



*Pallet Tag Program  
Laboratory Report*

**Indiana Limestone Company  
Bloomington, IN**



*Project No. 1903-05 PTP*

***Prepared For:***



**PROSOCO**

***Prepared By:***

*J. Lucas Comadoll*

J. Lucas Comadoll  
Project Testing Technician  
AMT Laboratories

April 2019



# LABORATORY REPORT

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**FOR:** Ben Wojcikiewicz, Indiana Limestone Company  
**cc:** Jake Boyer, PROSOCO, Inc.  
Al Morris, PROSOCO, Inc.

**SUBJECT:** Indiana Limestone Company  
Bloomington, IN  
Pallet Tag Evaluation

**DATE:** April 23, 2019  
**PROJECT:** 1903-05 PTP

**SAMPLES SUBMITTED:**

Sample	Name	Color	Size
(12) Honed Limestone Pavers	Indiana Limestone	Full Color Blend	11.625" x 11.625" x 1.5"

**SUBMITTED BY:** Ben Wojcikiewicz  
Indiana Limestone Company  
123 South College Ave.  
Bloomington, IN 47404

**PURPOSE OF TEST:**

- To determine the most appropriate PROSOCO, Inc. new construction cleaner(s) for the submitted samples.
- To determine the most appropriate PROSOCO, Inc. water repellent(s) for the submitted samples.
- To determine the effectiveness of appropriate PROSOCO, Inc. products in preventing the penetration of, and simplifying the removal of, graffiti staining on the submitted samples.
- To determine the effectiveness of appropriate PROSOCO, Inc. products in preventing food and oil staining on the submitted samples.



**PRODUCTS EVALUATED:**

<b>New Construction Cleaning</b>	<b>Dilution:</b>
Sure Klean® Light Duty Concrete Cleaner	1:2, 1:3
Sure Klean® Vana Trol®	1:6; 1:8

<b>Water Repellency</b>	<b>Dilution:</b>
Sure Klean® Weather Seal Natural Stone Treatment	N/A*
Sure Klean® Weather Seal Natural Stone Treatment WB Plus	N/A*
T-2576 Natural Stone Treatment VOC	N/A*
Stand Off® Limestone & Marble Protector	N/A*
Stand Off® Stone, Tile & Masonry Protector (STMP)	N/A*
Stand Off® Stain Barrier	N/A*
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 15	N/A*
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra 15	N/A*

<b>Graffiti Resistance</b>	<b>Dilution:</b>
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 15	N/A*
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra 15	N/A*

<b>Graffiti Removal</b>	<b>Dilution:</b>
Defacer Eraser® Graffiti Remover	N/A*
Enviro Klean® SafStrip® 8	N/A*

<b>Stain Repellency</b>	<b>Dilution:</b>
Stand Off® Limestone & Marble Protector	N/A*
Stand Off® Stone, Tile & Masonry Protector (STMP)	N/A*
Stand Off® Stain Barrier	N/A*

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

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## TEST METHODS: New Construction Cleaning

Sure Klean® Vana Trol® was evaluated to determine the optimal concentration of cleaner which leaves the external surface looking most like the uncleaned surface of the submitted samples.

**Surface Finish Removal** is the visual examination of the sample comparing the surface finish of the uncleaned surface to the surface finish cleaned with selected product(s) at given dilutions.

**Substrate Deterioration** is the visual examination of the sample comparing the uncleaned surface to surfaces cleaned with selected product(s) at given dilutions looking for any potential erosion/digestion of the sample.

**Color Change** is the visual examination comparing the color of the uncleaned surface to the color of surfaces cleaned with selected products at given dilutions.

**Staining** is the visual examination for changes that are the result of a chemical reaction that leaves a staining precipitate.

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

- 0 – **No change** compared to uncleaned surface
- 1 – **Slight change** compared to uncleaned surface
- 2 – **Moderate change** compared to uncleaned surface
- 3 – **Significant change** compared to uncleaned surface

### Cleaning Procedure:

1. Pre-wet the surface and apply diluted cleaning solution according to PROSOCO, Inc. Product Data Sheet.
2. Allow for an appropriate dwell time:
  - Light Duty Concrete Cleaner.....3 minutes
  - Vana Trol®.....3 minutes
3. Reapply cleaning solution; do not let cleaner dry into sample.
4. Rinse thoroughly with plenty of fresh water.\*
5. Allow the sample to dry for at least 18 hours and visually examine.
6. Compare the uncleaned surfaces to the cleaned surfaces for the best match.

