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Pallet Tag Program Laboratory Report

Castohn

Tacoma, WA



Project No. 2404-01 PTP

Prepared For:



PROSOCO

Prepared By:

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September 2024



LABORATORY REPORT

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SUBJECT: Castohn
Tacoma, WA
Pallet Tag Evaluation

DATE: September 9, 2024
PROJECT: 2404-01 PTP

SAMPLES SUBMITTED: 11 types of concrete pavers

Type	Name	Color	Size	Condition
(4) Concrete Paver	Mountain Slate	Charcoal	12" x 6" x 2 ¼"	New
(4) Concrete Paver	Mountain Slate	Natural Gray	12" x 6" x 2 ¼"	New
(4) Concrete Paver	Olympic Paver	Charcoal	12" x 6" x 2 ¼"	New
(4) Concrete Paver	Olympic Paver	Natural Gray	12" x 6" x 2 ¼"	New
(4) Concrete Paver	Smooth Alpine	Charcoal	12" x 6" x 2 ¼"	New
(4) Concrete Paver	Smooth Alpine	Natural Gray	12" x 6" x 2 ¼"	New
(2) Concrete Paver	Dimensional Flagstone	Bluestone	18" x 18" x 2" 18" x 12" x 2"	Exhibited Staining
(2) Concrete Paver	Linear Slate	Pacific Mist	20" x 10" x 2"	Exhibited Staining
(2) Concrete Paver	Linear Slate	Silver Legacy	20" x 10" x 2"	Exhibited Staining
(3) Concrete Paver	Linear Slate	Western Buff	20" x 10" x 2"	Exhibited Staining
(3) Concrete Paver	New Mission	Western Buff	11 ¼" x 8 ½" x 2 ¾"	Exhibited Staining

SUBMITTED BY: Jeremy Fouraker
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PURPOSE OF TEST:

- To determine the most appropriate PROSOCO, Inc. new construction cleaner(s) for the submitted new samples.
- To determine the most appropriate PROSOCO, Inc. cleaner to remove the white staining from specific submitted samples.
- To evaluate the color and sheen enhancement characteristics of the requested PROSOCO, Inc. treatments on the submitted new samples.
- To determine the most appropriate PROSOCO, Inc. water repellent for the submitted new samples.
- To determine the effectiveness of appropriate PROSOCO, Inc. products in preventing food and oil staining on the submitted new samples.

PRODUCTS EVALUATED:

New Construction Cleaning	Dilution:
Sure Klean® Light Duty Concrete Cleaner	1:2, 1:3
Sure Klean® Heavy Duty Concrete Cleaner	1:4, 1:6
Sure Klean® Vana Trol®	1:6, 1:8
Enviro Klean® Safety Klean	1:2, 1:3

Stain Removal	Dilution:
Sure Klean® Light Duty Concrete Cleaner	1:2
Enviro Klean® Safety Klean	1:2

Color and Sheen Enhancement	Dilution:
PROSOCO® Saltguard® WB	N/A*
PROSOCO® SL100 Water Repellent	N/A*
Sure Klean® Weather Seal Color Enhancer WB	N/A*
Sure Klean® Weather Seal Satin Guard WB	N/A*

Water Repellency	Dilution:
PROSOCO® Saltguard® WB	N/A*
PROSOCO® SL100 Water Repellent	N/A*
Sure Klean® Weather Seal Color Enhancer WB	N/A*

Stain Resistance	Dilution:
Sure Klean® Weather Seal Satin Guard WB	N/A*

***NOTE: Per the product data sheet instructions, only use the product in concentrate. Do not dilute.**

TEST METHODS: New Construction Cleaning

Sure Klean® Light Duty Concrete Cleaner, Sure Klean® Heavy Duty Concrete Cleaner, Sure Klean® Vana Trol®, and Enviro Klean® Safety Klean were evaluated on the submitted samples to determine the optimal concentration of cleaner which leaves the external surface looking most like the natural through-body color of the concrete paver.

Color uniformity was evaluated by comparing aggregate exposure and surface pigment alteration/removal of each cleaned surface compared to the natural through-body color of the concrete paver.

Aggregate Exposure is the visual examination comparing aggregate exposure of the interior, through-body section of the concrete paver 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 concrete paver to surfaces cleaned with selected product(s) at given dilutions.

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

- 0 – **No change** compared to through-body
- 1 – **Slight change** compared to through-body
- 2 – **Moderate change** compared to through-body
- 3 – **Significant change** compared to through-body

Cleaning Procedure:

1. Pre-wet the surface and apply diluted cleaning solution according to PROSOCO, Inc. Product Guide instructions.
2. Allow for an appropriate dwell time and periodically agitate:
Light Duty Concrete Cleaner 5 minutes
Heavy Duty Concrete Cleaner 3 minutes
Vana Trol® 5 minutes
Safety Klean 5 minutes
3. Reapply cleaning solution; do not let cleaner dry into masonry.
4. Rinse thoroughly with plenty of fresh water.*
5. Allow the sample to dry for at least 18 hours and visually examine.
6. Break the sample and compare the through-body surfaces to the cleaned surfaces for the best match.

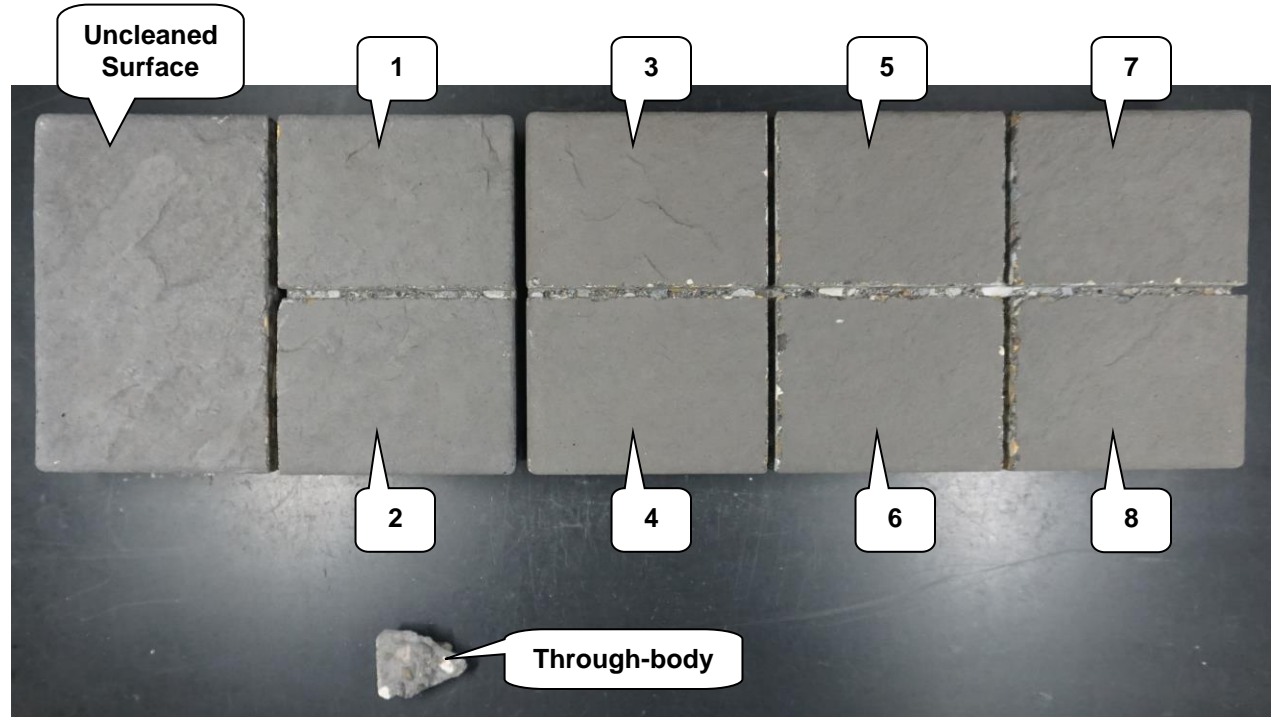
***Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 40-degree fan spray tip was used for rinsing.

TEST RESULTS AND PHOTOGRAPHS: New Construction Cleaning

Name: "Charcoal" Mountain Slate				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Key
Light Duty Concrete Cleaner	1:2	1*	1*	1
Light Duty Concrete Cleaner	1:3	1*	1*	2
Heavy Duty Concrete Cleaner	1:4	1	1	3
Heavy Duty Concrete Cleaner	1:6	1	1	4
Vana Trol®	1:6	1	1	5
Vana Trol®	1:8	1	1	6
Safety Klean	1:2	1	1	7
Safety Klean	1:3	1	1	8

