



# PALLET TAG PROGRAM LABORATORY REPORT



**PROSOCO, Inc.**

Page 1

## TABLE OF CONTENTS

SAMPLES SUBMITTED.....	2
PURPOSE OF TEST .....	3
PRODUCTS EVALUATED.....	4

### SECTION A – CLEANING INTEGRALLY COLORED CMU's

DESCRIPTION OF PRODUCTS EVALUATED.....	5
TEST METHOD.....	5
TEST RESULTS .....	6
CONCLUSIONS .....	7
RECOMMENDATIONS .....	7

### SECTION B – COLOR UNIFORMITY

DESCRIPTION OF PRODUCTS EVALUATED.....	8
TEST METHOD.....	8
TEST RESULTS .....	9-10
PHOTOGRAPHS OF CMU AFTER COLOR UNIFORMITY TESTING .....	10
CONCLUSIONS .....	11
RECOMMENDATIONS .....	11

### SECTION C - PROTECTIVE WATER REPELLENTS

DESCRIPTION OF PRODUCTS EVALUATED.....	12
TEST METHODS.....	12
TEST RESULTS .....	13
PHOTOGRAPHS OF CMU AFTER APPLICATION OF TREATMENTS .....	14
CONCLUSIONS .....	14
RECOMMENDATIONS .....	15

### ATTACHMENTS

- Technical Services TECH Note RILEM Test Method No. II.4
- Product Data literature for all products evaluated



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 2

**FOR:** Robert Coriell  
**cc:** Mark Williams  
Perry Surber  
John Bourne  
Stephen Dean

**SUBJECT:** Portsmouth Block

**DATE:** August 9, 2002

**PROJECT:** 0205-13 PTP

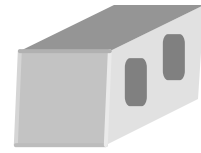
**SAMPLES SUBMITTED:**

<u>Block</u>	<u>Color</u>	<u>Size</u>
(3) Smooth-face CMU's	"Pewter"	15 ¾ " x 2 ¼ " x 7 ½ "
(3) Fluted rough CMU's	"Gray"	15 ¾ " x 3 ½ " x 7 ½ "
(2) Split-face CMU's	"Gray"	15 ¾ " x 2 ¼ " x 7 ½ "
(3) Split-face CMU's	"Buff"	15 ¾ " x 2 ¼ " x 7 ½ "
(3) Double Split-face CMU's	"Buff"	15 ¾ " x 2 ¼ " x 7 ½ "

**Submitted by:** Roger Coriell  
Portsmouth Block  
2700 Gallia St.  
Portsmouth, OH 45662



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 3

## PURPOSE OF TESTING:

Five types integrally colored concrete blocks; one fluted, three split-face, and one smooth-face 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<sup>®</sup> New Construction Cleaners were evaluated for removal of laboratory applied mortar.

To simulate new construction soiling, all CMU's 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 mortar. The wet, mortar-filled cylinder is allowed to remain in contact with the CMU for 10 minutes before removal.

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.

**B. Color Uniformity Testing\*** - Sure Klean<sup>®</sup> Custom Masonry Cleaner and Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner were tested at various dilutions to determine the optimal concentration of cleaner that leaves the external surface looking most like the natural through-body color of the CMU. Color uniformity was evaluated by comparing aggregate exposure and surface pigment alternation/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 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 unit to surfaces cleaned with selected product(s) at given dilutions.

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

0 – <b>Worst</b> match to through-body	3 – <b>Good</b> match to through-body
1 – <b>Poor</b> match to through-body	4 – <b>Best</b> match to through-body
2 – <b>Fair</b> match to through-body	

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

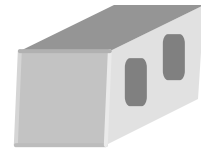
Integrally colored concrete masonry units (CMU's) frequently have high amounts of pigments concentrated on the surface of the cured concrete unit. Variation of surface pigment concentrations from one CMU to the next creates a blotchy appearance in the completed wall. Allowed to remain on the surface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



# PALLET TAG PROGRAM LABORATORY REPORT



**PROSOCO, Inc.**

Page 4

**PRODUCTS EVALUATED FOR CLEANING AND COLOR UNIFORMITY**

BLOCK TYPE	Sure Klean <sup>®</sup> Custom Masonry Cleaner	Sure Klean <sup>®</sup> Burnished Custom Masonry Cleaner
"Gray" Fluted Rough "Buff" Split-face "Buff" Double Split-face CMU's	1:2	1:2
	1:4	
	1:6	1:3
"Gray" Split-face "Pewter" Smooth-face CMU's	1:2	
	1:4	
	1:6	

\*Due to insufficient samples, Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner was not testing on types "Gray" Split-face and "Pewter" Smooth-face CMU's.