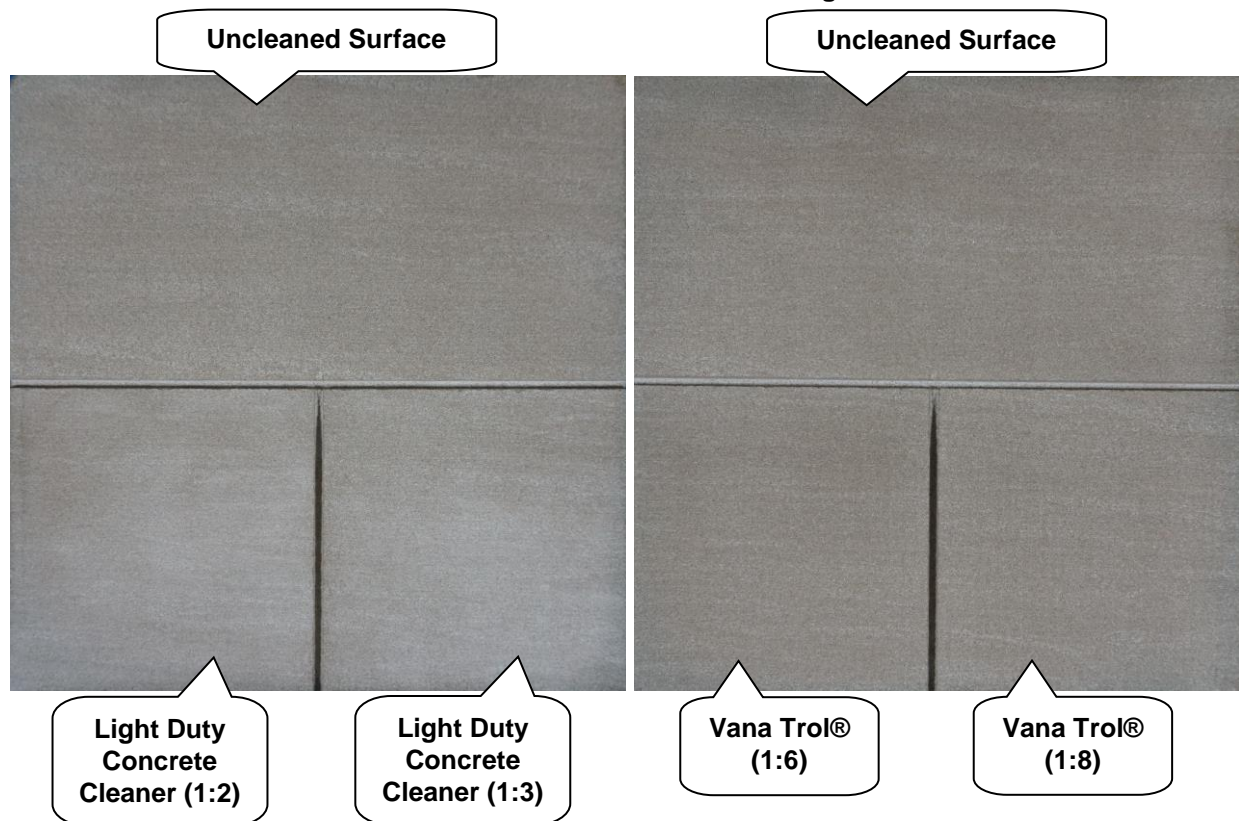
**\*Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.

**TEST RESULTS AND PHOTOGRAPHS: New Construction Cleaning**

Scale used for reporting results of both categories:
0 – <b>No change</b> compared to uncleaned surface
1 – <b>Slight change</b> compared to uncleaned surface
2 – <b>Moderate change</b> compared to uncleaned surface
3 – <b>Significant change</b> compared to uncleaned surface

Name: Indiana Limestone					
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Light Duty Concrete Cleaner	1:2	0	0	2	2
Light Duty Concrete Cleaner	1:3	0	0	2	2
Vana Trol®	1:6	0	0	0	0
Vana Trol®	1:8	0	0	0	0