***NOTE: Very slight change compared to uncleaned surface.**

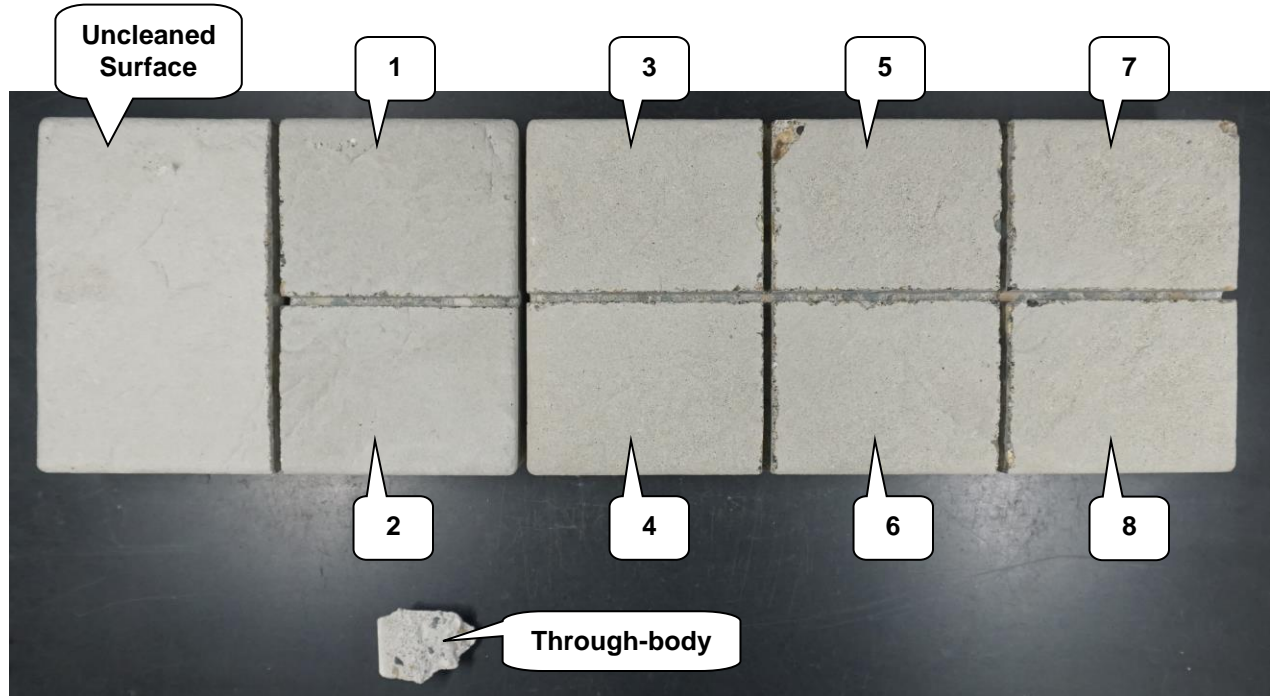
"Charcoal" Mountain Slate After Cleaning



TEST RESULTS AND PHOTOGRAPHS: New Construction Cleaning (cont.)

Name: "Natural Gray" Mountain Slate				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Key
Light Duty Concrete Cleaner	1:2	1	1	1
Light Duty Concrete Cleaner	1:3	1	1	2
Heavy Duty Concrete Cleaner	1:4	2	2	3
Heavy Duty Concrete Cleaner	1:6	2	2	4
Vana Trol®	1:6	2	2	5
Vana Trol®	1:8	2	2	6
Safety Klean	1:2	2	2	7
Safety Klean	1:3	2	2	8

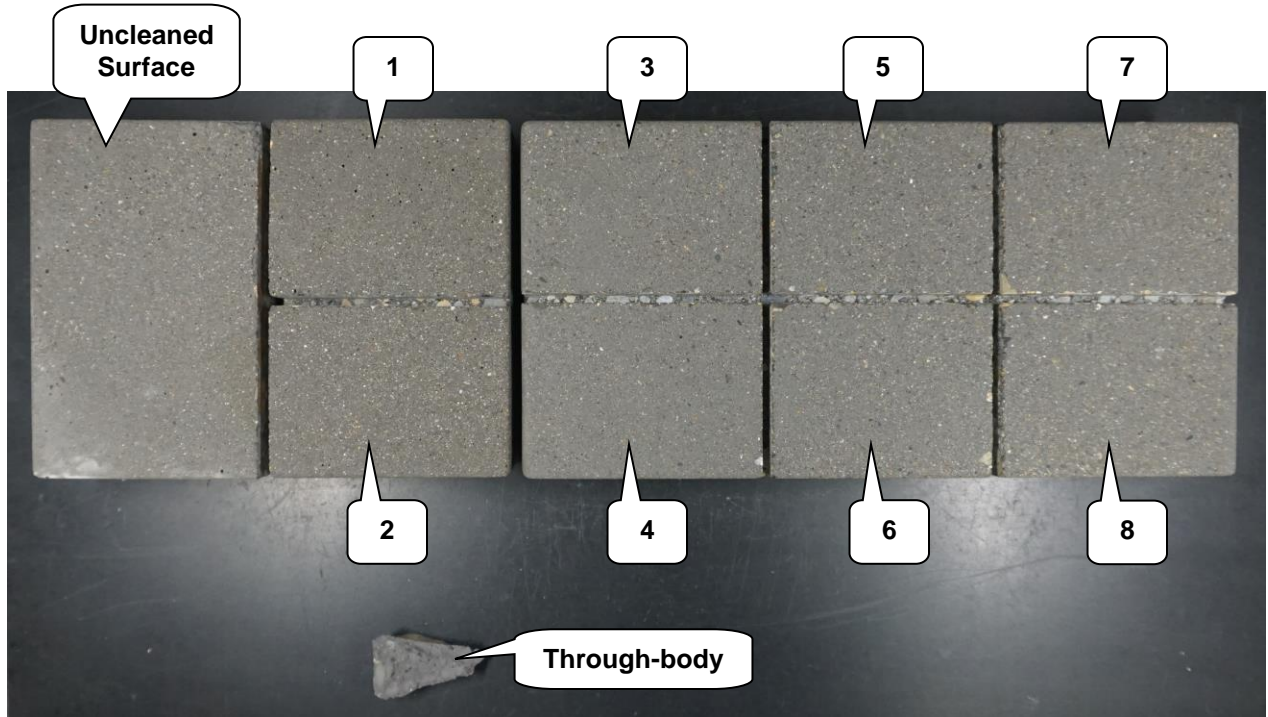
"Natural Gray" Mountain Slate After Cleaning



TEST RESULTS AND PHOTOGRAPHS: New Construction Cleaning (cont.)

Name: "Charcoal" Olympic Paver				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Key
Light Duty Concrete Cleaner	1:2	1	1	1
Light Duty Concrete Cleaner	1:3	1	1	2
Heavy Duty Concrete Cleaner	1:4	1	1	3
Heavy Duty Concrete Cleaner	1:6	1	1	4
Vana Trol®	1:6	1	1	5
Vana Trol®	1:8	1	1	6
Safety Klean	1:2	1	1	7
Safety Klean	1:3	1	1	8

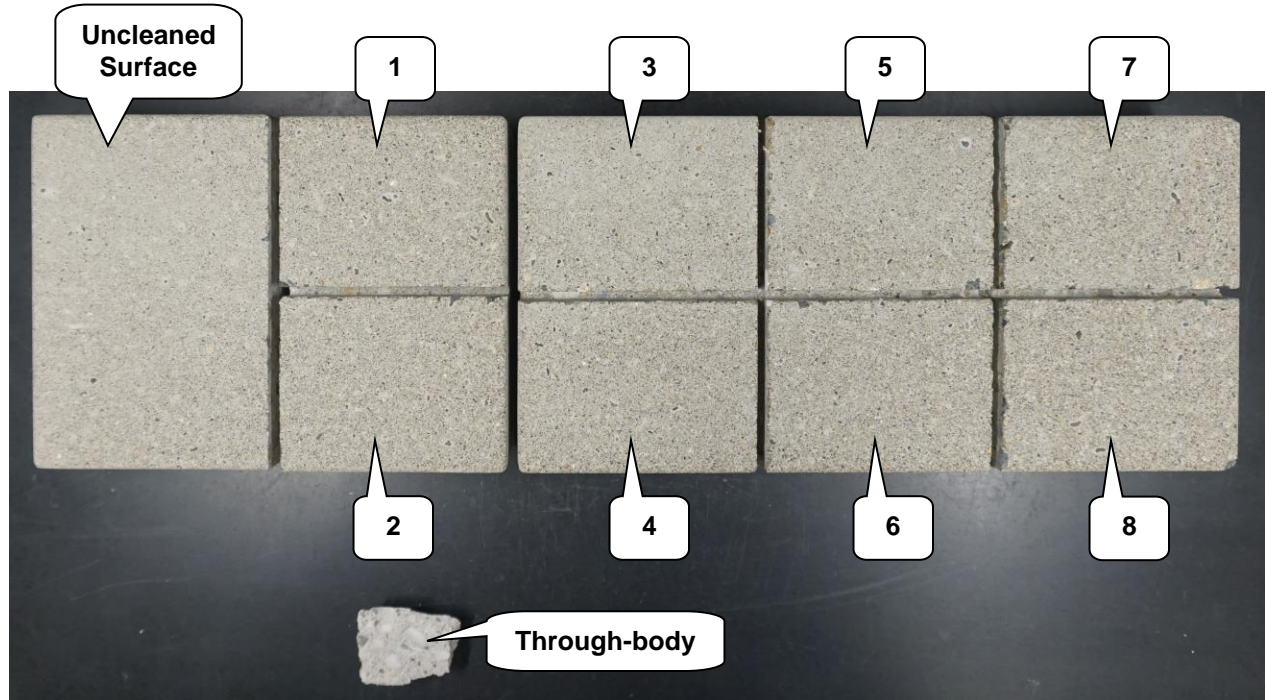
"Charcoal" Olympic Paver After Cleaning



TEST RESULTS AND PHOTOGRAPHS: New Construction Cleaning (cont.)

