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***Laboratory Report***

**Pallet Tag Program Evaluation**

**R.W. Sidley, Inc.  
Painesville, OH**

***Project No. 0209-19 PTP***

***Prepared For:***

**A.W. Nichols**

**R.W. Sidley, Inc.  
436 Casemont Avenue  
P.O. Box 150  
Painesville, OH 44077**

***Prepared By:***



***PROSOCO, Inc.  
February 2003***



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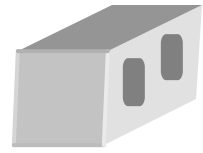
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## **ATTACHMENTS**

Technical Services TECH Note RILEM Tube Test Procedures

Product Data literature for all products evaluated



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**FOR:** A.W. Nichols  
**cc:** Al Stickler  
Perry Surber  
John Bourne  
Stephen Dean

**SUBJECT:** R.W. Sidley Inc.  
Painesville, Ohio

**DATE:** February 14, 2003

**PROJECT:** 0209-19 PTP

**SAMPLES SUBMITTED:** Twenty-two types of integrally colored CMU's.

<u>Block</u>	<u>Color</u>	<u>Size</u>
(4) Concrete Paver CMU's	"PCB" Red/Black	8" x 4" x 2 1/4"
(4) Concrete Paver CMU's	"PVB" Brown	8" x 4" x 2 1/4"
(4) Concrete Paver CMU's	"PBB" Red/Gray	8" x 4" x 2 1/4"
(4) Concrete Paver CMU's	"PBF" Buff	8" x 4" x 2 1/4"
(4) Concrete Paver CMU's	"PN" Gray	8" x 4" x 2 1/4"
(4) Concrete Paver CMU's	"PC" Charcoal	8" x 4" x 2 1/4"
(4) Concrete Paver CMU's	"PR" Red	8" x 4" x 2 1/4"
(4) Split-face CMU's	"8SFR" Red	15 1/2" x 7 1/4" x 7 3/4"
(4) Split-face CMU's	"8SFC" Charcoal	15 1/2" x 7 1/4" x 7 3/4"
(4) Split-face CMU's	"8SFI" Ivory	15 1/2" x 7 1/4" x 7 3/4"
(4) Split-face CMU's	"8SFT" Tan	15 1/2" x 7 1/4" x 7 3/4"
(4) Split-face CMU's	"8SFTP" Tan/White	15 1/2" x 7 1/4" x 7 3/4"
(4) Split-face CMU's	"8SFRP" Red/White	15 1/2" x 7 1/4" x 7 3/4"
(4) Split-face CMU's	"8SFWLS" White	15 1/2" x 7 1/4" x 7 3/4"
(4) Split-face CMU's	"4SFI" Ivory	15 1/2" x 7 1/4" x 3 3/4"
(4) Split-face CMU's	"4SFT" Tan	15 1/2" x 7 1/4" x 3 3/4"
(4) Retaining Wall CMU's	"ADST" Light Brown	15.5" x 1" x 7.5"
(4) Retaining Wall CMU's	"ADSA" Red/Black	15.5" x 1" x 7.5"
(4) Retaining Wall CMU's	"ADSC" Gray	15.5" x 1" x 7.5"
(4) Retaining Wall CMU's	"ADSI" Ivory	15.5" x 1" x 7.5"
(4) Retaining Wall CMU's	"ADSB" Auburn	15.5" x 1" x 7.5"
(4) Retaining Wall CMU's	"ADBG" Charcoal	15.5" x 1" x 7.5"

**NOTE:** All the blocks submitted will from this point on be designated by their "letter/number" description.

**Submitted by: A.W. Nichols**



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## PURPOSE OF TESTING:

Seven integrally colored concrete pavers, six integrally colored retaining wall concrete blocks, and nine integrally colored split-face 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<sup>®</sup> Custom Masonry Cleaner and Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner 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 Ash Grove<sup>®</sup> 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 Ash Grove<sup>®</sup> Type S mortar staining after 3 days, 7 days, and 14 days of curing.\*

\*NOTE: Due to the limited number of samples of the concrete paver CMU's available they were mortar soiled and allowed to cure for the 3 days and 14 days only prior to cleaning. The 7 day cleaning was omitted due to the limited sample availability. No cleaning or color uniformity evaluations were conducted on the retaining wall units as these are not normally set with mortar.

**B. Color Uniformity Testing\*** - Sure Klean<sup>®</sup> Custom Masonry Cleaner and Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner were evaluated 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 Alternation/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 – <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 and Sure Klean<sup>®</sup> Weather Seal Siloxane WB Concentrate were evaluated for their ability to provide water repellency to the submitted samples.

**D. Stain Resistance** – Stand Off<sup>®</sup> Stone, Tile & Masonry Protector and Stand Off<sup>®</sup> SLX100 Water & Oil Repellent were evaluated for their ability to resist applied staining agents on the submitted sample. Enviro Klean<sup>®</sup> 2010 All Surface Cleaner diluted with 10 parts fresh water was evaluated for its ability to remove the staining agents from the submitted sample.