**Indiana Limestone After Cleaning**

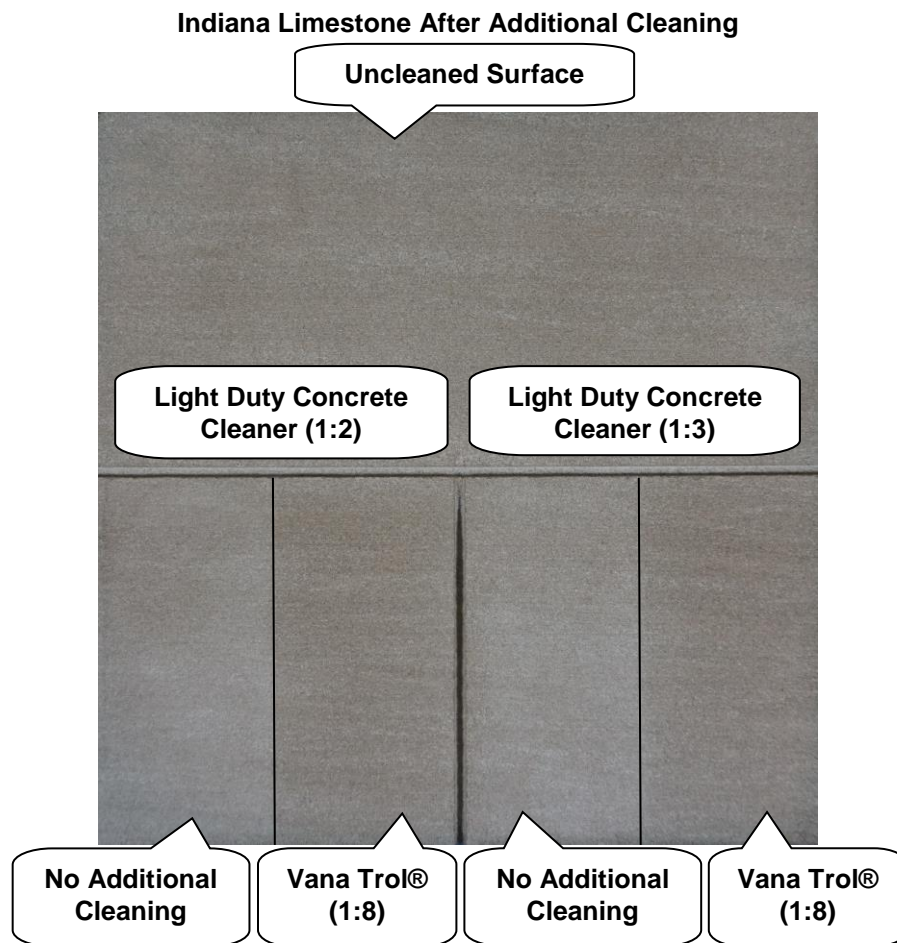


**\*NOTE: Both dilutions of Sure Klean® Light Duty Concrete Cleaner resulted in a white haze forming on the surface of the sample. Refer to page 6 for additional information.**

## CONCLUSIONS – New Construction Cleaning

In the cleaning tests conducted, Sure Klean® Vana Trol® caused no change to the appearance of the submitted samples.

As noted on the previous page, both dilutions of Sure Klean® Light Duty Concrete Cleaner resulted in a white haze forming on the surface of the sample. Sure Klean® Vana Trol® diluted with eight parts water was tested in order to determine if it would remove this white haze. It was successful in removing the white haze completely but resulted in a slight color change as seen in the photograph below.



It is recommended that the selected cleaner always be used in the lowest possible concentration.

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## RECOMMENDATIONS: New Construction Cleaning

Recommendations for cleaning for the samples submitted by Indiana Limestone Company, Bloomington, IN are provided in the chart below. Recommendations are based on the cleaner and dilution that provided the best match to the uncleaned surface.

Sample	New Construction Cleaning
Indiana Limestone	Sure Klean® Vana Trol® (1:6) or (1:8)

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 samples were rinsed using masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip. After the samples were allowed to dry for at least 24 hours, the treatments were applied in a brushing application in accordance with the current PROSOCO, Inc. Product Data Sheet instructions.