Name: "Natural Gray" Olympic Paver				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Key
Light Duty Concrete Cleaner	1:2	1	1	1
Light Duty Concrete Cleaner	1:3	1	1	2
Heavy Duty Concrete Cleaner	1:4	1	1	3
Heavy Duty Concrete Cleaner	1:6	1	1	4
Vana Trol®	1:6	1	1	5
Vana Trol®	1:8	1	1	6
Safety Klean	1:2	1	1	7
Safety Klean	1:3	1	1	8

"Natural Gray" Olympic Paver After Cleaning

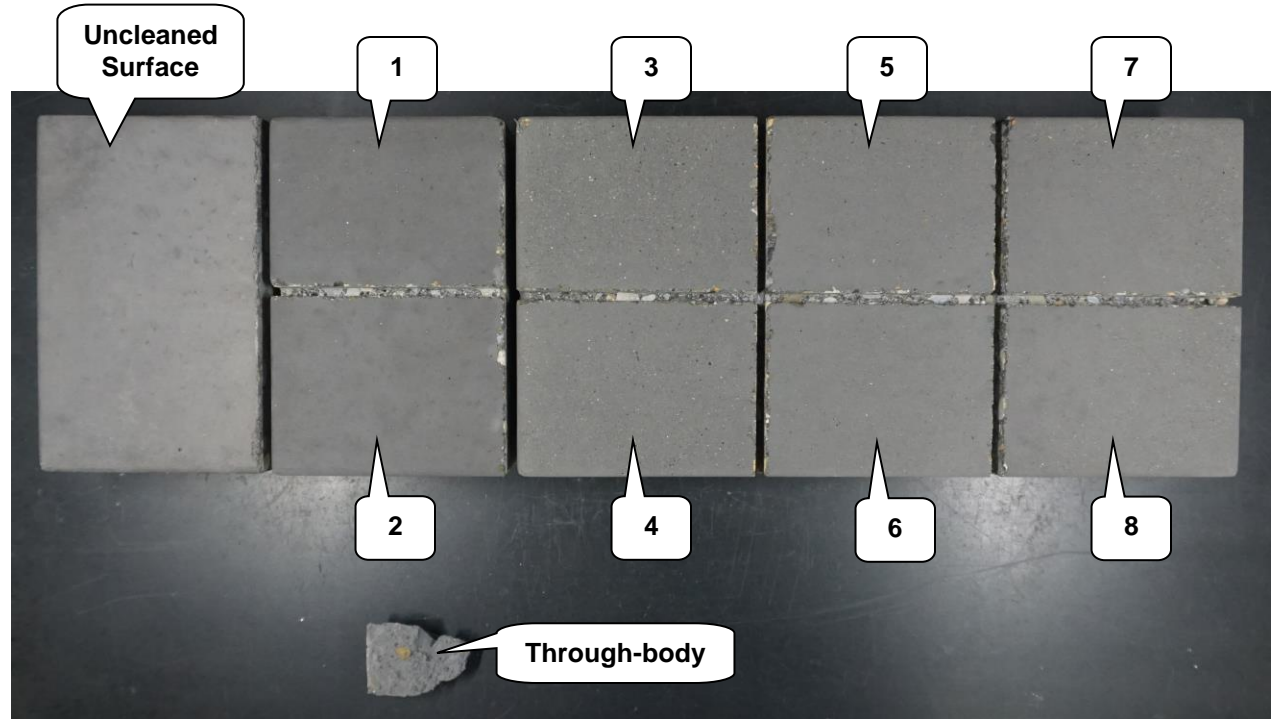


TEST RESULTS AND PHOTOGRAPHS: New Construction Cleaning (cont.)

Name: "Charcoal" Smooth Alpine				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Key
Light Duty Concrete Cleaner	1:2	1*	1*	1
Light Duty Concrete Cleaner	1:3	1*	1*	2
Heavy Duty Concrete Cleaner	1:4	2	2	3
Heavy Duty Concrete Cleaner	1:6	2	2	4
Vana Trol®	1:6	1	1	5
Vana Trol®	1:8	1	1	6
Safety Klean	1:2	1	1	7
Safety Klean	1:3	1	1	8

***NOTE: Very slight change compared to uncleaned surface.**

"Charcoal" Smooth Alpine After Cleaning

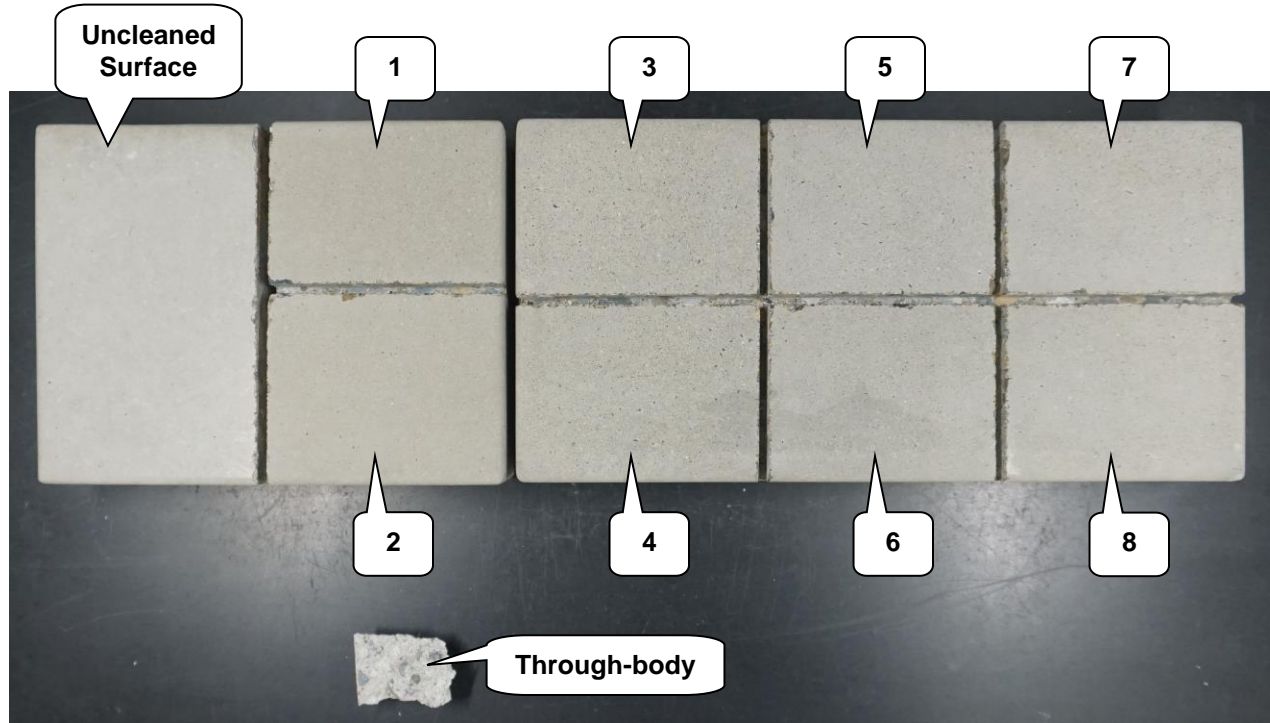


TEST RESULTS AND PHOTOGRAPHS: New Construction Cleaning (cont.)

Name: "Natural Gray" Smooth Alpine				
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	Key
Light Duty Concrete Cleaner	1:2	1*	1*	1
Light Duty Concrete Cleaner	1:3	1*	1*	2
Heavy Duty Concrete Cleaner	1:4	2	2	3
Heavy Duty Concrete Cleaner	1:6	2	2	4
Vana Trol®	1:6	1	1	5
Vana Trol®	1:8	1	1	6
Safety Klean	1:2	1	1	7
Safety Klean	1:3	1	1	8

***NOTE: Very slight change compared to uncleaned surface.**

"Natural Gray" Smooth Alpine After Cleaning



CONCLUSIONS: New Construction Cleaning

In the cleaning tests conducted on the concrete pavers, both dilutions of Sure Klean® Light Duty Concrete Cleaner removed a very slight to slight amount of surface pigment, exposing a very slight to slight amount of aggregate. Both dilutions of Sure Klean® Heavy Duty Concrete Cleaner, Sure Klean® Vana Trol®, and Enviro Klean® Safety Klean removed a slight to moderate amount of surface pigment, exposing a slight to moderate amount of aggregate, depending on the concrete paver.

All of the new construction cleaners in each dilution evaluated provided an accurate match to the through-body color of each concrete paver.

When choosing the most appropriate product for the desired result:

- For common construction and atmospheric staining – Test Sure Klean® Light Duty Concrete Cleaner
- For removal of concrete splashes, excess mortar, retarders, heavy efflorescence, embedded stains, rust and surface soiling – Test Sure Klean® Heavy Duty Concrete Cleaner
- For new masonry surfaces that are subject to vanadium, manganese, and other metallic stains – Test Sure Klean® Vana Trol®
- For an effective, safe alternative to acidic cleaning compounds – Test Enviro Klean® Safety Klean

Use higher concentrations and surface agitation to maximize aggregate exposure. Use low concentrations and surface agitation to minimize aggregate exposure.

It is recommended that the selected cleaners always be used in the lowest possible concentration. Apply all products in accordance with the manufacturer's recommendations 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.

RECOMMENDATIONS: New Construction Cleaning

Recommendations for cleaning each type of concrete paver submitted by Castohn, Tacoma, WA are provided in the chart below. Recommendations are based on the cleaner and dilution that provided the best match to the through-body.

Sample	New Construction Cleaning
"Charcoal" Mountain Slate	¹ Sure Klean® Light Duty Concrete Cleaner (1:2) or (1:3) OR ² Sure Klean® Heavy Duty Concrete Cleaner (1:4) or (1:6)
"Natural Gray" Mountain Slate	² Sure Klean® Vana Trol® (1:6) or (1:8) OR ² Enviro Klean® Safety Klean (1:2) or (1:3)
"Charcoal" Olympic Paver	Sure Klean® Light Duty Concrete Cleaner (1:2) or (1:3) OR Sure Klean® Heavy Duty Concrete Cleaner (1:4) or (1:6)
"Natural Gray" Olympic Paver	Sure Klean® Vana Trol® (1:6) or (1:8) OR Enviro Klean® Safety Klean (1:2) or (1:3)
"Charcoal" Smooth Alpine	¹ Sure Klean® Light Duty Concrete Cleaner (1:2) or (1:3) OR ³ Sure Klean® Heavy Duty Concrete Cleaner (1:4) or (1:6)
"Natural Gray" Smooth Alpine	² Sure Klean® Vana Trol® (1:6) or (1:8) OR ² Enviro Klean® Safety Klean (1:2) or (1:3)

NOTE: "1" indicates the recommended first choice, "2" indicates the recommended second choice, and "3" indicates the recommended third choice.