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**PRODUCTS EVALUATED FOR CLEANING AND COLOR UNIFORMITY**

Block Type	Product	Dilution
All Split-face CMU's	Sure Klean <sup>®</sup> Custom Masonry Cleaner	1:2, 1:4, 1:6
All Concrete Paver CMU's Submitted	Sure Klean <sup>®</sup> Custom Masonry Cleaner	1:4, 1:6
	Sure Klean <sup>®</sup> Burnished Custom Masonry Cleaner	1:3

**WATER REPELLENT PRODUCTS EVALUATED**

Block Type	Product	Dilution
All Split-face and Retaining Wall CMU's	Sure Klean <sup>®</sup> Custom Masonry Sealer	Concentrate
	Sure Klean <sup>®</sup> Weather Seal Siloxane WB Concentrate	1:9, 1:14
All Concrete Paver CMU's	Consolideck <sup>®</sup> Saltguard <sup>®</sup> WB	Concentrate
	Sure Klean <sup>®</sup> Paver Enhancer	Concentrate

**STAIN REPELLENT PRODUCTS EVALUATED**

Sample	Product
All Submitted Concrete Paver CMU's	Stand Off <sup>®</sup> Stone, Tile, & Masonry Protector
	Stand Off <sup>®</sup> SLX100 Water & Oil Repellent



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## **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® 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 that removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Burnished Custom Masonry Cleaner adds depth to colors, brightens white matrices and exposed aggregate.

### **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.
3. Allow appropriate dwell time for each cleaner:
 

Custom Masonry Cleaner .....	3 minutes
Burnished Custom Masonry Cleaner .....	5 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 - Cleaning**

**% removal**

<b>“PCB” Concrete Paver</b>			
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>14 day</b>
Custom Masonry Cleaner	1:4	100%	100%
Custom Masonry Cleaner	1:6	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%
<b>“PVB” Concrete Paver</b>			
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>14 day</b>
Custom Masonry Cleaner	1:4	100%	100%
Custom Masonry Cleaner	1:6	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%
<b>“PBB” Concrete Paver</b>			
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>14 day</b>
Custom Masonry Cleaner	1:4	100%	100%
Custom Masonry Cleaner	1:6	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%
<b>“PBF” Concrete Paver</b>			
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>14 day</b>
Custom Masonry Cleaner	1:4	100%	100%
Custom Masonry Cleaner	1:6	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%
<b>“PN” Concrete Paver</b>			
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>14 day</b>
Custom Masonry Cleaner	1:4	100%	100%
Custom Masonry Cleaner	1:6	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%





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**TEST RESULTS – Cleaning Continued**

**% removal**

<b>“PC” Concrete Paver</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>14 day</b>	
Custom Masonry Cleaner	1:4	100%	100%	
Custom Masonry Cleaner	1:6	100%	100%	
Burnished Custom Masonry Cleaner	1:3	100%	100%	
<b>“PR” Concrete Paver</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>14 day</b>	
Custom Masonry Cleaner	1:4	100%	100%	
Custom Masonry Cleaner	1:6	100%	100%	
Burnished Custom Masonry Cleaner	1:3	100%	100%	
<b>“8SFR” Split-face</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
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>“8SFC” Split-face</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
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>“8SFI” Split-face</b>				
<b>Product</b>	<b>Dilution</b>	<b>3 day</b>	<b>7 day</b>	<b>14 day</b>
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%



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**TEST RESULTS – Cleaning Continued**

% removal

<b>“8SFT” Split-face</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>“8SFTP” Split-face</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>“8SFRP” Split-face</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>“8SFWLS” Split-face</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>“4SFI” Split-face</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>“4SFT” Split-face</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%



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**CONCLUSIONS - CLEANING**

Based upon the test data, all of the submitted block samples tested 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 and Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner and tested affected the substrate in a similar manner, removing slight to 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**

Recommendations for cleaning for each type of CMU submitted by R.W. Sidley Inc., Painesville, 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)
Concrete Paver	"PCB"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6) OR Sure Klean <sup>®</sup> Burnished Custom Masonry Cleaner (1:3)
Concrete Paver	"PVB"	
Concrete Paver	"PBB"	
Concrete Paver	"PBF"	
Concrete Paver	"PN"	
Concrete Paver	"PC"	
Concrete Paver	"PR"	
Split-face	"8SFR"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Split-face	"8SFC"	
Split-face	"8SFI"	
Split-face	"8SFT"	



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## RECOMMENDED PRODUCTS AND DILUTIONS – CLEANING Continued

Block	Color	New Construction Cleaning (Type S mortar, 14 day)
Split-face	"8SFTP"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Split-face	"8SFRP"	
Split-face	"8SFWLS"	
Split-face	"4SFI"	
Split-face	"4SFT"	

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.