## 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

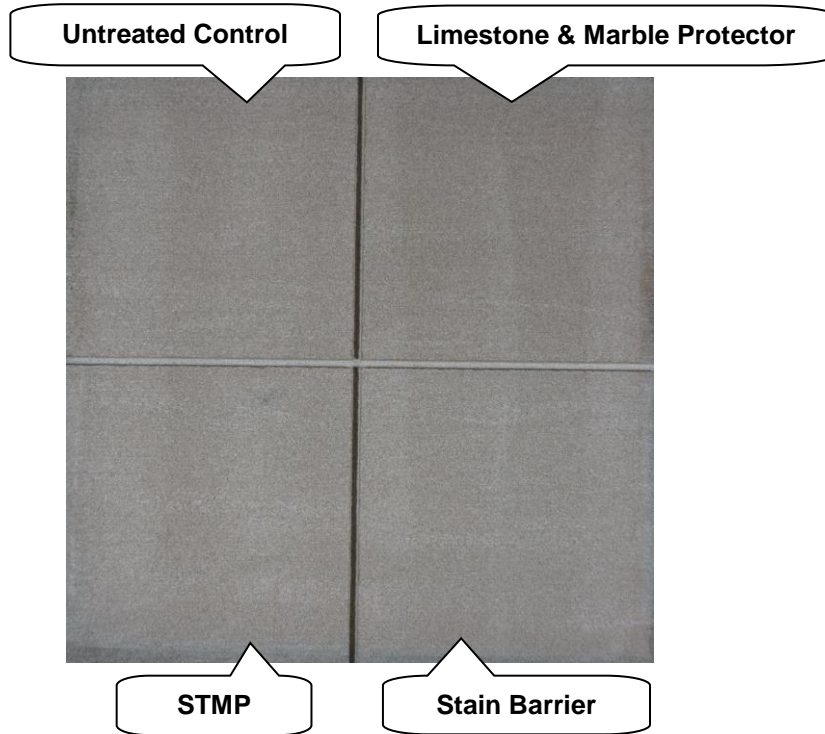
Indiana Limestone	Results in mL loss	Ranking
Untreated Control	-2.8	--
Sure Klean® Weather Seal Natural Stone Treatment	-1.4	<b>A</b>
Sure Klean® Weather Seal Natural Stone Treatment WB Plus	-0.2	<b>AA</b>
T-2576 Natural Stone Treatment VOC	-1.2	<b>A</b>
Stand Off® Limestone & Marble Protector	-0.0	<b>AA</b>
Stand Off® Stone, Tile & Masonry Protector (STMP)	-1.3	<b>A</b>
Stand Off® Stain Barrier	-1.3	<b>A</b>
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 15	-0.0	<b>AA</b>
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra 15	-0.0	<b>AA</b>

**Indiana Limestone After Application**

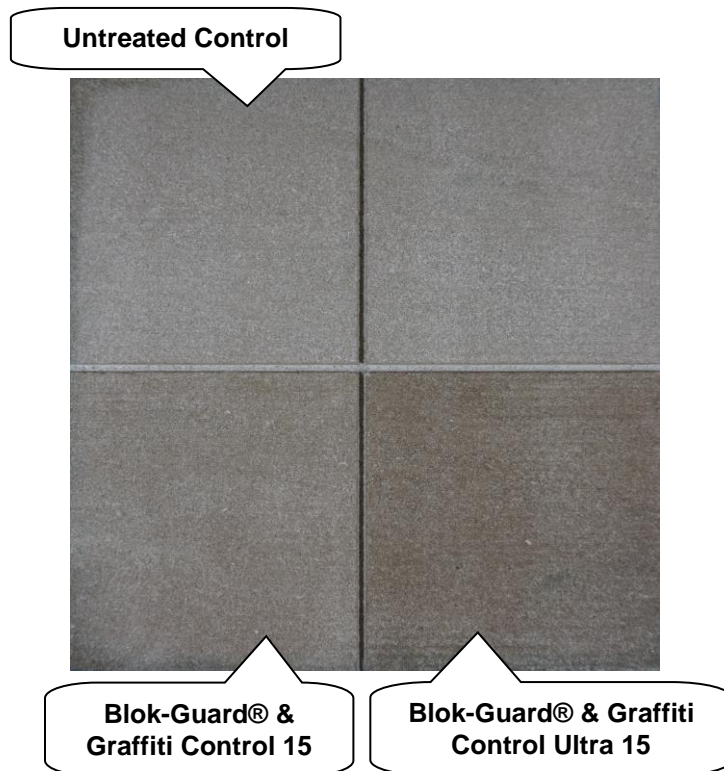


**TEST RESULTS AND PHOTOGRAPHS: Protective Water Repellents**

**Indiana Limestone After Application**



**Indiana Limestone After Application**



**CONCLUSIONS: Protective Water Repellents**

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

Neither Stand Off® Limestone & Marble Protector, nor Stand Off® Stone, Tile & Masonry Protector (STMP), nor Stand Off® Stain Barrier caused any change to the appearance of the samples.

Sure Klean® Weather Seal Natural Stone Treatment, Sure Klean® Weather Seal Natural Stone Treatment WB Plus, and T-2576 Natural Stone Treatment VOC provided a very slight color enhancement to the samples.

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 15 provided a moderate color enhancement to the samples.

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra 15 provided a significant color enhancement to the samples.

**RECOMMENDATIONS: Water Repellency**

Recommendations for water repellency for the samples submitted by Indiana Limestone Company, Bloomington, IN are provided in the chart below. Recommendations are based on the treatment(s) that proved most effective.

Sample	Water Repellency
Indiana Limestone	Sure Klean® Weather Seal Natural Stone Treatment WB Plus OR Stand Off® Limestone & Marble Protector OR Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 15 OR Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra 15

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

**TEST METHODS: Graffiti Resistance**

This evaluation compares the effectiveness of graffiti control treatments in preventing staining of enamel spray paint and permanent markers.

