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Pallet Tag Program Laboratory Report

Wausau Tile

Wausau, WI



Project No. 2111-04 PTP

Prepared For:



PROSOCO

Prepared By:

J. Lucas Comadoll

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Project Testing Technician
AMT Laboratories

May 2022



Laboratory Report

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FOR: Jim Lucas, JN Lucas & Associates, Inc.
cc: Ken Rathbun, PROSOCO, Inc.
Jake Boyer, PROSOCO, Inc.
Al Morris, PROSOCO, Inc.

SUBJECT: Wausau Tile
Wausau, WI
Pallet Tag Evaluation

DATE: May 10, 2022
PROJECT: 2111-04 PTP

SAMPLES SUBMITTED: 3 types of Wausau Tiles

Block	Name	Color	Size
(2) Wausau Tiles	"A20"	White	12" x 12" x 1"
(2) Wausau Tiles	"A23"	Gray	12" x 12" x 1"
(2) Wausau Tiles	Unknown*	Black	12" x 12" x 1"

***NOTE: The name of the Black Wausau Tile was not provided upon submission of the samples for testing or issuance of the report.**

SUBMITTED BY: Ryan Young
PO Box 1520
Wausau, WI 54402-1520
9001 Bus. Hwy 51
Rothschild, WI 54474

PURPOSE OF TEST:

- To determine the effectiveness of Consolideck® Concrete Protector SB in preventing food and oil staining on the submitted samples. PROSOCO® SLX100® Water & Oil Repellent (discontinued) was also tested for comparison.

PRODUCTS EVALUATED:

Stain Resistance	Dilution:
Consolideck® Concrete Protector SB	N/A*
PROSOCO® SLX100® Water & Oil Repellent (discontinued)	N/A*

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

SAMPLE PREPARATION: Treatment Application

Prior to treatment application, the submitted samples were cleaned with Sure Klean® Light Duty Concrete Cleaner diluted with three parts water in accordance with the current PROSOCO, Inc. Product Data Sheet instructions. After the samples had dried for at least 24 hours, all of the treatments were applied in a brushing application in accordance with the current PROSOCO, Inc. Product Data Sheet instructions.

As requested by Al Morris, Consolideck® Concrete Protector SB was applied in one, two, and three coats although the Product Data Sheet recommends a maximum of two coats. PROSOCO® SLX100® Water & Oil Repellent was applied in one coat for comparison. The treatments were allowed to cure for at least 72 hours prior to testing.

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

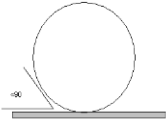
The food and oil products were applied to the test areas by using a dropper creating a bead 0.5 – 1.0 cm in diameter. The beading properties of the oils and liquids were visually evaluated within two minutes after application. The results are reported as a rating based on the angle of contact between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

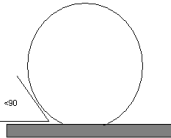
TEST METHODS: Surface Beading Evaluation

Rating System (1-5)

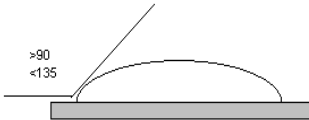
1. No wetting of contact area (no darkening); angle less than 90°



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.

NO ANGLE



TEST RESULTS: Surface Beading Evaluation

"A20" White Wausau Tile					
	Untreated Control	SLX100®	Concrete Protector SB (1 Application)	Concrete Protector SB (2 Applications)	Concrete Protector SB (3 Applications)
Coca Cola	3	2	3	2	2
Ketchup	N/A	N/A	N/A	N/A	N/A
Mustard	N/A	N/A	N/A	N/A	N/A
Red Wine	3	2	2	2	2
Bals. Vin.	3	2	2	2	2
Soy Sauce	3	3	3	3	3
Olive Oil	5	3	3	3	3
Wesson Oil	5	3	3	3	3
Hot Coffee	3	3	3	3	3

"A23" Gray Wausau Tile					
	Untreated Control	SLX100®	Concrete Protector SB (1 Application)	Concrete Protector SB (2 Applications)	Concrete Protector SB (3 Applications)
Coca Cola	3	2	3	2	2
Ketchup	N/A	N/A	N/A	N/A	N/A
Mustard	N/A	N/A	N/A	N/A	N/A
Red Wine	3	2	2	2	2
Bals. Vin.	3	2	2	2	2
Soy Sauce	3	3	3	3	3
Olive Oil	5	3	3	3	3
Wesson Oil	5	3	3	3	3
Hot Coffee	3	3	3	3	3