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**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 that removes rust, mud, oil, atmospheric dirt, mortar smears and other stains without altering the surface texture. Burnished Custom Masonry Cleaner adds depth to colors, brightens white matrices and exposed aggregate.

**TEST METHOD – Color Uniformity Testing:**

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

1. Prewet the surface with water.
2. Apply each cleaner at the appropriate dilutions.
3. Allow appropriate dwell time, as specified.
  - Custom Masonry Cleaner ..... 3 minutes
  - Burnished Custom Masonry Cleaner ..... 5 minutes
4. Reapply the products 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 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.



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**TEST RESULTS – Color Uniformity**

<b>Substrate: Concrete Paver</b>		<b>Pigment Color: “PCB”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
<b>Substrate: Concrete Paver</b>		<b>Pigment Color: “PVB”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
<b>Substrate: Concrete Paver</b>		<b>Pigment Color: “PBB”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
<b>Substrate: Concrete Paver</b>		<b>Pigment Color: “PBF”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:3	4	4

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  |                                       |



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**TEST RESULTS – Color Uniformity Continued**

<b>Substrate: Concrete Paver</b>		<b>Pigment Color: “PN”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:4	3	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
<b>Substrate: Concrete Paver</b>		<b>Pigment Color: “PC”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
<b>Substrate: Concrete Paver</b>		<b>Pigment Color: “PR”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
<b>Substrate: Split-face</b>		<b>Pigment Color: “8SFR”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4

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  |                                       |



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**TEST RESULTS – Color Uniformity Continued**

<b>Substrate: Split-face</b>		<b>Pigment Color: “8SFC”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	3
Custom Masonry Cleaner	1:4	3	3
Custom Masonry Cleaner	1:6	4	4
<b>Substrate: Split-face</b>		<b>Pigment Color: “8SFI”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
<b>Substrate: Split-face</b>		<b>Pigment Color: “8SFT”</b>	
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	4	4
<b>Substrate: Split-face</b>		<b>Pigment Color: “8SFTP”</b>	
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	4	4

Scale used for reporting results of both categories

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





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**TEST RESULTS – Color Uniformity Continued**

<b>Substrate: Split-face</b>		<b>Pigment Color: “8SFRP”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
<b>Substrate: Split-face</b>		<b>Pigment Color: “8SFWLS”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
<b>Substrate: Split-face</b>		<b>Pigment Color: “4SFI”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	3
Custom Masonry Cleaner	1:4	4	3
Custom Masonry Cleaner	1:6	4	4
<b>Substrate: Split-face</b>		<b>Pigment Color: “4SFT”</b>	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	3	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4