Spray paint and markers were applied as graffiti agents to the untreated and treated surfaces five days after application of the graffiti treatments. Removal of the graffiti agents was attempted 24 hours after application of the graffiti agents, using Enviro Klean® SafStrip® 8 and Defacer Eraser® Graffiti Remover.

Chemical cleaners were evaluated using the following procedure:

1. Apply the product to a dry surface, soiled with graffiti.
2. Allow appropriate dwell time:
  - SafStrip® 8..... 30 minutes
  - Graffiti Remover ..... 5 minutes
3. Rinse thoroughly until water runs clear. \*
4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

**\*Pressure Rinsing Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45-degree fan spray tip was used for rinsing.

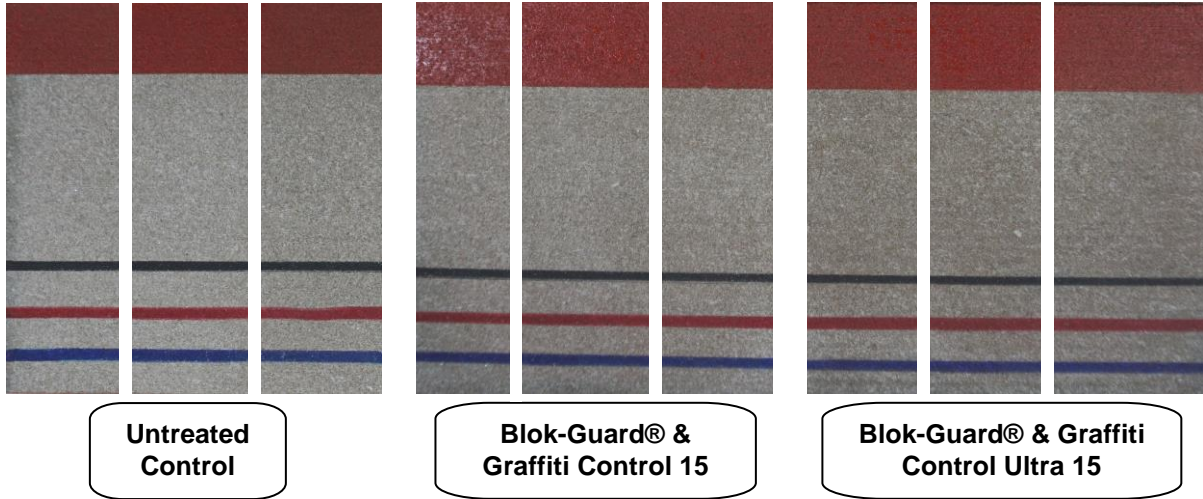
**TEST RESULTS AND PHOTOGRAPHS: Graffiti Resistance**

<b>Indiana Limestone</b>					
<b>Untreated Control</b>	<b>Red Paint</b>	<b>Black Marker</b>	<b>Red Marker</b>	<b>Blue Marker</b>	<b>% Avg. Removal</b>
SafStrip® 8	30%	60%	50%	40%	<b>45%</b>
Graffiti Remover	20%	50%	50%	50%	<b>43%</b>
<b>Blok-Guard® &amp; Graffiti Control 15</b>	<b>Red Paint</b>	<b>Black Marker</b>	<b>Red Marker</b>	<b>Blue Marker</b>	<b>% Avg. Removal</b>
SafStrip® 8	60%	80%	60%	60%	<b>65%</b>
Graffiti Remover	60%	60%	50%	60%	<b>58%</b>
<b>Blok-Guard® &amp; Graffiti Control Ultra 15</b>	<b>Red Paint</b>	<b>Black Marker</b>	<b>Red Marker</b>	<b>Blue Marker</b>	<b>% Avg. Removal</b>
SafStrip® 8	60%	90%	80%	70%	<b>75%</b>
Graffiti Remover	70%	80%	70%	70%	<b>73%</b>

