PHOTO A – “Maroon” after cleaning

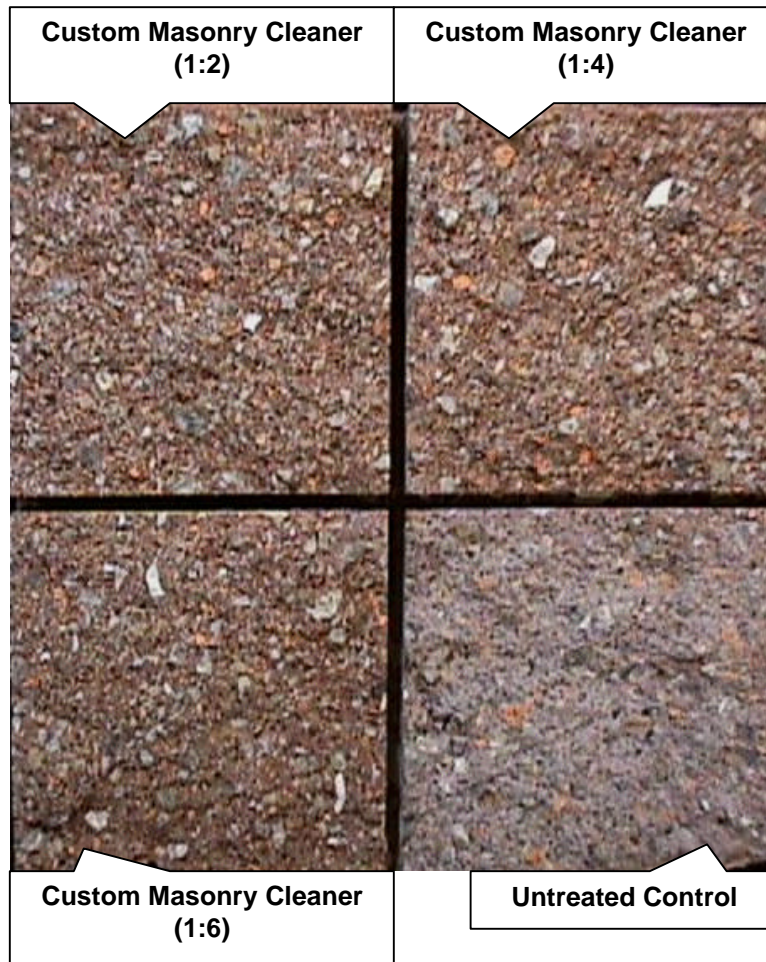
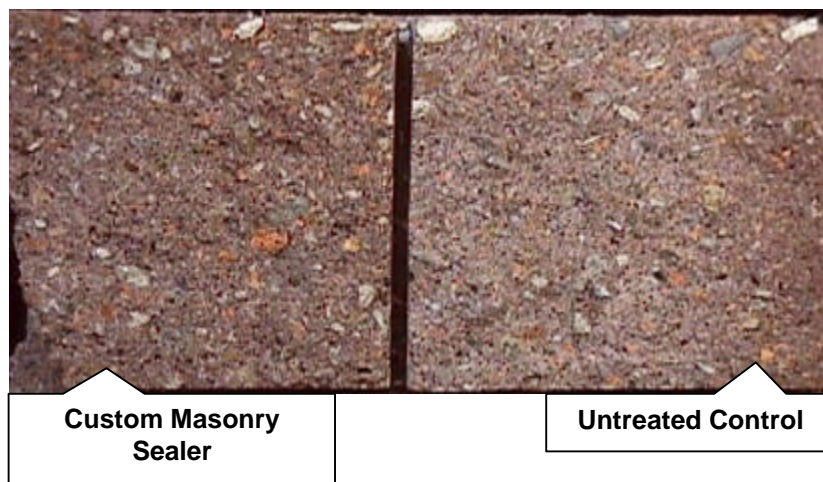
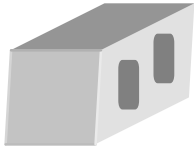


PHOTO B – “Maroon” with Custom Masonry Sealer





Laboratory Report

Block Program Evaluation

**Modern Concrete
Louisville, KY**

Project No. 0108-04 BP

Prepared For:

**Larry Wolf
Modern Concrete
2304 Ralph Ave.
Louisville, KY 40256**

Prepared By:



***PROSOCO, Inc.
September 2001***