Scale used for reporting results of both categories

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

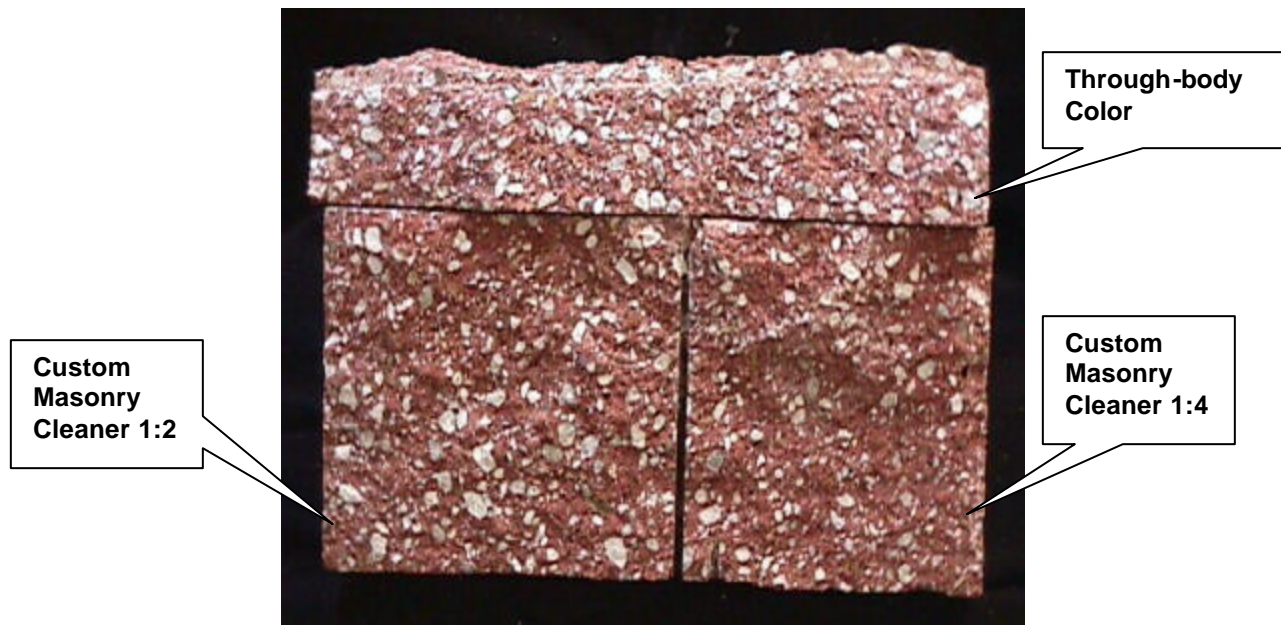


# PALLET TAG PROGRAM LABORATORY REPORT



## PHOTOGRAPHS – Color Uniformity

“8SFRP” CMU after cleaning



“8SFT” split-face CMU after cleaning





# PALLET TAG PROGRAM LABORATORY REPORT



**CONCLUSIONS - COLOR UNIFORMITY:**

All dilutions of Sure Klean<sup>®</sup> Custom Masonry Cleaner and Sure Klean<sup>®</sup> Burnished Custom Masonry Cleaner and tested affected the substrate in a similar manner. Higher concentrations of cleaner removed moderate to heavy concentrations of pigmented matrix, exposing small and large aggregate. 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.

**RECOMMENDATIONS - COLOR UNIFORMITY**

Recommendations for color uniformity for each type of CMU submitted by R.W. Sidley Inc., Painesville, 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
Concrete Paver	"PCB"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6) OR Sure Klean <sup>®</sup> Burnished Custom Masonry Cleaner (1:3)
Concrete Paver	"PVB"	
Concrete Paver	"PBB"	
Concrete Paver	"PBF"	
Concrete Paver	"PN"	
Concrete Paver	"PC"	
Concrete Paver	"PR"	
Split-face	"8SFR"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Split-face	"8SFC"	
Split-face	"8SFI"	
Split-face	"8SFT"	



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## RECOMMENDATIONS - COLOR UNIFORMITY Continued

Recommendations for color uniformity for each type of CMU submitted by R.W. Sidley Inc., Painesville, 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
Split-face	"8SFTP"	Sure Klean <sup>®</sup> Custom Masonry Cleaner (1:6)
Split-face	"8SFRP"	
Split-face	"8SFWLS"	
Split-face	"4SFI"	
Split-face	"4SFT"	

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.



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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

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## 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, architectural concrete block, precast 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 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.

**Consolideck® Saltguard® WB** - A ready-to-use water-based, VOC compliant silane/siloxane water repellent and “chloride screen” for the protection of concrete and masonry surfaces. Saltguard® WB penetrates more deeply than conventional water or solvent-based water repellents. Low odor and alkaline stable, Saltguard® WB is ideal for field or in-plant application to concrete and most masonry surfaces from moisture intrusion and chemical attack of chloride salts.

**Sure Klean® Paver Enhancer** - A solvent-based blend of high-quality siloxanes modified to provide excellent water repellency and color enhancement to interlocking concrete, fired clay, porous tile and many types of natural stone surfaces. Paver Enhancer penetrates and reacts with the surface to form a chemical bond, providing long-term durability, alkali resistance, and superior breathability.

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## 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 3 days prior to testing.

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## 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.



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## TEST RESULTS - Protective Water Repellents

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

	RESULTS
<b>"PCB" Concrete Paver</b>	
Untreated Control	< 40 mph
Paver Enhancer	60 mph
Saltguard® WB	58 mph
<b>"PVB" Concrete Paver</b>	
Untreated Control	< 40 mph
Paver Enhancer	58 mph
Saltguard® WB	50 mph
<b>"PBB" Concrete Paver</b>	
Untreated Control	< 40 mph
Paver Enhancer	60 mph
Saltguard® WB	60 mph
<b>"PBF" Concrete Paver</b>	
Untreated Control	< 40 mph
Paver Enhancer	60 mph
Saltguard® WB	50 mph



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**TEST RESULTS - Protective Water Repellents Continued**

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

	<b>RESULTS</b>
<b>“PN” Concrete Paver</b>	
Untreated Control	< 40 mph
Paver Enhancer	58 mph
Saltguard® WB	50 mph
<b>“PC” Concrete Paver</b>	
Untreated Control	< 40 mph
Paver Enhancer	60 mph
Saltguard® WB	52 mph
<b>“PR” Concrete Paver</b>	
Untreated Control	< 40 mph
Paver Enhancer	60 mph
Saltguard® WB	55 mph
<b>“8SFR” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	59 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	60 mph



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**TEST RESULTS - Protective Water Repellents Continued**

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

<b>RESULTS</b>	
<b>“8SFC” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	59 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	60 mph
<b>“8SFI” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	58 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	59 mph
<b>“8SFT” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	60 mph
Siloxane WB Concentrate (1:9)	59 mph
Siloxane WB Concentrate (1:14)	58 mph
<b>“8SFTP” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	60 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	59 mph





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**TEST RESULTS - Protective Water Repellents Continued**

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

	<b>RESULTS</b>
<b>“8SFRP” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	59 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	58 mph
<b>“8SFWLS” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	58 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	59 mph
<b>“4SFI” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	58 mph
Siloxane WB Concentrate (1:9)	59 mph
Siloxane WB Concentrate (1:14)	59 mph
<b>“4SFT” Split-face</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	58 mph
Siloxane WB Concentrate (1:9)	59 mph
Siloxane WB Concentrate (1:14)	59 mph