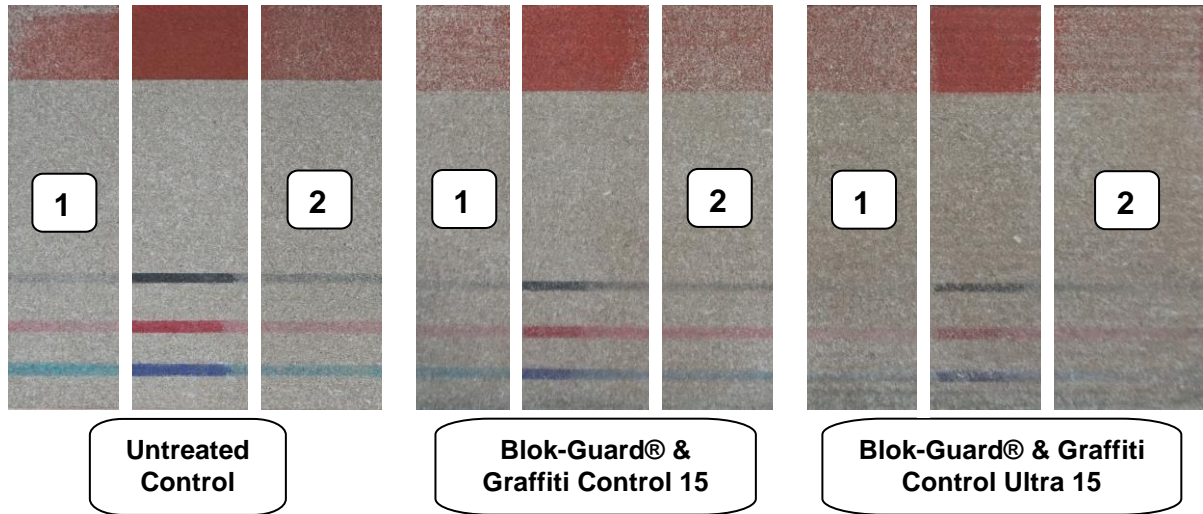


**TEST RESULTS AND PHOTOGRAPHS: Graffiti Resistance (cont.)**

**Indiana Limestone With Graffiti**



**Indiana Limestone After Graffiti Testing**



**KEY**

1 = SafStrip® 8

2 = Graffiti Remover

**CONCLUSIONS: Graffiti Resistance**

Based upon laboratory evaluations, graffiti removal was improved when the submitted samples were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 15 and Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra 15.

Enviro Klean® SafStrip® 8 was the most effective removal product on the submitted samples.

**RECOMMENDATIONS: Graffiti Control**

Recommendations for graffiti control for the samples submitted by Indiana Limestone Company, Bloomington, IN are provided in the chart below. Recommendations are based on the treatment(s) that proved most effective on average for providing graffiti repellency and the product that was most effective on average at removing the graffiti on all types submitted.

Sample	Graffiti Repellents	Graffiti Removers
Indiana Limestone	<sup>1</sup> Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Ultra 15 OR <sup>2</sup> Sure Klean® Weather Seal Blok-Guard® & Graffiti Control 15	<sup>1</sup> Enviro Klean® SafStrip® 8 OR <sup>2</sup> Defacer Eraser® Graffiti Remover

NOTE: “1” indicates the most effective product and “2” indicates the second most effective product.

Apply all products in accordance with the manufacturer’s recommendation provided on container labels and product data sheets. Because the severity of graffiti varies from location to location, on-site testing should be conducted to determine the most appropriate graffiti control product and procedure for a particular project.

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## TEST METHODS: Surface Beading Evaluation

### Food and Oil Products Evaluated for Stain Testing:

Coca Cola  
Ketchup  
Mustard  
Red wine  
Balsamic vinegar  
Soy sauce  
Olive oil  
Wesson oil  
Coffee

### Temperature:

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

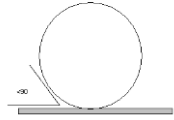


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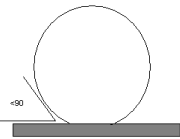
## TEST METHODS: Surface Beading Evaluation (cont.)

### Rating System (1-5)

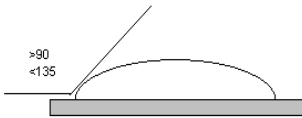
1. No wetting of contact area (no darkening); angle less than  $90^\circ$



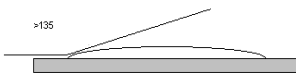
2. Wetting contained to the contact area (slight darkening); angle is less than  $90^\circ$



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



4. Wetting beyond the contact area (darkening); angle is greater than  $135^\circ$



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



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**TEST RESULTS: Surface Beading Evaluation**

<b>Indiana Limestone</b>				
	<b>Untreated</b>	<b>LMP</b>	<b>STMP</b>	<b>Stain Barrier</b>
<b>Coca Cola</b>	5	2	3	3
<b>Ketchup</b>	N/A	N/A	N/A	N/A
<b>Mustard</b>	N/A	N/A	N/A	N/A
<b>Red Wine</b>	5	3	4	4
<b>Bals. Vin.</b>	5	2	3	3
<b>Soy Sauce</b>	5	2	3	3
<b>Olive Oil</b>	5	3	3	3
<b>Wesson Oil</b>	5	3	3	3
<b>Hot Coffee</b>	5	3	4	4

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® 2010 All Surface Cleaner diluted with ten parts water and scrubbed under a stream of running water. The sample was 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: Stain Resistance Evaluation**