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.

TEST METHODS: Stain Removal

Sure Klean® Light Duty Concrete Cleaner and Enviro Klean® Safety Klean were evaluated to determine the most effective cleaner which removes the white staining from the submitted samples. The samples were visually examined following the cleaning procedure below.

Cleaning Procedure:

1. Pre-wet the surface and apply the cleaning solution according to PROSOCO, Inc. Product Data Sheet.
2. Allow for an appropriate dwell time and periodically agitate:
Light Duty Concrete Cleaner..... 5 minutes
Safety Klean..... 5 minutes
3. Reapply cleaning solution; do not let cleaner dry into masonry.
4. Rinse thoroughly with plenty of fresh water.*
5. Allow the sample to dry for at least 18 hours and visually examine.

***Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 40 degree fan spray tip was used for rinsing.

TEST RESULTS AND PHOTOGRAPHS: Stain Removal

Name: "Bluestone" Dimensional Flagstone		
Product	Dilution	Percent Stain Removal
Light Duty Concrete Cleaner	1:2	100%
Safety Klean	1:2	100%

Name: "Pacific Mist" Linear Slate		
Product	Dilution	Percent Stain Removal
Light Duty Concrete Cleaner	1:2	100%
Safety Klean	1:2	100%

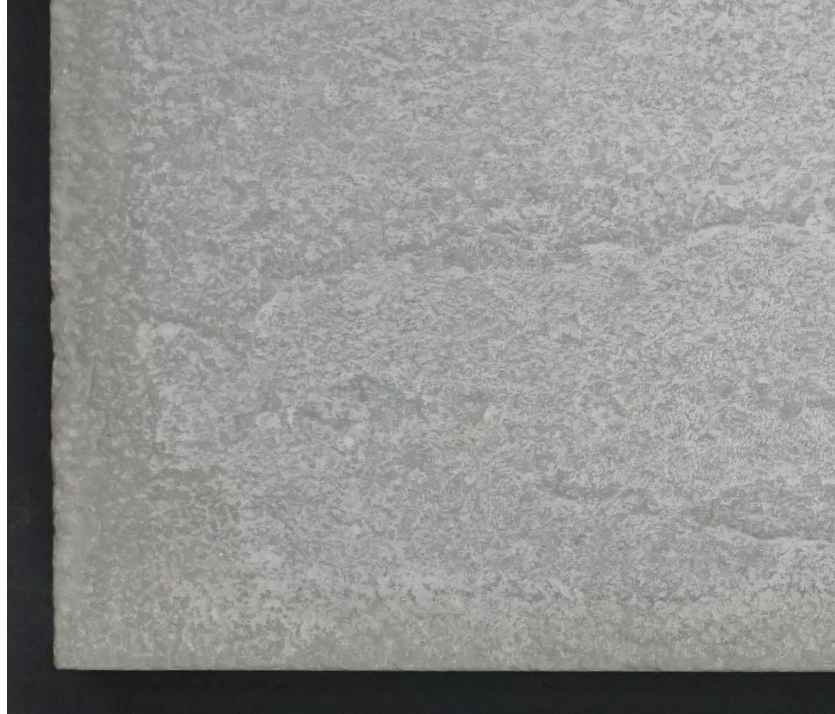
Name: "Silver Legacy" Linear Slate		
Product	Dilution	Percent Stain Removal
Light Duty Concrete Cleaner	1:2	100%
Safety Klean	1:2	100%

Name: "Western Buff" Linear Slate		
Product	Dilution	Percent Stain Removal
Light Duty Concrete Cleaner	1:2	100%
Safety Klean	1:2	100%

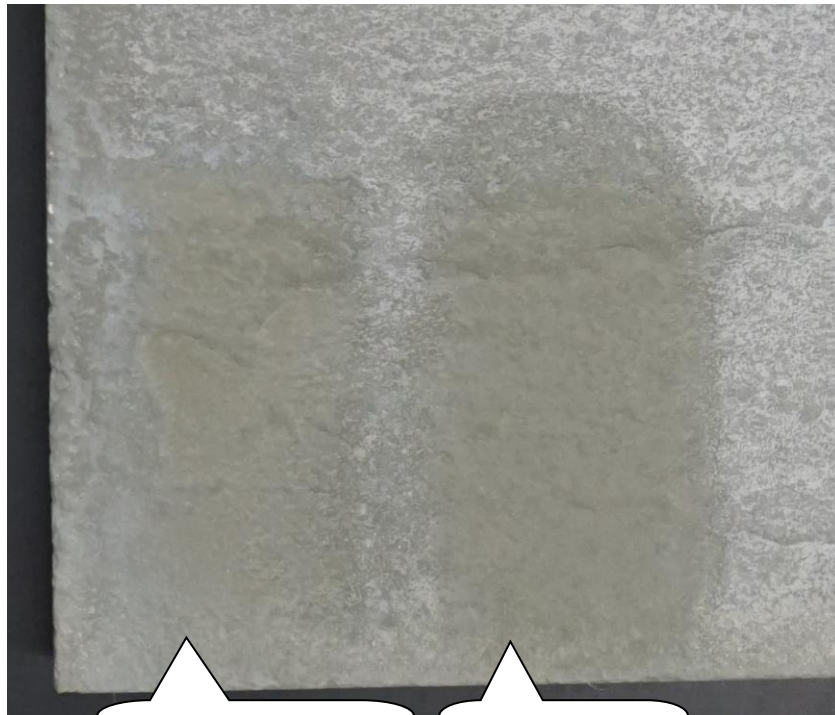
Name: "Western Buff" New Mission		
Product	Dilution	Percent Stain Removal
Light Duty Concrete Cleaner	1:2	100%
Safety Klean	1:2	100%

TEST RESULTS AND PHOTOGRAPHS: Stain Removal

“Bluestone” Dimensional Flagstone Before Cleaning



“Bluestone” Dimensional Flagstone After Cleaning

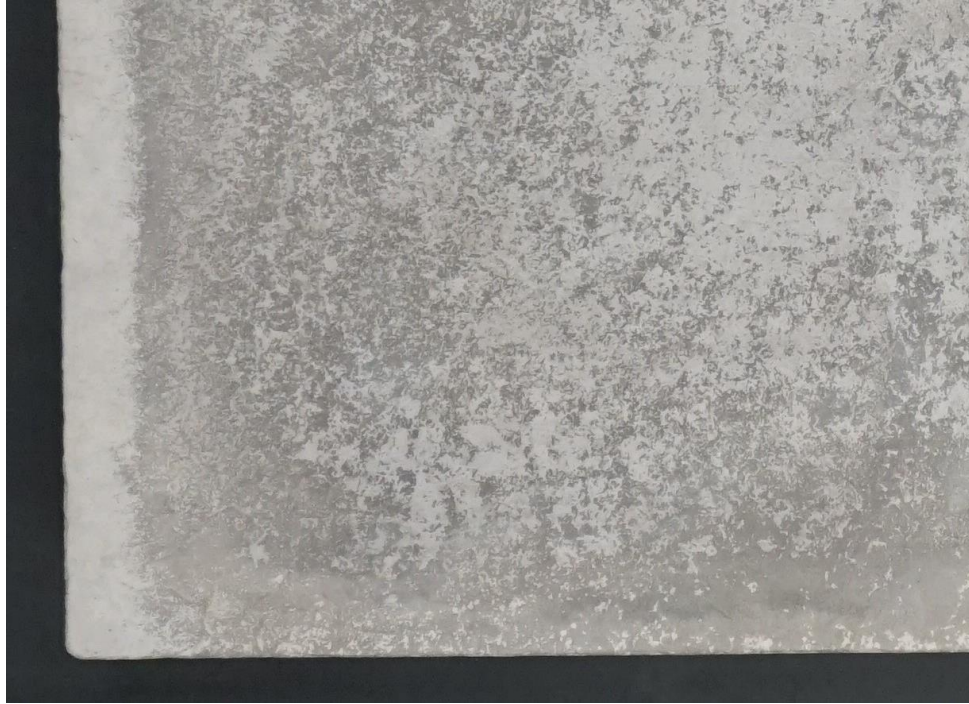


**Light Duty Concrete
Cleaner (1:2)**

**Safety Klean
(1:2)**

TEST RESULTS AND PHOTOGRAPHS: Stain Removal (cont.)

“Pacific Mist” Linear Slate Before Cleaning



“Pacific Mist” Linear Slate After Cleaning



**Light Duty Concrete
Cleaner (1:2)**

**Safety Klean
(1:2)**

CONCLUSIONS: Stain Removal

In the stain removal tests conducted, both Sure Klean® Light Duty Concrete Cleaner and Enviro Klean® Safety Klean diluted with two parts water were very effective in removing the white staining from the submitted samples.

Some of the submitted samples had variations in color present that the customer noted as differential curing marks. While the white staining was localized on the surface of the samples and easily removed, the differential curing marks are not necessarily superficial. Because the depth of the discoloration can vary and be present below the surface of the samples, new construction cleaners may reduce this variation in color at times but may not remove it entirely.

It is recommended that the cleaner always be used in the lowest possible concentration. Apply all products in accordance with the manufacturer’s recommendations 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.

RECOMMENDATIONS: Stain Removal

Recommendations for removing the white staining from each type of concrete paver submitted by Castohn, Tacoma, WA are provided in the chart below.

Sample	Stain Removal
“Bluestone” Dimensional Flagstone	Sure Klean® Light Duty Concrete Cleaner (1:2) OR Enviro Klean® Safety Klean (1:2)
“Pacific Mist” Linear Slate	
“Silver Legacy” Linear Slate	
“Western Buff” Linear Slate	
“Western Buff” New Mission	

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.