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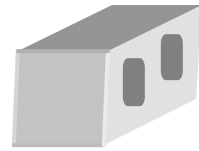
**TEST RESULTS - Protective Water Repellents Continued**

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

<b>RESULTS</b>	
<b>“ADSI” Retaining wall</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	60 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	59 mph
<b>“ADSA” Retaining wall</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	60 mph
Siloxane WB Concentrate (1:9)	59 mph
Siloxane WB Concentrate (1:14)	59 mph
<b>“ADSC” Retaining wall</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	59 mph
Siloxane WB Concentrate (1:9)	58 mph
Siloxane WB Concentrate (1:14)	56 mph
<b>“ADST” Retaining wall</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	60 mph
Siloxane WB Concentrate (1:9)	59 mph
Siloxane WB Concentrate (1:14)	58 mph



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## TEST RESULTS - Protective Water Repellents Continued

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

RESULTS	
<b>“ADSB” Retaining wall</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	59 mph
Siloxane WB Concentrate (1:9)	60 mph
Siloxane WB Concentrate (1:14)	59 mph
<b>“ADBG” Retaining wall</b>	
Untreated Control	< 40 mph
Custom Masonry Sealer	60 mph
Siloxane WB Concentrate (1:9)	59 mph
Siloxane WB Concentrate (1:14)	57 mph



# PALLET TAG PROGRAM LABORATORY REPORT



## PHOTOGRAPHS – Protective Water Repellents

“8SFR” Split-face CMU after water repellency treatment



“ADSB” Retaining wall CMU after water repellency treatment





# PALLET TAG PROGRAM LABORATORY REPORT



**CONCLUSIONS - Protective Water Repellents**

Based upon laboratory evaluations, Sure Klean<sup>®</sup> Custom Masonry Sealer and Sure Klean<sup>®</sup> Weather Seal Siloxane WB Concentrate diluted with nine parts fresh water and fourteen parts fresh water provided above average water repellency to most of the submitted samples. Sure Klean<sup>®</sup> Custom Masonry Sealer moderately enhanced the natural color of the CMU's and Sure Klean<sup>®</sup> Weather Seal Siloxane WB Concentrate slightly enhanced the natural color of the CMU's.

**RECOMMENDATIONS - PROTECTIVE WATER REPELLENTS**

Recommendations for water repellency treatment for each type of CMU submitted by R.W. Sidley Inc., Painesville, 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	Water Repellents
"PCB"	Sure Klean <sup>®</sup> Paver Enhancer OR Consolideck <sup>®</sup> Saltguard <sup>®</sup> WB
"PVB"	Sure Klean <sup>®</sup> Paver Enhancer
"PBB"	Sure Klean <sup>®</sup> Paver Enhancer OR Consolideck <sup>®</sup> Saltguard <sup>®</sup> WB
"PBF"	Sure Klean <sup>®</sup> Paver Enhancer
"PN"	
"PC"	
"PR"	Sure Klean <sup>®</sup> Paver Enhancer Consolideck <sup>®</sup> Saltguard <sup>®</sup> WB
"8SFR"	Sure Klean <sup>®</sup> Custom Masonry Sealer OR Sure Klean <sup>®</sup> Weather Seal Siloxane WB 1:9, 1:14
"8SFC"	
"8SFI"	
"8SFT"	
"8SFTP"	
"8SFTF"	



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Block	Water Repellents
"8SFRP"	Sure Klean <sup>®</sup> Custom Masonry Sealer OR Sure Klean <sup>®</sup> Weather Seal Siloxane WB 1:9, 1:14
"8SFWLS"	
"4SFI"	
"4SFT"	
"ADSI"	
"ADSA"	
"ADSC"	
"ADST"	
"ADSB"	
"ADBG"	

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.



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## SECTION D- STAIN RESISTANCE

### **DESCRIPTION OF PRODUCTS EVALUATED**

These trials were conducted to determine the effectiveness of treatments in preventing food and oil staining on the submitted sample.

#### **Products Evaluated for Stain Protection:**

**Stand Off<sup>®</sup> Stone, Tile & Masonry Protector** – A penetrating oil and stain repellent. Easy-to-use. Low-VOC, low-odor protective treatment improves the stain resistance and simplifies maintenance cleaning of interior and exterior stone, quarry tile, concrete and masonry surfaces.

**Stand Off<sup>®</sup> SLX100 Water & Oil Repellent** - A modified, “neat” silane system that offers invisible protection and low volatility. SLX100 protects concrete and masonry surfaces against water and waterborne contaminants. In addition to water repellency SLX100 offers stain resistance and chloride screen.

