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Product Data literature for all products evaluated

Material Safety Data Sheets for all products evaluated





FOR:Lars NelsonCc:Robert BernardoRichard MirowskiMike DickeySUBJECT:White Block Company
6219 E Trent
Spokane, WA 99212

DATE: March 20, 2001

PROJECT: 0102-01 BP

SAMPLES SUBMITTED: 8 different CMU faces

Block	<u>Color</u>	Size
Split-face CMU (face only)	"Khaki"	8" x 16" x 2"
Smooth face CMU (face only)	"Khaki"	8" x 16" x 2"
Split-face CMU (face only)	"Natural"	8" x 16" x 2"
Smooth face CMU (face only)	"Natural"	8" x 16" x 2"
Split-face CMU (face only)	"Ebony"	8" x 16" x 2"
Smooth face CMU (face only)	"Ebony"	8" x 16" x 2"
Split-face CMU (face only)	"Sangria Taupe"	8" x 16" x 2"
Smooth face CMU (face only)	"Sangria Taupe"	8" x 16" x 2"

Submitted by :

Macon Supply, Inc.





PURPOSE OF TESTING:

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

A. Cleaning Concrete Masonry Units: Sure Klean[®] Custom Masonry Cleaner and Sure Klean[®] Burnished Custom Masonry Cleaner were evaluated for removal of laboratory applied mortar.

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 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 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 and Sure Klean[®] Burnished Custom Masonry Cleaner were 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 Alterations were 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[®] Custom Masonry Sealer and Sure Klean[®] Weather Seal Siloxane WB Concentrate were evaluated for their ability to provide water repellency to the submitted samples using RILEM method II.4





CLEANING PRODUCTS EVALUATED

BLOCK TYPE	Custom Masonry Cleaner	Burnished Custom Masonry Cleaner
	1:2	1:2
All Colors of Split-face CMUs	1:4	
	1:6	1:3
BLOCK TYPE	Custom Masonry Cleaner	Burnished Custom Masonry Cleaner
	1:2	1:2
All Colors of Smooth Face CMUs	1:4	
	1:6	1:3

SURFACE ALTERATION PRODUCTS EVALUATED

BLOCK TYPE	Custom Masonry Cleaner	Burnished Custom Masonry Cleaner
	1:2	1:2
All Colors of Split-face CMUs	1:4	
	1:6	1:3
BLOCK TYPE	Custom Masonry Cleaner	Burnished Custom Masonry Cleaner
BLOCK TYPE	Custom Masonry Cleaner 1:2	Burnished Custom Masonry Cleaner 1:2
BLOCK TYPE All Colors of Smooth Face CMUs		

WATER REPELLENT PRODUCTS EVALUATED

BLOCK TYPE	Product	Dilution
All Colors of Split-face	Custom Masonry Sealer	Concentrate
CMUs	Siloxane WB	1:9
BLOCK TYPE	Product	Dilution
All Colors of Smooth Face	Custom Masonry Sealer	Concentrate
CMUs	Siloxane WB	1:9





SECTION A - CLEANING INTEGRALLY COLORED CMUs

DESCRIPTION OF PRODUCTS EVALUATED

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.

Sure Klean[®] Burnished Custom Masonry Cleaner – A general purpose, nonetching acidic cleaner for custom masonry and colored concrete. Removes rust, mud, oil, atmospheric dirt, and other stains without altering the surface texture. Liquid concentrate for dilution with 2-3 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 each cleaner at the appropriate dilutions.
- 4. Reapply the products and moderately agitate with a brush.
- 5. Pressure rinse thoroughly.*

* 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%
		1:4	3 Days	99%
All Colors of	Custom Masonry	1:6		99%
Split-face CMUs	Cleaner	1:2		100%
		1:4	14 Days	99%
		1:6		99%
		1:2	2 Dava	99%
All Colors of	Burnished Custom	1:3	3 Days	99%
Split-face CMUs	Masonry Cleaner	1:2		99%
		1:3	14 Days	99%
		1:2		100%
		1:4	3 Days	100%
All Colors of	Custom	1:6		99%
Smooth Face CMUs	Masonry Cleaner	1:2		100%
		1:4	14 Days	100%
		1:6		99%
		1:2		99%
All Colors of	Burnished Custom	1:3	3 Days	98%
Smooth Face CMUs	Masonry Cleaner	1:2		99%
		1:3	14 Days	98%





CONCLUSIONS - Cleaning:

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

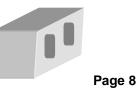
All dilutions of Sure Klean[®] Custom Masonry Cleaner and Sure Klean[®] Burnished Custom Masonry Cleaner tested affected the substrate in a similar manner, removing heavy concentrations of pigmented matrix from the rough and smooth block faces, exposing small and large aggregate, and enhancing the natural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

RECOMMENDED PRODUCTS AND DILUTIONS - CLEANING:

Based on these evaluations, all of the dilutions of Sure Klean[®] Custom Masonry Cleaner and Sure Klean[®] Burnished Custom Masonry Cleaner tested can be recommended for job site testing. 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 or Burnished Custom Masonry Cleaner diluted with 3 parts fresh water.





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.

Sure Klean[®] Burnished Custom Masonry Cleaner – A general purpose, nonetching acidic cleaner for custom masonry and colored concrete. Removes rust, mud, oil, atmospheric dirt, and other stains without altering the surface texture. Liquid concentrate for dilution with 2-3 parts water. Apply by brush or low-pressure spray.