SAMPLE PREPARATION: Treatment Application

Prior to treatment application, the submitted concrete pavers were cleaned with Sure Klean® Light Duty Concrete Cleaner diluted with three parts water. After the samples had dried for at least 24 hours, PROSOCO® Saltguard® WB, PROSOCO® SL100 Water Repellent, Sure Klean® Weather Seal Color Enhancer WB, and Sure Klean® Weather Seal Satin Guard WB were applied in a brushing application in accordance with the current PROSOCO, Inc. Product Data Sheet instructions. The treatments were allowed to cure for at least 72 hours prior to testing.

TEST METHODS: Color and Sheen Enhancement

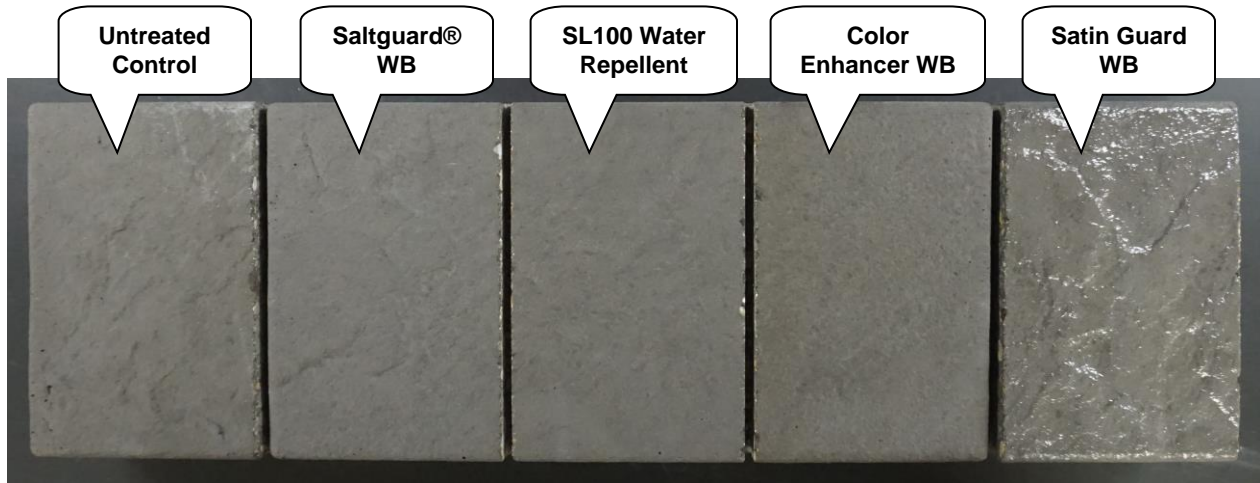
After 72 hours, a visual evaluation was made comparing the untreated control surface to the treated surface to determine the effectiveness of the evaluated products in providing color and/or sheen enhancement to the submitted samples.

The following scale was used for reporting results of both categories:
0 – No enhancement compared to untreated control
1 – Slight enhancement compared to untreated control
2 – Moderate enhancement compared to untreated control
3 – Significant enhancement compared to untreated control

TEST RESULTS AND PHOTOGRAPHS: Color and Sheen Enhancement

"Charcoal" Mountain Slate	Color Enhancement	Sheen Enhancement
PROSOCO® Saltguard® WB	0	0
PROSOCO® SL100 Water Repellent	0	0
Sure Klean® Weather Seal Color Enhancer WB	1	0
Sure Klean® Weather Seal Satin Guard WB	1	3

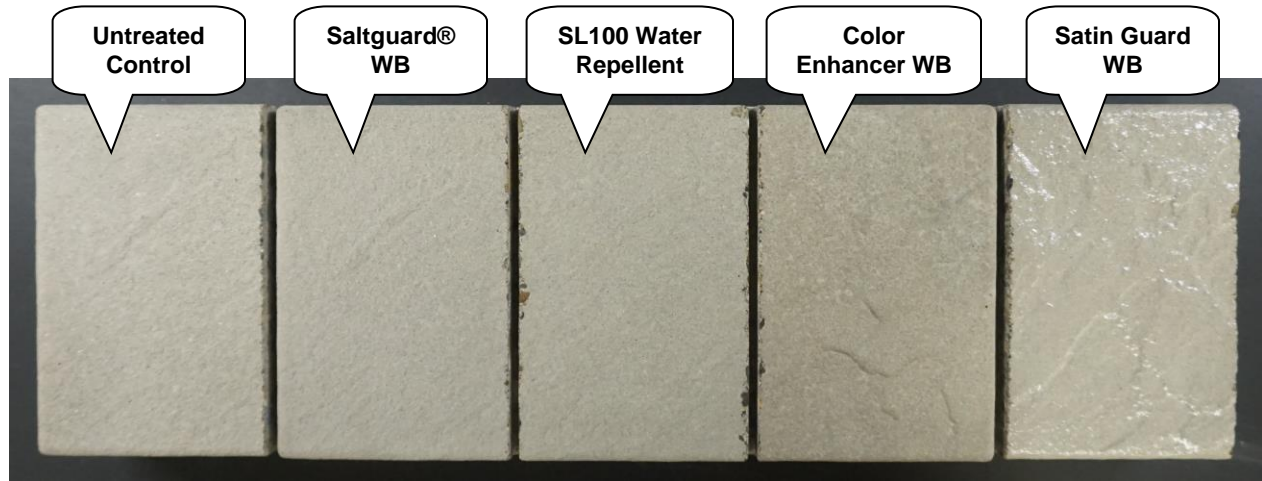
"Charcoal" Mountain Slate with Treatments



TEST RESULTS AND PHOTOGRAPHS: Color and Sheen Enhancement (cont.)

"Natural Gray" Mountain Slate	Color Enhancement	Sheen Enhancement
PROSOCO® Saltguard® WB	0	0
PROSOCO® SL100 Water Repellent	0	0
Sure Klean® Weather Seal Color Enhancer WB	2	0
Sure Klean® Weather Seal Satin Guard WB	1	3

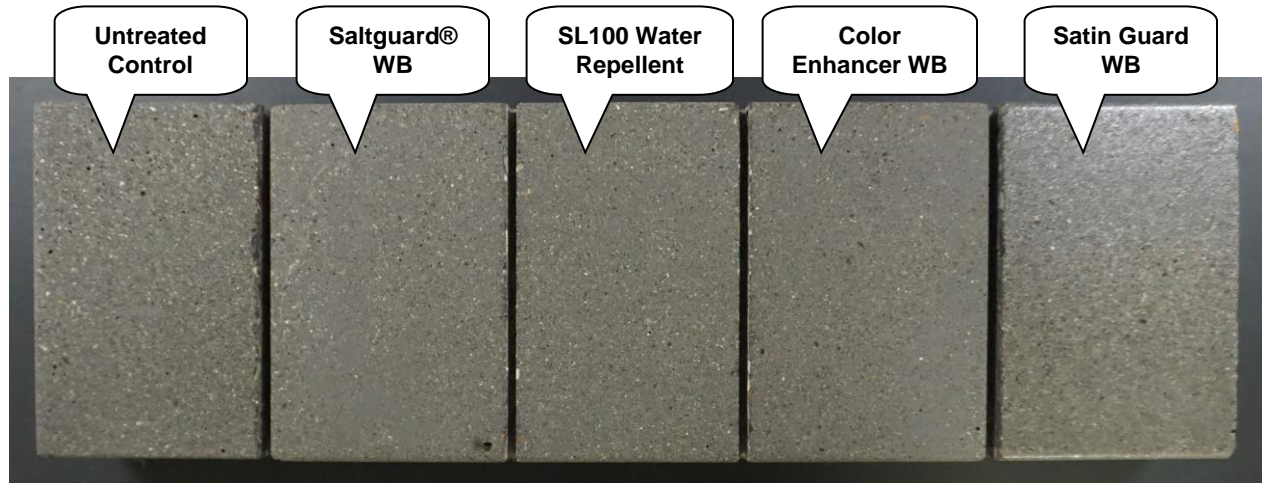
"Natural Gray" Mountain Slate with Treatments



TEST RESULTS AND PHOTOGRAPHS: Color and Sheen Enhancement (cont.)

"Charcoal" Olympic Paver	Color Enhancement	Sheen Enhancement
PROSOCO® Saltguard® WB	0	0
PROSOCO® SL100 Water Repellent	0	0
Sure Klean® Weather Seal Color Enhancer WB	1	0
Sure Klean® Weather Seal Satin Guard WB	2	2

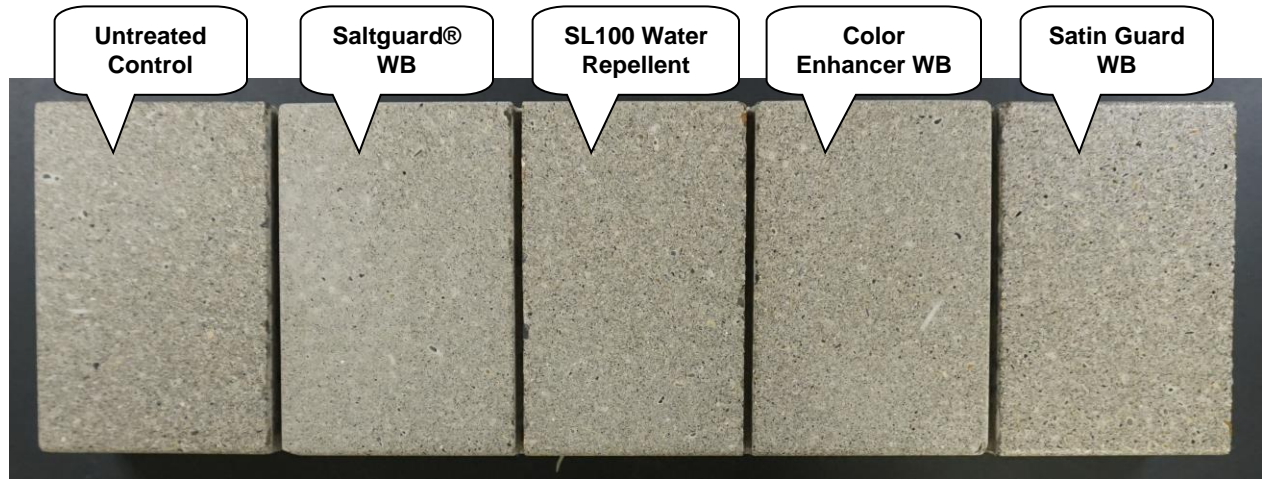
"Charcoal" Olympic Paver with Treatments



TEST RESULTS AND PHOTOGRAPHS: Color and Sheen Enhancement (cont.)