#### **Product Evaluated for Stain Removal:**

Enviro Klean<sup>®</sup> 2010 All Surface Cleaner (1:10)

#### **Food and Oil Products Evaluated:**

Coca Cola  
Ketchup  
Mustard  
Red wine  
Balsamic Vinegar  
Soy Sauce  
Olive oil  
Wesson Oil

#### **Temperature:**

ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
ambient (~70°F)  
250°F



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## SAMPLE PREPARATION – Stain Resistance

Sample was cleaned with Enviro Klean<sup>®</sup> 2010 All Surface Cleaner diluted with 10 parts water, allowed to dry and absorb atmospheric moisture for 24 hours prior to treatment. The method of application for protective treatments consisted of a wet-on-wet saturating brush application. Sample was allowed to cure for at least 2 weeks prior to testing

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## TEST METHOD – Stain Resistance

### Surface Beading Evaluation

The food and oil products were applied to the test areas by using a dropper creating a bead 0.5 – 1.0 cm in diameter. The beading properties of the oils and liquids were visually evaluated within two minutes after application. The results are reported as a rating based on the angle of contact between the base of the droplet and the substrate. A rating of “1 or 2” indicated the smallest angle of contact (<90°) which correlates to “above average” repellency. A rating of “3 or 4” indicates “average” repellency. A rating of “5 or greater” indicated that the oil quickly absorbed into the substrate and correlates to “below average” repellency.

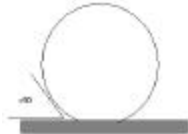
Note: Non-free flowing staining agents such as ketchup and mustard are applied in a blob and not evaluated for their beading properties.

#### Rating System (1-5)

1. No wetting of contact area (no darkening); angle less than 90°



2. Wetting contained to the contact area (slight darkening); angle is less than 90°



3. Wetting contained to the contact area (slight darkening); angle is greater than 90°, but less than 135°



4. Wetting beyond the contact area (darkening); angle is greater than 135°



5. Wetting beyond the contact area (darkening); angle is flat.

NO ANGLE







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**TEST METHODS: Continued**

**Stain Resistance**

The soiling agents were allowed to dwell on the treated and untreated substrate for times of 24 hours, 4 hours, 1 hour, and 10 minutes. The test areas were then cleaned with Enviro Klean<sup>®</sup> 2010 All Surface Cleaner diluted 1 part concentrate to 10 parts fresh water and scrubbed under a stream of running water from a faucet. Samples were allowed to dry for 24 hours. Evaluation consisted of a visual examination of the tested areas to determine the percentage of staining removal.

Note: Non-free flowing staining agents such as ketchup and mustard are applied in a blob and not evaluated for their beading properties.

**TEST RESULTS – Surface Beading**

<b>“PCB” Concrete Paver</b>			
	<b>Untreated Control</b>	<b>SLX100</b>	<b>STMP</b>
<b>Coca Cola</b>	6	2	2
<b>Ketchup</b>	4	3	5
<b>Mustard</b>	4	4	6
<b>Red Wine</b>	6	2	4
<b>Balsamic Vinegar</b>	6	2	3
<b>Soy Sauce</b>	6	2	3
<b>Olive Oil</b>	6	2	2
<b>Wesson Oil</b>	6	2	2

<b>“PVB” Concrete Paver</b>			
	<b>Untreated Control</b>	<b>SLX100</b>	<b>STMP</b>
<b>Coca Cola</b>	6	2	3
<b>Ketchup</b>	4	3	5
<b>Mustard</b>	4	5	4
<b>Red Wine</b>	6	2	5
<b>Balsamic Vinegar</b>	6	2	5
<b>Soy Sauce</b>	6	3	4
<b>Olive Oil</b>	6	3	1
<b>Wesson Oil</b>	6	2	1



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<b>"PBB" Concrete Paver</b>			
	<b>Untreated Control</b>	<b>SLX100</b>	<b>STMP</b>
<b>Coca Cola</b>	6	2	2
<b>Ketchup</b>	4	5	3
<b>Mustard</b>	4	4	4
<b>Red Wine</b>	6	2	5
<b>Balsamic Vinegar</b>	6	2	4
<b>Soy Sauce</b>	6	2	4
<b>Olive Oil</b>	6	2	2
<b>Wesson Oil</b>	6	3	1

<b>"PBF" Concrete Paver</b>			
	<b>Untreated Control</b>	<b>SLX100</b>	<b>STMP</b>
<b>Coca Cola</b>	6	1	2
<b>Ketchup</b>	4	3	2
<b>Mustard</b>	4	4	6
<b>Red Wine</b>	6	3	4
<b>Balsamic Vinegar</b>	6	2	3
<b>Soy Sauce</b>	6	3	3
<b>Olive Oil</b>	6	3	3
<b>Wesson Oil</b>	6	2	2

<b>"PN" Concrete Paver</b>			
	<b>Untreated Control</b>	<b>SLX100</b>	<b>STMP</b>
<b>Coca Cola</b>	6	2	2
<b>Ketchup</b>	4	4	5
<b>Mustard</b>	4	6	5
<b>Red Wine</b>	6	2	7
<b>Balsamic Vinegar</b>	6	2	6
<b>Soy Sauce</b>	6	2	5
<b>Olive Oil</b>	6	2	2
<b>Wesson Oil</b>	6	3	1