**Indiana Limestone**

% Removal

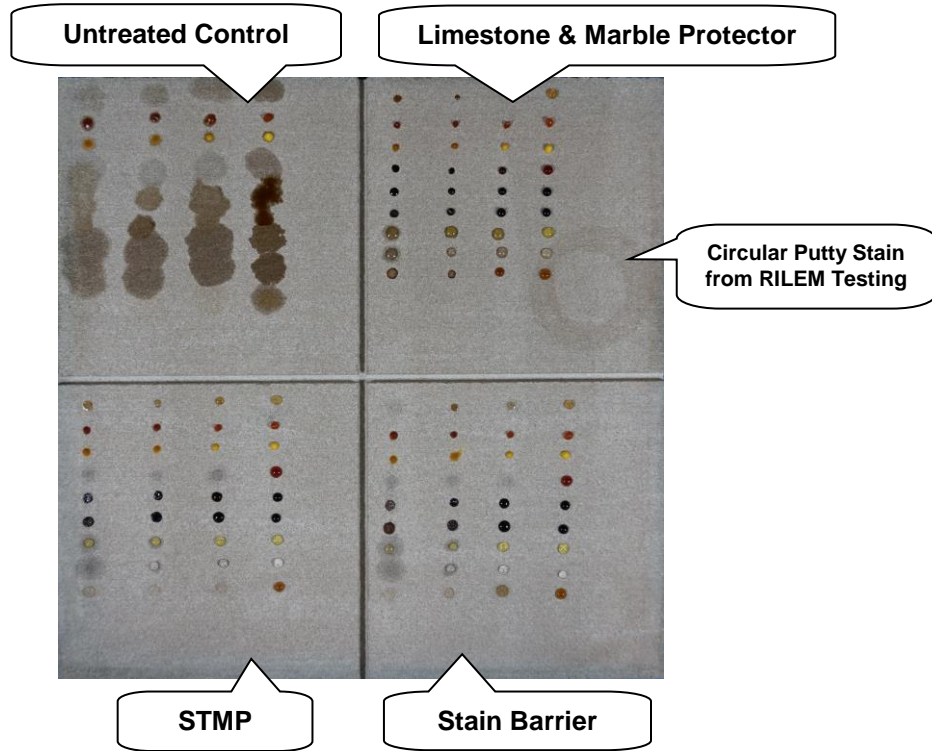
<b>Untreated Control</b>									
	<b>Cola</b>	<b>Ketch.</b>	<b>Must.</b>	<b>Red Wine</b>	<b>Bals. Vin.</b>	<b>Soy Sauce</b>	<b>Olive Oil</b>	<b>Wess. Oil</b>	<b>Coffee</b>
<b>24 hour</b>	100%	0%	0%	90%	80%	80%	0%	0%	100%
<b>4 hour</b>	100%	100%	80%	100%	80%	80%	0%	0%	100%
<b>1 hour</b>	100%	100%	95%	90%	80%	80%	0%	0%	100%
<b>10 min.</b>	100%	100%	100%	100%	90%	90%	0%	0%	100%
<b>Stand Off® Limestone &amp; Marble Protector</b>									
	<b>Cola</b>	<b>Ketch.</b>	<b>Must.</b>	<b>Red Wine</b>	<b>Bals. Vin.</b>	<b>Soy Sauce</b>	<b>Olive O.</b>	<b>Wess. Oil</b>	<b>Coffee</b>
<b>24 hour</b>	100%	0%	100%	100%	100%	100%	30%	30%	100%
<b>4 hour</b>	100%	100%	100%	100%	100%	100%	30%	30%	100%
<b>1 hour</b>	100%	100%	100%	100%	100%	100%	40%	40%	100%
<b>10 min.</b>	100%	100%	100%	100%	100%	100%	40%	40%	100%
<b>Stand Off® Stone, Tile &amp; Masonry Protector (STMP)</b>									
	<b>Cola</b>	<b>Ketch.</b>	<b>Must.</b>	<b>Red Wine</b>	<b>Bals. Vin.</b>	<b>Soy Sauce</b>	<b>Olive O.</b>	<b>Wess. Oil</b>	<b>Coffee</b>
<b>24 hour</b>	100%	0%	0%	95%	80%	80%	30%	30%	100%
<b>4 hour</b>	100%	100%	100%	95%	90%	95%	50%	60%	100%
<b>1 hour</b>	100%	100%	100%	95%	100%	100%	70%	60%	100%
<b>10 min.</b>	100%	100%	100%	100%	100%	100%	90%	100%	100%
<b>Stand Off® Stain Barrier</b>									
	<b>Cola</b>	<b>Ketch.</b>	<b>Must.</b>	<b>Red Wine</b>	<b>Bals. Vin.</b>	<b>Soy Sauce</b>	<b>Olive O.</b>	<b>Wess. Oil</b>	<b>Coffee</b>
<b>24 hour</b>	100%	0%	0%	95%	95%	80%	30%	30%	100%
<b>4 hour</b>	100%	100%	90%	95%	95%	60%	50%	50%	100%
<b>1 hour</b>	100%	100%	100%	100%	100%	100%	90%	90%	100%
<b>10 min.</b>	100%	100%	100%	100%	100%	100%	100%	100%	100%

% Removal of stain following maintenance cleaning.