**WATER REPELLENT PRODUCTS EVALUATED**

Block Type	Product	Dilution
All Colors and types of submitted CMU's	Sure Klean <sup>®</sup> Custom Masonry Sealer	Concentrate



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 5

## SECTION A – CLEANING INTEGRALLY COLORED CMU's

### DESCRIPTION OF PRODUCTS EVALUATED

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

**Sure Klean<sup>®</sup> 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<sup>®</sup> Burnished Custom Masonry Cleaner** – A general purpose, non-etching acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears 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:

Sure Klean<sup>®</sup> Custom Masonry Cleaner was evaluated at dilutions 1:2, 1:4, and 1:6 and Sure Klean Burnished Custom Masonry Cleaner was 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.
3. Allow appropriate dwell time for each cleaner:
 

Custom Masonry Cleaner .....	3 minute
Burnished Custom Masonry Cleaner .....	5 minute
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.



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 6

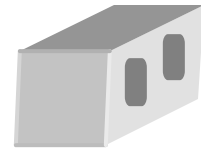
**Test Results – Cleaning**

% removal

<b>“Pewter” Smooth-face CMU</b>				
Product	Dilution	<b>14 day</b>		
Custom Masonry Cleaner	1:2	100%		
Custom Masonry Cleaner	1:4	100%		
Custom Masonry Cleaner	1:6	100%		
<b>“Gray” Split-face CMU</b>				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
<b>“Gray” Fluted Rough CMU</b>				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
<b>“Buff” Split-face CMU</b>				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	90%
Burnished Custom Masonry Cleaner	1:3	98%	98%	10%
<b>“Buff” Double Split-face CMU</b>				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	98%	100%



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 7

## CONCLUSIONS – Cleaning:

Based on the test data, all of the submitted block samples were efficiently cleaned with each dilution of the selected PROSOCO Inc.'s cleaning products. 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<sup>®</sup> Custom Masonry Cleaner tested affected the substrate in a similar manner, removing moderate to heavy concentrations of pigmented matrix from the split, fluted and smooth block faces, exposing small and large aggregate, and enhancing the natural appearance of the integrally colored concrete masonry unit.

All dilutions of Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner tested affected the substrate in a similar manner, removing slight to moderate concentrations of pigmented matrix from the split, fluted 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:

Recommendations for cleaning for each type of CMU submitted by Portsmouth Block, Portsmouth, OH are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar.

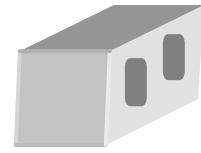
Block	Color	New Construction Cleaning (Type S mortar, 14 day)
Smooth-face CMU's	"Pewter"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Split-face CMU's	"Gray"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Fluted rough CMU's	"Gray"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
		Sure Klean <sup>®</sup> Burnished Custom Masonry Cleaner (1:3)
Split-face CMU's	"Buff"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Double Split-face CMU's	"Buff"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
		Sure Klean <sup>®</sup> Burnished Custom Masonry Cleaner (1:3)

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.



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 8

## **SECTION B – COLOR UNIFORMITY:**

### **DESCRIPTION OF PRODUCTS EVALUATED – Color Uniformity:**

**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, non-etching acidic cleaner removes rust, mud, oil, atmospheric dirt, mortar smears 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 – Color Uniformity Testing:**

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

Sure Klean® Custom Masonry Cleaner was evaluated at dilutions 1:2, 1:4, and 1:6 and Sure Klean Burnished Custom Masonry Cleaner was 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.
3. Allow appropriate dwell time for each cleaner:
 

Custom Masonry Cleaner .....	3 minute
Burnished Custom Masonry Cleaner .....	5 minute
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.
7. Break the sample in half and compare the through-body surfaces to the cleaned surfaces for the best match.

\* Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.





# PALLET TAG PROGRAM LABORATORY REPORT



**PROSOCO, Inc.**

Page 9

**Color Uniformity Results:**

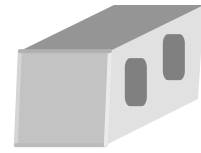
<b>Substrate:</b> Smooth-face CMU		<b>Pigment Color:</b> "Pewter"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	2
Custom Masonry Cleaner	1:4	3	2
Custom Masonry Cleaner	1:6	3	2
<b>Substrate:</b> Split-face CMU		<b>Pigment Color:</b> "Gray"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	3
Custom Masonry Cleaner	1:6	4	3
<b>Substrate:</b> Fluted Rough CMU		<b>Pigment Color:</b> "Gray"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	2
Custom Masonry Cleaner	1:4	4	3
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
<b>Substrate:</b> Split-face CMU		<b>Pigment Color:</b> "Buff"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	2
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	3
Burnished Custom Masonry Cleaner	1:2	3	3
Burnished Custom Masonry Cleaner	1:3	3	3