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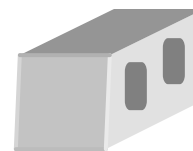
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<b>"PC" Concrete Paver</b>			
	<b>Untreated Control</b>	<b>SLX100</b>	<b>STMP</b>
<b>Coca Cola</b>	6	1	1
<b>Ketchup</b>	4	3	5
<b>Mustard</b>	4	5	5
<b>Red Wine</b>	6	1	5
<b>Balsamic Vinegar</b>	6	1	3
<b>Soy Sauce</b>	6	2	3
<b>Olive Oil</b>	6	2	2
<b>Wesson Oil</b>	6	2	2

<b>"PR" Concrete Paver</b>			
	<b>Untreated Control</b>	<b>SLX100</b>	<b>STMP</b>
<b>Coca Cola</b>	6	2	2
<b>Ketchup</b>	4	4	5
<b>Mustard</b>	4	5	6
<b>Red Wine</b>	6	1	4
<b>Balsamic Vinegar</b>	6	2	3
<b>Soy Sauce</b>	6	2	3
<b>Olive Oil</b>	6	1	1
<b>Wesson Oil</b>	6	2	2



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**TEST RESULTS – Stain Resistance**

Cleaned with: Enviro Klean® 2010 All Surface Cleaner (1:10)

% Removal

**“PCB” Concrete Paver**

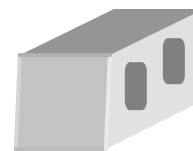
Untreated Control								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100	90%	50%	80%	80%	80%	<1 %	<1 %
4 hour	100	90%	50%	80%	80%	80%	<1 %	<1 %
1 hour	100	100%	80%	80%	90%	90%	<1 %	<1 %
10 min.	100%	100%	100%	90%	90%	90%	<1 %	<1 %
Stand Off® Stone, Tile, & Masonry Protector								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	80%	100%	100%	100%	60%	65%
4 hour	100%	100%	90%	100%	100%	100%	90%	90%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%
Stand Off® SLX100 Water & Oil Repellent								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	80%	100%	95%	95%	50%	50%
4 hour	100%	100%	90%	100%	100%	100%	70%	80%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%

**“PVB” Concrete Paver**

Untreated Control								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	80%	60%	70%	80%	80%	<1 %	<1 %
4 hour	100%	85%	70%	80%	80%	80%	<1 %	<1 %
1 hour	100%	100%	90%	100%	100%	100%	<1 %	<1 %
10 min.	100%	100%	100%	100%	100%	100%	<1 %	<1 %
Stand Off® Stone, Tile, & Masonry Protector								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	90%	100%	100%	100%	60%	60%
4 hour	100%	100%	100%	100%	100%	100%	90%	90%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%
Stand Off® SLX100 Water & Oil Repellent								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	90%	100%	90%	100%	50%	50%
4 hour	100%	100%	100%	100%	100%	100%	80%	80%
1 hour	100%	100%	100%	100%	100%	100%	80%	90%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%



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### “PBB” Concrete Paver

Untreated Control								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	60%	80%	75%	70%	<1 %	<1 %
4 hour	100%	100%	70%	90%	90%	90%	<1 %	<1 %
1 hour	100%	100%	80%	100%	100%	100%	<1 %	<1 %
10 min.	100%	100%	100%	100%	100%	100%	<1 %	<1 %
Stand Off® Stone, Tile, & Masonry Protector								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	80%	100%	100%	85%	75%	70%
4 hour	100%	100%	90%	100%	100%	100%	90%	95%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%
Stand Off® SLX100 Water & Oil Repellent								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	95%	100%	90%	95%	65%	60%
4 hour	100%	100%	100%	100%	100%	100%	80%	85%
1 hour	100%	100%	100%	100%	100%	100%	90%	90%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%

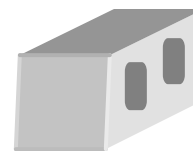
### “PBF” Concrete Paver

Untreated Control								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	90%	70%	75%	60%	60%	<1 %	<1 %
4 hour	100%	100%	70%	85%	75%	85%	<1 %	<1 %
1 hour	100%	100%	80%	95%	90%	100%	<1 %	<1 %
10 min.	100%	100%	100%	100%	100%	100%	<1 %	<1 %
Stand Off® Stone, Tile, & Masonry Protector								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	85%	100%	100%	90%	70%	80%
4 hour	100%	100%	90%	100%	100%	100%	85%	80%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%
Stand Off® SLX100 Water & Oil Repellent								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	90%	100%	95%	100%	55%	70%
4 hour	100%	100%	100%	100%	100%	100%	70%	85%
1 hour	100%	100%	100%	100%	100%	100%	90%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%