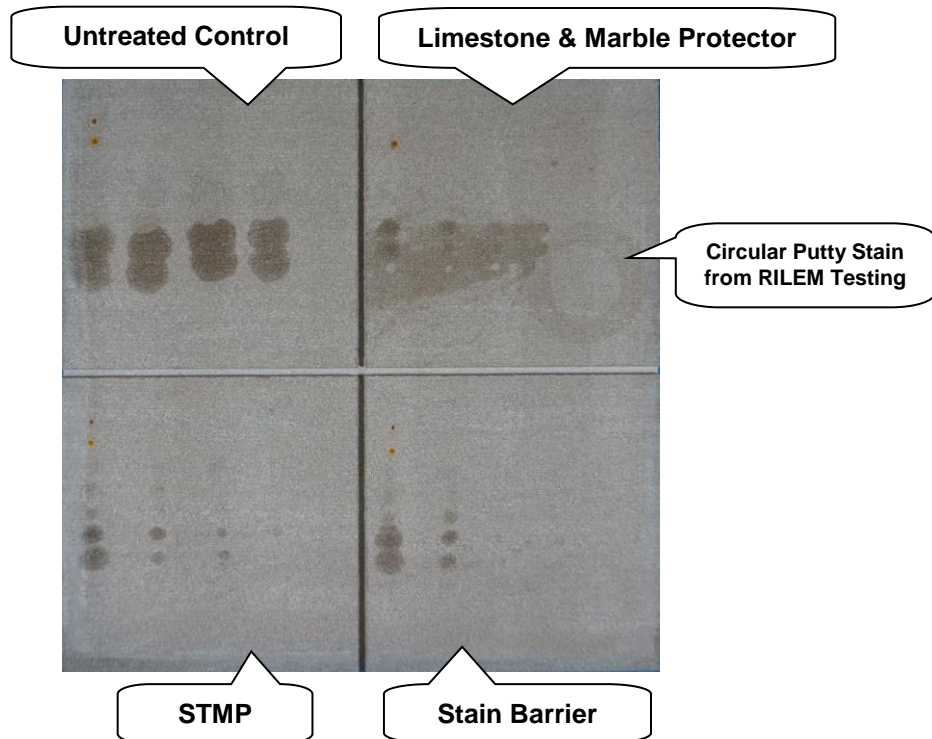
\* Indicates etching of surface treatment due to the acidic nature of the staining agent.

**PHOTOGRAPHS: Stain Resistance**

**Indiana Limestone With Stains**



**Indiana Limestone After Stain Testing**



**NOTE: The circular discoloration visible is due to the putty used during RILEM tube testing.**

**CONCLUSIONS: Surface Beading and Stain Resistance**

In the surface beading evaluation, Stand Off® Limestone & Marble Protector, Stand Off® Stone, Tile & Masonry Protector (STMP), and Stand Off® Stain Barrier improved the surface beading characteristics of the submitted samples.

In the stain resistance tests conducted, all of the treatments improved the stain resistance of the samples submitted. However, the most effective product at repelling the applied stains was Stand Off® Stain Barrier, followed closely by Stand Off® Stone, Tile & Masonry Protector (STMP). Stand Off® Limestone & Marble Protector provided very good protection against most of the stains but was not as effective at repelling oils as the other two treatments.

**Recommendations: Stain Resistance**

Recommendations for stain resistance for the samples submitted by Indiana Limestone Company, Bloomington, IN are provided in the chart below. Recommendations are based on the treatments that proved most effective for providing stain repellency on the submitted samples.

Sample	Stain Repellent	Maintenance Cleaner
Indiana Limestone	<sup>1</sup> Stand Off® Stain Barrier OR <sup>2</sup> Stand Off® Stone, Tile & Masonry Protector (STMP) OR <sup>3</sup> Stand Off® Limestone & Marble Protector	Enviro Klean® 2010 All Surface Cleaner (1:10)

NOTE: "1" indicates the most effective treatment, "2" indicates the second most effective treatment, and "3" indicates the third most effective treatment.

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



J. Lucas Comadoll  
 Project Testing Technician

**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.