Scale used for reporting results of both categories

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



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 10

**Color Uniformity Results Continued:**

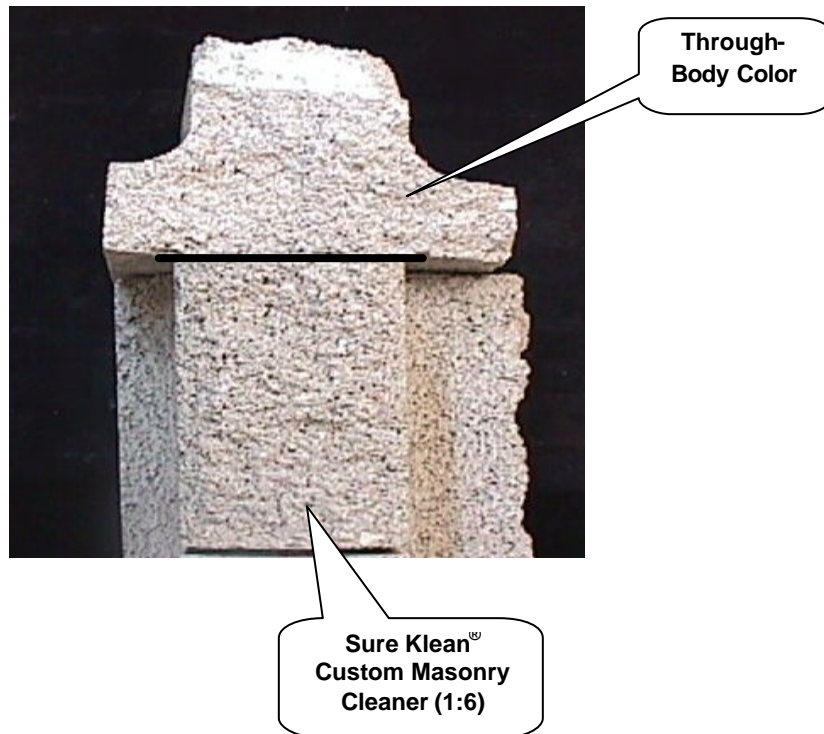
Substrate: Double Split-face CMU		Pigment Color: "Buff"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	3
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	3	4
Burnished Custom Masonry Cleaner	1:2	3	3
Burnished Custom Masonry Cleaner	1:3	3	2

Scale used for reporting results of both categories

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

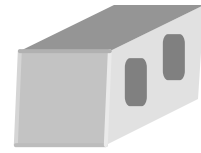
**PHOTOGRAPHS – Color Uniformity**

"Gray" Fluted Rough CMU





# PALLET TAG PROGRAM LABORATORY REPORT



## CONCLUSIONS: Color Uniformity

All dilutions of Sure Klean<sup>®</sup> Custom Masonry Cleaner tested affected the substrate in a similar manner. Higher concentrations of cleaner removed moderate to heavy concentrations of pigmented matrix, exposing small and large aggregates. Lower concentrations of cleaner removed slight to moderate concentrations of pigmented matrix, exposing small and large aggregate. All dilutions enhanced the natural appearance of the integrally colored CMU.

All dilutions of Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner tested affected the substrate in a similar manner removing slight to moderate concentrations of pigmented matrix, exposing small and large aggregates. All dilutions enhanced the natural appearance of the integrally colored CMU.

## RECOMMENDATIONS: COLOR UNIFORMITY:

Recommendations for color uniformity for each type of CMU submitted by Portsmouth Block, Portsmouth, OH are provided in the chart below. Recommendations are based on the optimum dilution that provides the best color uniformity and the complete removal of mortar.

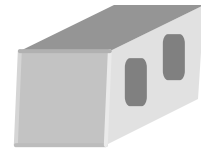
Block	Color	Color Uniformity
Smooth-face CMU's	"Pewter"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:2)
Split-face CMU's	"Gray"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:4)
Fluted rough CMU's	"Gray"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
		Sure Klean <sup>®</sup> Burnished Custom Masonry Cleaner (1:2) (1:3)
Split-face CMU's	"Buff"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Double Split-face CMU's	"Buff"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:4)

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.



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 12

---

---

## **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<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 72 hours prior to testing.

---

---

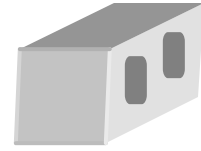
## **TEST METHODS - Protective Water Repellents:**

### **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. See Technical Services TECH Note RILEM Test Method No. II.4.