% Removal of staining agent  
\* Etching due to acidic staining agent



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## “PN” Concrete Paver

Untreated Control								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	65%	65%	55%	60%	<1 %	<1 %
4 hour	100%	100%	70%	80%	65%	70%	<1 %	<1 %
1 hour	100%	100%	90%	100%	65%	90%	<1 %	<1 %
10 min.	100%	100%	100%	100%	80%	100%	<1 %	<1 %
Stand Off® Stone, Tile, & Masonry Protector								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	80%	100%	85%	90%	50%	50%
4 hour	100%	100%	95%	100%	100%	100%	75%	70%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%
Stand Off® SLX100 Water & Oil Repellent								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	90%	100%	90%	95%	60%	60%
4 hour	100%	100%	100%	100%	100%	100%	90%	90%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%

## “PC” Concrete Paver

Untreated Control								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	90%	60%	75%	65%	70%	<1 %	<1 %
4 hour	100%	100%	80%	80%	75%	70%	<1 %	<1 %
1 hour	100%	100%	100%	80%	80%	90%	<1 %	<1 %
10 min.	100%	100%	100%	90%	90%	100%	<1 %	<1 %
Stand Off® Stone, Tile, & Masonry Protector								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	90%	100%	85%	95%	70%	60%
4 hour	100%	100%	95%	100%	90%	100%	90%	85%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%
Stand Off® SLX100 Water & Oil Repellent								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	95%	100%	90%	95%	70%	70%
4 hour	100%	100%	95%	100%	100%	100%	80%	80%
1 hour	100%	100%	100%	100%	100%	100%	80%	80%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%

% Removal of staining agent  
\* Etching due to acidic staining agent



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## “PR” Concrete Paver

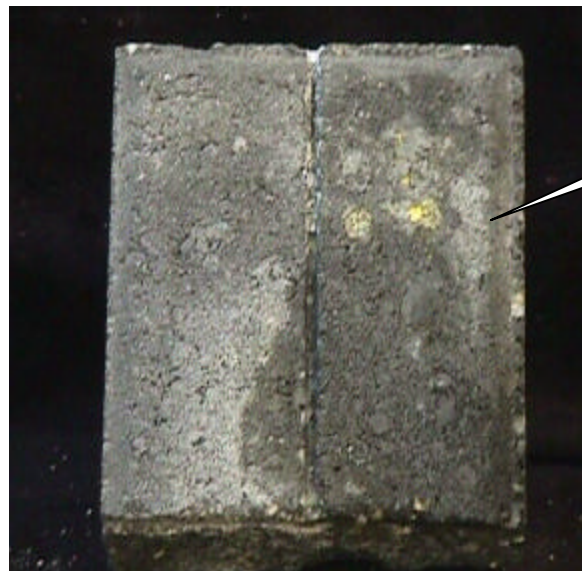
Untreated Control								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	90%	70%	70%	60%	60%	<1 %	<1 %
4 hour	100%	100%	90%	70%	75%	70%	<1 %	<1 %
1 hour	100%	100%	100%	80%	75%	80%	<1 %	<1 %
10 min.	100%	100%	100%	90%	90%	100%	<1 %	<1 %
Stand Off® Stone, Tile, & Masonry Protector								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	95%	100%	100%	95%	80%	80%
4 hour	100%	100%	100%	100%	100%	100%	95%	95%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%
Stand Off® SLX100 Water & Oil Repellent								
	Coca Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil
24 hr	100%	100%	85%	100%	90%	85%	60%	70%
4 hour	100%	100%	100%	100%	100%	90%	80%	80%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%

% Removal of staining agent

\* Etching due to acidic staining agent

### PHOTOGRAPH – Stain Resistance

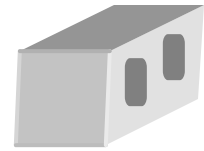
#### “PC” Concrete Paver Cleaning Results



Untreated Control



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**PHOTOGRAPH – Stain Resistance**

**“PBB” Concrete Paver after Cleaning**







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## CONCLUSIONS – Stain Resistance

Based upon laboratory evaluations, Stand Off<sup>®</sup> Stone, Tile & Masonry Protector (STMP) was the most effective at repelling the staining agents on the concrete pavers submitted. Stand Off<sup>®</sup> SLX100 was also very effective but did not repel the oil stain agents as well as STMP.

## RECOMMENDATIONS – STAIN RESISTANCE

Recommendations for stain resistance treatment for the concrete pavers submitted by R.W. Sidley, Inc., Painesville, OH provided in the chart below. Recommendations are based on the treatment that proved most effective for providing stain repellency to the staining agents applied.

Sample	Stain Repellent	Maintenance Cleaner
All Concrete Pavers Submitted	Stand Off <sup>®</sup> Stone, Tile & Masonry Protector	Enviro Klean <sup>®</sup> 2010 All Surface Cleaner (1:10)

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 graffiti control product and procedure for a particular project. See product literature for application and product information.

Michael Meglemre  
Technical Analyst

MM