TEST METHOD – Surface Alteration Testing:

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

Sure Klean[®] Custom Masonry Cleaner evaluated at dilution 1:2, 1:4, and 1:6. Sure Klean[®] Burnished Custom Masonry Cleaner evaluated at dilutions 1:2 and 1:3. The following procedure was used:

- 1. Prewet the surface with water.
- 2. Apply each cleaner at the appropriate dilutions.
- 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.





Surface Alteration Results:

Substrate: Split-face CMU	Pigment Co	olor: "Khaki"			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Smooth Face CMU	Pigment Co	olor: "Khaki"			I
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Split-face CMU	Pigment Co	olor: "Natural"			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Smooth Face CMU	Pigment Color: "Natural"			•	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0

Scale used for reporting results of all categories

0 – no change

1 – slight

2 – moderate

3 – heavy

4 – excessive

z – moderate





Surface Alteration Results Continued:

Substrate: Split-face CMU	Pigment Co	olor: "Ebony"			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Smooth Face CMU	Pigment Co	olor: "Ebony"			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Split-face CMU	Pigment Co	olor: "Sangria	Taupe"		
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0
Substrate: Smooth Face CMU	Pigment Co	olor: "Sangria		-	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/ Removal	Matrix Erosion	Staining
Custom Masonry Cleaner	1:2	3	2	3	0
Custom Masonry Cleaner	1:4	2	2	2	0
Custom Masonry Cleaner	1:6	1	2	1	0
Burnished Custom Masonry Clnr	1:2	1	1	1	0
Burnished Custom Masonry Clnr	1:3	1	1	1	0

Scale used for reporting results of all categories

- 0 no change
- 1 slight

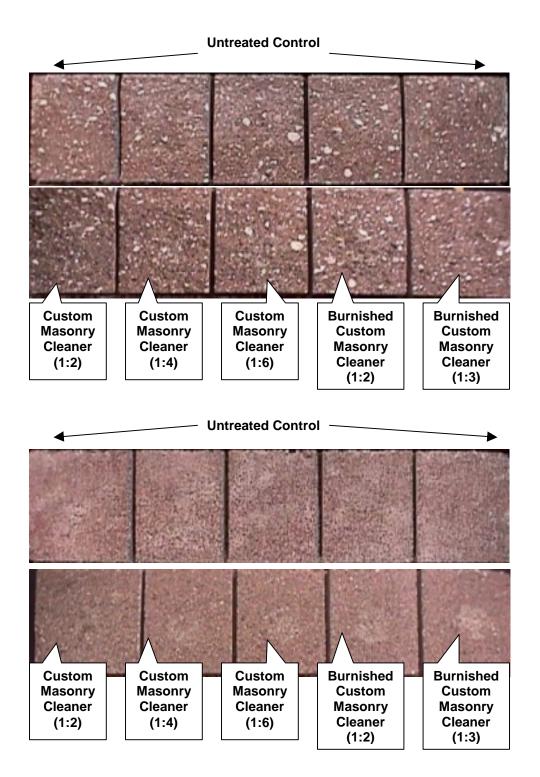
2 – moderate

- 3 heavy
- 4 excessive





Photos of "Sangria Taupe" after 3 day cleaning:







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.

Sure Klean[®] Weather Seal Siloxane WB Concentrate – A self-emulsifying water-repellent concentrate designed for dilution with fresh water at the jobsite. This solvent-free blend of silanes and oligomeric alkoxysiloxanes 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 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 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.





TEST RESULTS - Protective Water Repellents:

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

"Khaki" Split-fa	ace	
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	57 mph	
"Khaki" Smooth Face		
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	60 mph	
"Natural" Split-1	ace	
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	56 mph	
"Natural" Smooth	Face	
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	60 mph	





TEST RESULTS Continued- Protective Water Repellents:

"Ebony" Split-face		
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	<40 mph	
"Ebony" Smooth Face		
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	60 mph	
"Sangria Taupe" Sp	lit-face	
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	56 mph	
"Sangria Taupe" Smooth Face		
Treatment	Results	
Untreated Control	<40 mph	
Custom Masonry Sealer	60 mph	
Siloxane WB (1:9)	60 mph	





Photos of "Sangria Taupe" after water repellent treatment:

Split-face





Smooth face





CONCLUSIONS - Protective Water Repellents:

Based upon laboratory evaluations, Sure Klean[®] Custom Masonry Sealer and Sure Klean[®] Weather Seal Siloxane WB Concentrate at a 1:9 dilution were able to provide adequate water repellency when applied to the various styles of submitted CMUs from White Block Company in Spokane, WA. Sure Klean[®] Custom Masonry Sealer slightly enhanced the natural appearance of the substrate; while Sure Klean[®] Weather Seal Siloxane WB Concentrate at a 1:9 dilution did not alter the CMUs' appearance in any way.

RECOMMENDATIONS - Protective Water Repellents:

Based on evaluations, Sure Klean[®] Custom Masonry Sealer and Sure Klean[®] Weather Seal Siloxane WB Concentrate at a 1:9 dilution can be recommended for jobsite testing on all block types submitted by the White Block Company.

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.

Jaron & anderson

Jason L. Anderson Technical Services Analyst

JLA/csm



Laboratory Report

Block Program Evaluation

White Block Company Spokane, WA

Project No. 0102-01 BP

Prepared For:

Lars Nelson Macon Supply, Inc. 4000 E. Boone Spokane, WA 99202

Prepared By:



PROSOCO, Inc. March 2001