"Natural Gray" Olympic Paver	Color Enhancement	Sheen Enhancement
PROSOCO® Saltguard® WB	0	0
PROSOCO® SL100 Water Repellent	0	0
Sure Klean® Weather Seal Color Enhancer WB	1	0
Sure Klean® Weather Seal Satin Guard WB	2	2

"Natural Gray" Olympic Paver with Treatments

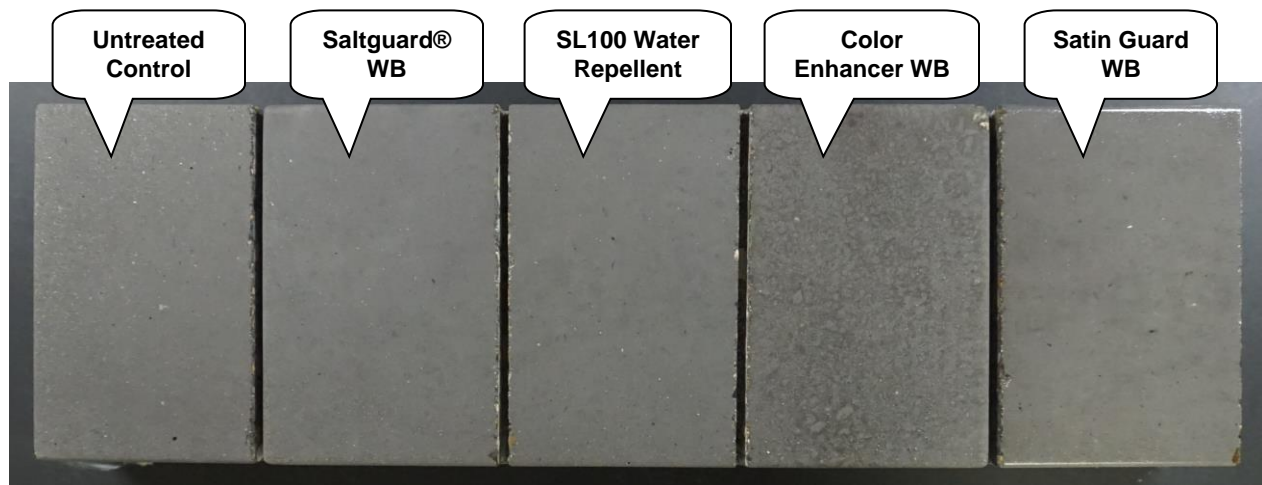


TEST RESULTS AND PHOTOGRAPHS: Color and Sheen Enhancement (cont.)

"Charcoal" Smooth Alpine	Color Enhancement	Sheen Enhancement
PROSOCO® Saltguard® WB	0	0
PROSOCO® SL100 Water Repellent	0	0
Sure Klean® Weather Seal Color Enhancer WB	2*	0
Sure Klean® Weather Seal Satin Guard WB	1	3

***NOTE: Application of Sure Klean® Weather Seal Color Enhancer WB resulted in uneven color enhancement to the sample.**

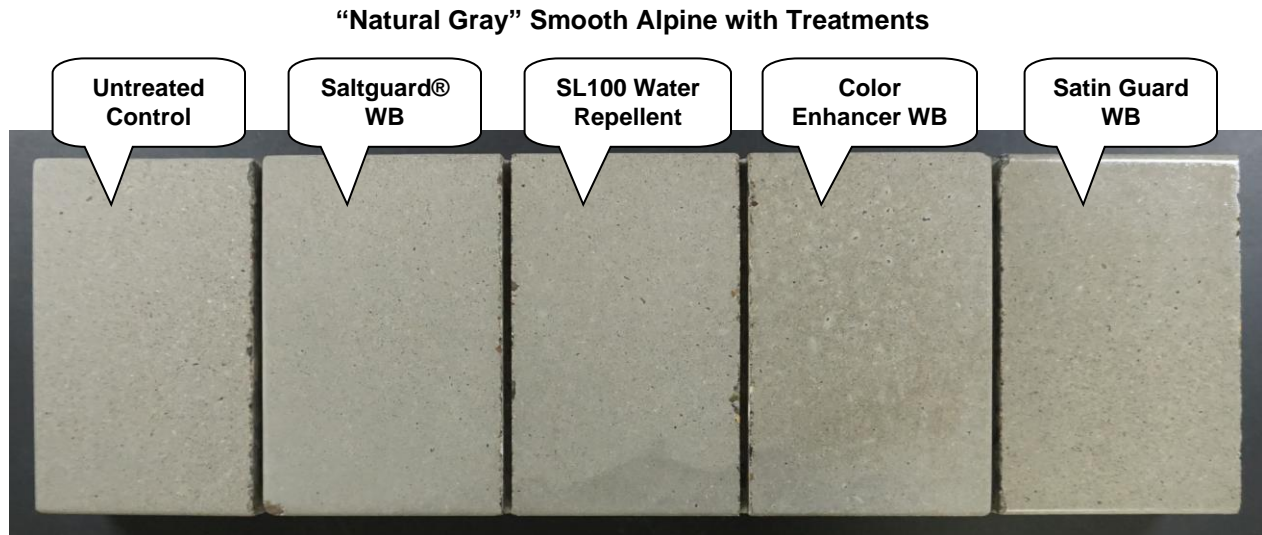
"Charcoal" Smooth Alpine with Treatments



TEST RESULTS AND PHOTOGRAPHS: Color and Sheen Enhancement (cont.)

"Natural Gray" Smooth Alpine	Color Enhancement	Sheen Enhancement
PROSOCO® Saltguard® WB	0	0
PROSOCO® SL100 Water Repellent	0	0
Sure Klean® Weather Seal Color Enhancer WB	2*	0
Sure Klean® Weather Seal Satin Guard WB	2	3

***NOTE: Application of Sure Klean® Weather Seal Color Enhancer WB resulted in uneven color enhancement to the sample.**



CONCLUSIONS: Color and Sheen Enhancement

The treatments evaluated provided a range of color and sheen enhancement results, from no change in appearance to a significant change depending on the treatment and sample type.

Application of PROSOCO® Saltguard® WB and SL100 Water Repellent did not result in any change in appearance to the submitted samples.

Application of Sure Klean® Weather Seal Color Enhancer WB resulted in slight to moderate color enhancement and no sheen enhancement.

Application of Sure Klean® Weather Seal Satin Guard WB resulted in slight to moderate color enhancement and moderate to significant sheen enhancement.

Worth noting, application of Sure Klean® Weather Seal Color Enhancer WB resulted in uneven color enhancement to the “Charcoal” and “Natural Gray” Smooth Alpine samples. Therefore, it is not recommended for use on these pavers.

Please refer to pages 18-26 of the report for individual recommendations based on the desired result.

Enhancement levels may vary by substrate color, lighting, orientation application method, and other variables. Always test in the field to confirm intended results.

Apply all products in accordance with the manufacturer’s recommendations provided on container labels and product data sheets. On-site testing should be conducted to determine the most appropriate treatment and procedures for a particular project. See product literature for additional application and product information.

RECOMMENDATIONS: Color and Sheen Enhancement

Recommendations for color and sheen enhancement for each type of concrete paver submitted by Castohn, Tacoma, WA are provided in the chart below. Recommendations are based on the treatment(s) that proved most effective.

Sample	Color and Sheen Enhancement
"Charcoal" Mountain Slate	Please refer to pages 18-26 of the report for individual recommendations based on the desired result.
"Natural Gray" Mountain Slate	
"Charcoal" Olympic Paver	
"Natural Gray" Olympic Paver	
"Charcoal" Smooth Alpine	
"Natural Gray" Smooth Alpine	

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 treatment and procedure for a particular project. See product literature for additional application and product information.

Please refer to the Product Data Sheet or visit www.prosoco.com/voccompliance to confirm VOC compliance with individual district or state regulations.

TEST METHODS: Protective Water Repellents

Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes

The water absorption tube test simulating wind driven rain conditions was performed on the submitted samples. Tests were run with 5.0-milliliter head pressures. Filled to 5.0 milliliters, a water absorption tube produces a 103 mph dynamic wind pressure. See RILEM II.4 Tech Note for additional information.

The ranking system used to evaluate the effectiveness of the products applied to each submitted sample is as follows:

AA = "Above Average" correlates to less than or equal to 20% of the maximum untreated absorption.

A = "Average" correlates to less than or equal to 50% of the maximum untreated absorption.

BA = "Below Average" correlates to greater than 50% of the maximum untreated absorption.