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 13

---

## TEST RESULTS - Protective Water Repellents:

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

	RESULTS
<b>"Pewter" Smooth-face CMU</b>	
Untreated Control	<40 mph
Custom Masonry Sealer	60 mph
<b>"Gray" Split-face CMU</b>	
Untreated Control	<40 mph
Custom Masonry Sealer	58 mph
<b>"Gray" Fluted Rough CMU</b>	
Untreated Control	<40 mph
Custom Masonry Sealer	59 mph
<b>"Buff" Split-face CMU</b>	
Untreated Control	<40 mph
Custom Masonry Sealer	58 mph
<b>"Buff" Double Split-face CMU</b>	
Untreated Control	<40 mph
Custom Masonry Sealer	60 mph



# PALLET TAG PROGRAM LABORATORY REPORT



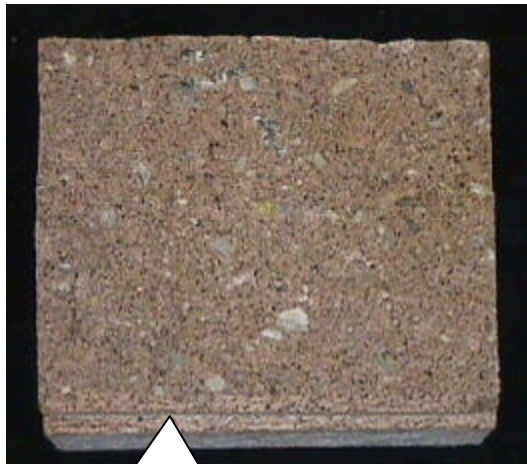
PROSOCO, Inc.

Page 14

---

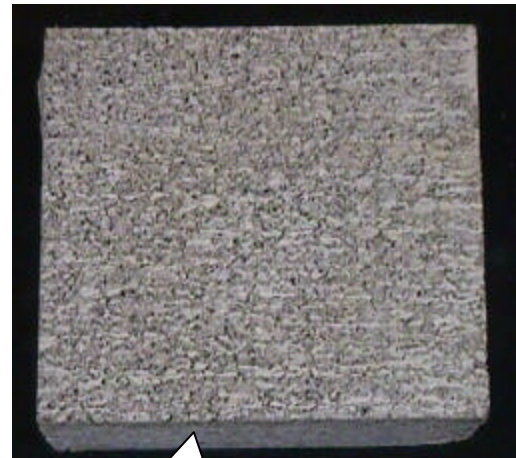
## PHOTOGRAPHS – Protective Water Repellents

“Buff” Split-face CMU



Sure Klean<sup>®</sup>  
Custom Masonry Sealer

“Pewter” Smooth-face CMU



Sure Klean<sup>®</sup>  
Custom Masonry Sealer

---

## CONCLUSIONS - Protective Water Repellents:

Based upon laboratory evaluations, Sure Klean<sup>®</sup> Custom Masonry Sealer provided above average water repellency to all submitted samples. Sure Klean<sup>®</sup> Custom Masonry Sealer moderately enhanced the natural color of the CMU's.



# PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

Page 15

## RECOMMENDATIONS - Protective Water Repellents:

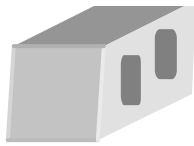
Recommendations for water repellency treatment for each type of CMU submitted by Portsmouth Block, Portsmouth, OH are provided in the chart below. Recommendations are based on the treatment that proved most effective and can provide water repellency on all types submitted.

Block Type	Color	Water Repellents
Smooth-face CMU's	"Pewter"	Sure Klean <sup>®</sup> Custom Masonry Sealer
Split-face CMU's	"Gray"	Sure Klean <sup>®</sup> Custom Masonry Sealer
Fluted rough CMU's	"Gray"	Sure Klean <sup>®</sup> Custom Masonry Sealer
Split-face CMU's	"Buff"	Sure Klean <sup>®</sup> Custom Masonry Sealer
Double Split-face CMU's	"Buff"	Sure Klean <sup>®</sup> Custom Masonry Sealer

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.

Carmen M. Niven  
Project Testing Coordinator

CMN/



---

***Laboratory Report***

**Pallet Tag Program Evaluation**

**Portsmouth Block  
Portsmouth, OH**

***Project No. 0205-13 PTP***

***Prepared For:***

**Roger Coriell**

**Portsmouth Block  
2700 Gallia St.  
Portsmouth, OH 45662**

***Prepared By:***



***PROSOCO, Inc.  
August 2002***