EXAMPLE: If RILEM tubes applied to an untreated sample result in loss of 5.0 ml of water or more, then:

A rating of **AA** *Above Average* water repellent performance would be reported for treatments which result in a loss of no more than:

$$5.0 \text{ mL} \times 20\% = \mathbf{1.0 \text{ mL}}$$

A rating of **A** *Average* water repellent performance would be reported for treatments which result in a loss of no more than:

$$5.0 \text{ mL} \times 50\% = \mathbf{2.5 \text{ mL}}$$

A rating of **BA** *Below Average* water repellent performance would be reported for treatments which result in a loss of more than:

$$5.0 \text{ mL} \times 50\% = \mathbf{2.5 \text{ mL}}$$



TEST RESULTS AND PHOTOGRAPHS: Protective Water Repellents

Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes

AA = Above Average **A** = Average **BA** = Below Average

“Charcoal” Mountain Slate	Results in mL loss	<u>Ranking</u>
Untreated Control	-0.0	--
PROSOCO® Saltguard® WB	-0.0	<u>AA</u>
PROSOCO® SL100 Water Repellent	-0.0	<u>AA</u>
Sure Klean® Weather Seal Color Enhancer WB	-0.0	<u>AA</u>

“Natural Gray” Mountain Slate	Results in mL loss	<u>Ranking</u>
Untreated Control	-0.4	--
PROSOCO® Saltguard® WB	-0.0	<u>AA</u>
PROSOCO® SL100 Water Repellent	-0.0	<u>AA</u>
Sure Klean® Weather Seal Color Enhancer WB	-0.0	<u>AA</u>

“Charcoal” Olympic Paver	Results in mL loss	<u>Ranking</u>
Untreated Control	-0.0	--
PROSOCO® Saltguard® WB	-0.0	<u>AA</u>
PROSOCO® SL100 Water Repellent	-0.0	<u>AA</u>
Sure Klean® Weather Seal Color Enhancer WB	-0.0	<u>AA</u>

“Natural Gray” Olympic Paver	Results in mL loss	<u>Ranking</u>
Untreated Control	-0.0	--
PROSOCO® Saltguard® WB	-0.0	<u>AA</u>
PROSOCO® SL100 Water Repellent	-0.0	<u>AA</u>
Sure Klean® Weather Seal Color Enhancer WB	-0.0	<u>AA</u>

TEST RESULTS AND PHOTOGRAPHS: Protective Water Repellents (cont.)

Water Absorption Tube Test: Horizontal RILEM II.4, 5.0 milliliters, 20 minutes

AA = Above Average **A** = Average **BA** = Below Average

“Charcoal” Smooth Alpine	Results in mL loss	<u>Ranking</u>
Untreated Control	-0.4	--
PROSOCO® Saltguard® WB	-0.0	<u>AA</u>
PROSOCO® SL100 Water Repellent	-0.0	<u>AA</u>

“Natural Gray” Smooth Alpine	Results in mL loss	<u>Ranking</u>
Untreated Control	-0.2	--
PROSOCO® Saltguard® WB	-0.0	<u>AA</u>
PROSOCO® SL100 Water Repellent	-0.0	<u>AA</u>

CONCLUSIONS: Protective Water Repellents

Based on the laboratory evaluations, all of the treatments provided good water repellent protection to the submitted samples.

Although some of the untreated areas in the 20 minute RILEM test did not absorb any water, the treatments will likely provide long-term water repellent protection and help to prevent water-related staining.

RECOMMENDATIONS: Protective Water Repellents

Recommendations for water repellency for each type of concrete paver submitted by Castohn, Tacoma, WA are provided in the chart below. Recommendations are based on the treatment(s) that proved most effective.

Sample	Water Repellency
"Charcoal" Mountain Slate	PROSOCO® Saltguard® WB OR PROSOCO® SL100 Water Repellent OR Sure Klean® Weather Seal Color Enhancer WB
"Natural Gray" Mountain Slate	
"Charcoal" Olympic Paver	
"Natural Gray" Olympic Paver	
"Charcoal" Smooth Alpine	PROSOCO® Saltguard® WB OR PROSOCO® SL100 Water Repellent
"Natural Gray" Smooth Alpine	

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 treatment and procedure for a particular project. See product literature for additional application and product information.

Please refer to the Product Data Sheet or visit www.prosoco.com/voccompliance to confirm VOC compliance with individual district or state regulations.

TEST METHODS: Surface Beading Evaluation

Food and Oil Products Evaluated for Stain Testing:

Temperature:

Coca Cola	ambient (~70°F)
Ketchup	ambient (~70°F)
Mustard	ambient (~70°F)
Red wine	ambient (~70°F)
Balsamic vinegar	ambient (~70°F)
Soy sauce	ambient (~70°F)
Olive oil	ambient (~70°F)
Wesson oil	250°F
Coffee	120°F

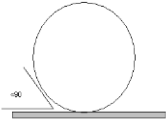
The food and oil products were applied to the test areas by using a dropper creating a bead 0.5 – 1.0 cm in diameter. The beading properties of the oils and liquids were visually evaluated within two minutes after application. The results are reported as a rating based on the angle of contact between 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 oils or liquids 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.

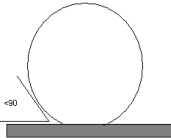
TEST METHODS: Surface Beading Evaluation

Rating System (1-5)

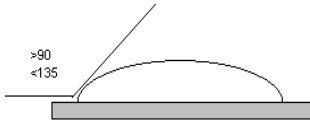
1. No wetting of contact area (no darkening); angle less than 90°



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.



TEST RESULTS: Surface Beading Evaluation

“Charcoal” Mountain Slate		
	Untreated Control	Satin Guard WB
Coca Cola	3	3
Ketchup	N/A	N/A
Mustard	N/A	N/A
Red Wine	4	3
Bals. Vin.	3	3
Soy Sauce	3	3
Olive Oil	5	3
Wesson Oil	5	3
Hot Coffee	3	3

“Natural Gray” Mountain Slate		
	Untreated Control	Satin Guard WB
Coca Cola	4	3
Ketchup	N/A	N/A
Mustard	N/A	N/A
Red Wine	4	3
Bals. Vin.	4	3
Soy Sauce	4	3
Olive Oil	5	3
Wesson Oil	5	3
Hot Coffee	3	3

N/A – non-free flowing staining agent

TEST RESULTS: Surface Beading Evaluation (cont.)

“Charcoal” Olympic Paver		
	Untreated Control	Satin Guard WB
Coca Cola	3	3
Ketchup	N/A	N/A
Mustard	N/A	N/A
Red Wine	3	3
Bals. Vin.	3	3
Soy Sauce	3	3
Olive Oil	5	3
Wesson Oil	5	3
Hot Coffee	3	3

“Natural Gray” Olympic Paver		
	Untreated Control	Satin Guard WB
Coca Cola	3	3
Ketchup	N/A	N/A
Mustard	N/A	N/A
Red Wine	3	3
Bals. Vin.	3	3
Soy Sauce	3	3
Olive Oil	5	3
Wesson Oil	5	3
Hot Coffee	3	3

N/A – non-free flowing staining agent

TEST RESULTS: Surface Beading Evaluation

“Charcoal” Smooth Alpine		
	Untreated Control	Satin Guard WB
Coca Cola	3	3
Ketchup	N/A	N/A
Mustard	N/A	N/A
Red Wine	3	3
Bals. Vin.	3	3
Soy Sauce	3	3
Olive Oil	5	3
Wesson Oil	5	3
Hot Coffee	3	3

“Natural Gray” Smooth Alpine		
	Untreated Control	Satin Guard WB
Coca Cola	3	3
Ketchup	N/A	N/A
Mustard	N/A	N/A
Red Wine	3	3
Bals. Vin.	3	3
Soy Sauce	3	3
Olive Oil	5	3
Wesson Oil	5	3
Hot Coffee	3	3

N/A – non-free flowing staining agent

TEST METHODS: Stain Resistance Evaluation

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® Klean 'N Release Cleaner diluted with ten parts water and scrubbed under a stream of running water. The 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.

TEST RESULTS AND PHOTOGRAPHS: Stain Resistance Evaluation

“Charcoal” Mountain Slate

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	50%	100%*	80%*	10%	80%*	50%*	<1%	<1%	N/A*
4 hour	50%	100%*	100%*	30%	80%*	100%*	<1%	<1%	30%
1 hour	70%	100%*	100%*	90%	100%*	100%*	<1%	<1%	30%
10 min.	90%	100%*	100%*	100%	100%*	100%*	<1%	<1%	100%
Sure Klean® Weather Seal Satin Guard WB									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

“Natural Gray” Mountain Slate

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	50%	100%*	30%	10%	10%	50%	<1%	<1%	10%
4 hour	50%	100%*	70%	10%	10%	50%	<1%	<1%	30%
1 hour	70%	100%	80%	10%	10%	80%	<1%	<1%	30%
10 min.	70%	100%	100%*	10%	20%	100%*	<1%	<1%	30%
Sure Klean® Weather Seal Satin Guard WB									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

% Removal of stain following maintenance cleaning.

* Indicates etching of surface treatment due to the acidic nature of the staining agent.

N/A* Indicates the removal of the stain, following maintenance cleaning, was unable to be determined due to olive oil or Wesson oil spreading masking the area in question.

TEST RESULTS AND PHOTOGRAPHS: Stain Resistance Evaluation (cont.)

“Charcoal” Olympic Paver

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	50%	100%	90%*	30%	50%	100%*	<1%	<1%	30%
4 hour	100%	100%	100%	30%	50%	100%*	<1%	<1%	50%
1 hour	100%	100%	100%	50%	70%	100%*	<1%	<1%	90%
10 min.	100%	100%	100%	90%	90%	100%*	<1%	<1%	100%
Sure Klean® Weather Seal Satin Guard WB									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

“Natural Gray” Olympic Paver

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	50%*	30%	50%	100%*	<1%	<1%	30%
4 hour	100%	100%	100%	30%	50%	100%*	<1%	<1%	30%
1 hour	100%	100%	100%	50%	90%	100%*	<1%	<1%	90%
10 min.	100%	100%	100%	90%	100%	100%*	<1%	<1%	100%
Sure Klean® Weather Seal Satin Guard WB									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

% Removal of stain following maintenance cleaning.

* Indicates etching of surface treatment due to the acidic nature of the staining agent.

N/A* Indicates the removal of the stain, following maintenance cleaning, was unable to be determined due to olive oil or Wesson oil spreading masking the area in question.

TEST RESULTS AND PHOTOGRAPHS: Stain Resistance Evaluation (cont.)

“Charcoal” Smooth Alpine

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	80%	100%*	50%	10%	10%	100%*	<1%	<1%	10%
4 hour	80%	100%*	90%*	10%	20%	100%*	<1%	<1%	30%
1 hour	80%	100%*	90%*	10%	50%	100%*	<1%	<1%	30%
10 min.	100%	100%*	100%*	10%	80%	100%*	<1%	<1%	50%
Sure Klean® Weather Seal Satin Guard WB									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

“Natural Gray” Smooth Alpine

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	30%	100%*	50%	10%	30%	70%	<1%	<1%	10%
4 hour	30%	100%*	50%	10%	30%	70%	<1%	<1%	30%
1 hour	50%	100%*	70%	10%	50%	100%*	<1%	<1%	30%
10 min.	100%	100%*	90%*	10%	80%*	100%*	<1%	<1%	50%
Sure Klean® Weather Seal Satin Guard WB									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
4 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
1 hour	100%	100%	100%	100%	100%	100%	100%	100%	100%
10 min.	100%	100%	100%	100%	100%	100%	100%	100%	100%

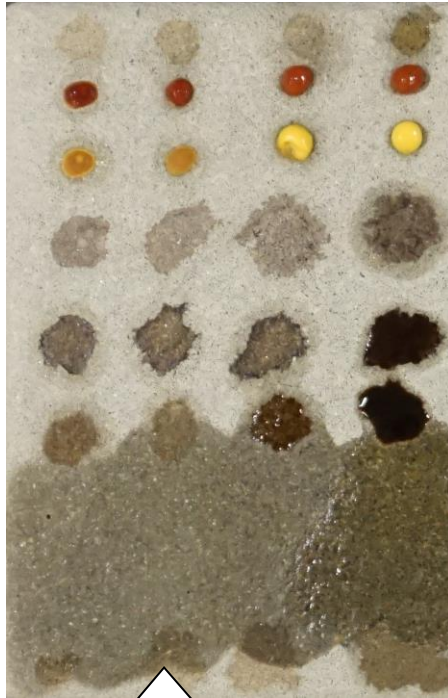
% Removal of stain following maintenance cleaning.

* Indicates etching of surface treatment due to the acidic nature of the staining agent.

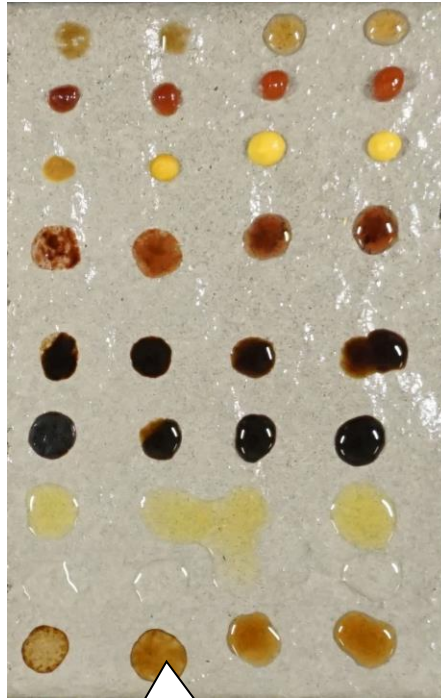
N/A* Indicates the removal of the stain, following maintenance cleaning, was unable to be determined due to olive oil or Wesson oil spreading masking the area in question.

TEST RESULTS AND PHOTOGRAPHS: Stain Resistance Evaluation

“Natural Gray” Mountain Slate With Stains



Untreated Control



Satin Guard WB

“Natural Gray” Mountain Slate After Stain Testing



Untreated Control



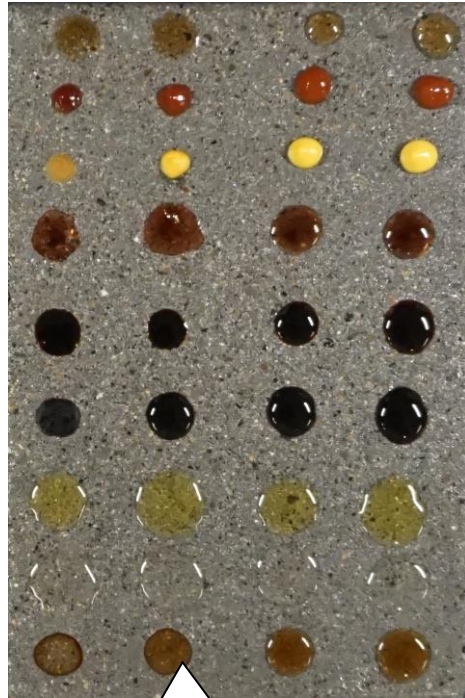
Satin Guard WB

TEST RESULTS AND PHOTOGRAPHS: Stain Resistance Evaluation (cont.)

“Charcoal” Olympic Paver With Stains



Untreated Control



Satin Guard WB

“Charcoal” Olympic Paver After Stain Testing



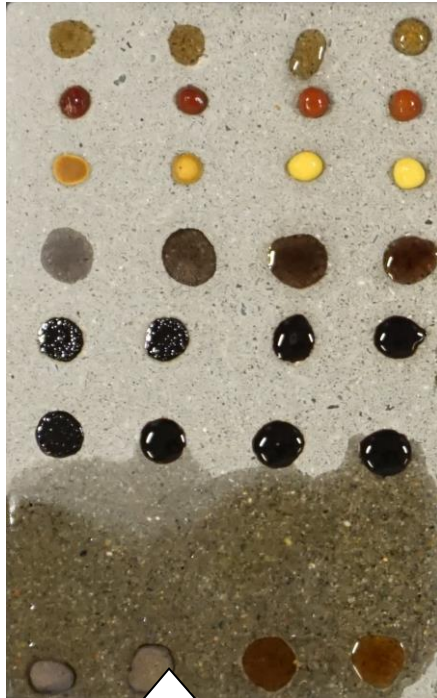
Untreated Control



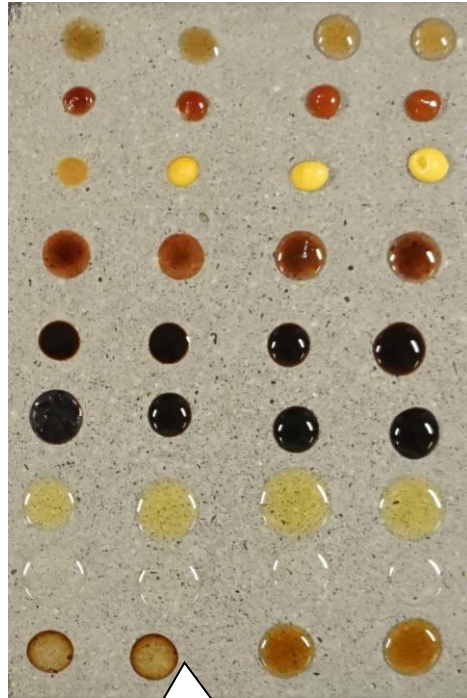
Satin Guard WB

TEST RESULTS AND PHOTOGRAPHS: Stain Resistance Evaluation (cont.)

“Natural Gray” Smooth Alpine With Stains



Untreated Control



Satin Guard WB

“Natural Gray” Smooth Alpine After Stain Testing



Untreated Control



Satin Guard WB

CONCLUSIONS: Surface Beading and Stain Resistance

In the surface beading evaluation, Sure Klean® Weather Seal Satin Guard WB improved the surface beading characteristics of the submitted pavers.

In the stain resistance tests conducted, Sure Klean® Weather Seal Satin Guard WB proved effective at repelling the applied stains on the submitted samples.

RECOMMENDATIONS: Stain Resistance

Recommendations for stain resistance for each type of concrete paver submitted by Castohn, Tacoma, WA are provided in the chart below. Recommendations are based on the treatments that proved most effective for providing stain repellency on the submitted pavers.

Sample	Stain Resistance
"Charcoal" Mountain Slate	<p style="text-align: center;"><u>Stain Repellents</u> Sure Klean® Weather Seal Satin Guard WB</p> <p style="text-align: center;"><u>Maintenance Cleaner</u> Enviro Klean® Klean 'N Release Cleaner</p>
"Natural Gray" Mountain Slate	
"Charcoal" Olympic Paver	
"Natural Gray" Olympic Paver	
"Charcoal" Smooth Alpine	
"Natural Gray" Smooth Alpine	

The ability of a stain repellent treatment to prevent staining is affected by a variety of factors. Therefore, on-site testing should be carried out for all installations with the recommended systems to ensure job site workmanship yields equivalent results.

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 stain repellent product and procedures for a particular project. See product literature for additional application and product information.



J. Lucas Comadoll
 Chemist

ALL SAMPLES SUPPLIED FOR THE ABOVE EVALUATION WILL BE DISPOSED OF THIRTY (30) DAYS AFTER THE ISSUE DATE OF THIS REPORT. IF SAMPLES ARE TO BE RETAINED FOR ADDITIONAL TESTING OR RETURNED TO THE SENDER, PROVIDE WRITTEN INSTRUCTIONS TO THE LABORATORY WITHIN THIRTY (30) DAYS OF THE ISSUE DATE OF THIS REPORT.

Recommendations made within this report are based on laboratory test applications and observations. Final determination of the suitability of a product and/or procedure should be made only after thorough job testing on actual surfaces.