N/A – non-free flowing staining agent

TEST RESULTS: Surface Beading Evaluation

Black Wausau Tile					
	Untreated Control	SLX100®	Concrete Protector SB (1 Application)	Concrete Protector SB (2 Applications)	Concrete Protector SB (3 Applications)
Coca Cola	3	2	3	2	2
Ketchup	N/A	N/A	N/A	N/A	N/A
Mustard	N/A	N/A	N/A	N/A	N/A
Red Wine	3	2	2	2	2
Bals. Vin.	3	2	2	2	2
Soy Sauce	3	3	3	3	3
Olive Oil	5	3	3	3	3
Wesson Oil	5	3	3	3	3
Hot Coffee	3	3	3	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

“A20” White Wausau Tile

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	70%	100%	20%	10%	50%	50%	<1%	<1%	20%
4 hour	80%	100%	50%	20%	50%	70%	<1%	<1%	30%
1 hour	100%	100%	70%	50%	50%	100%	<1%	<1%	90%
10 min.	100%	100%	90%	80%	100%*	100%	30%	30%	100%
Consolideck® Concrete Protector SB (1 Coat)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	70%	60%	80%	100%	20%	20%	60%
4 hour	100%	100%	70%	60%	90%	100%	20%	20%	60%
1 hour	100%	100%	100%	70%	100%*	100%	50%	50%	100%
10 min.	100%	100%	100%	90%	100%*	100%	60%	60%	100%
Consolideck® Concrete Protector SB (2 Coats)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	80%	60%	80%	100%	20%	20%	60%
4 hour	100%	100%	90%	60%	90%	100%	30%	30%	70%
1 hour	100%	100%	100%	70%	100%*	100%	50%	50%	100%
10 min.	100%	100%	100%	90%	100%	100%	60%	60%	100%
Consolideck® Concrete Protector SB (3 Coats)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	80%	60%	90%	100%	30%	30%	70%
4 hour	100%	100%	90%	60%	90%	100%	30%	30%	70%
1 hour	100%	100%	100%	70%	100%	100%	60%	60%	100%
10 min.	100%	100%	100%	90%	100%	100%	60%	60%	100%
PROSOCO® SLX100® Water & Oil Repellent									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%	80%	50%	80%	100%	50%	50%	60%
4 hour	100%	100%	80%	50%	90%	100%	60%	60%	60%
1 hour	100%	100%	90%	70%	100%*	100%	70%	70%	100%
10 min.	100%	100%	100%	90%	100%	100%	80%	80%	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.)

“A23” Gray Wausau Tile

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	70%*	30%	90%*	N/A	<1%	<1%	30%
4 hour	100%	100%*	80%*	30%	90%*	N/A	<1%	<1%	30%
1 hour	100%	100%*	80%*	30%	90%*	N/A	<1%	<1%	N/A
10 min.	100%	100%*	100%*	90%	100%*	N/A	30%	30%	N/A
Consolidex® Concrete Protector SB (1 Coat)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	100%*	80%	90%*	N/A	10%	10%	30%
4 hour	100%	100%*	100%*	70%	90%*	N/A	20%	20%	30%
1 hour	100%	100%*	100%*	80%	90%*	N/A	50%	50%	N/A
10 min.	100%	100%	100%	100%	100%	100%	60%	60%	N/A
Consolidex® Concrete Protector SB (2 Coats)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	100%*	70%	90%*	100%*	30%	30%	90%
4 hour	100%	100%*	100%*	80%	90%*	100%*	30%	30%	100%
1 hour	100%	100%*	100%*	90%	90%*	100%	50%	50%	100%
10 min.	100%	100%	100%	100%	100%	100%	60%	60%	100%
Consolidex® Concrete Protector SB (3 Coats)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	100%*	90%	90%*	100%*	40%	40%	100%
4 hour	100%	100%*	100%*	90%	90%*	100%*	50%	50%	100%
1 hour	100%	100%*	100%*	100%	100%	100%	60%	60%	100%
10 min.	100%	100%	100%	100%	100%	100%	60%	60%	100%
PROSOCO® SLX100® Water & Oil Repellent									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	100%*	70%	90%*	100%	50%	50%	90%
4 hour	100%	100%*	100%*	70%	90%*	100%	60%	50%	80%
1 hour	100%	100%*	100%*	80%	90%*	100%	70%	70%	100%
10 min.	100%	100%	100%*	100%	100%*	100%	80%	80%	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.)

Black Wausau Tile

% Removal

Untreated Control									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	80%*	30%	90%*	N/A	<1%	<1%	30%
4 hour	100%	100%*	90%*	30%	90%*	N/A	<1%	<1%	N/A
1 hour	100%	100%*	100%*	30%	90%*	N/A	<1%	<1%	N/A
10 min.	100%	100%	100%*	90%	90%*	N/A	10%	10%	N/A
Consolidex® Concrete Protector SB (1 Coat)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	70%*	70%	90%*	100%	10%	10%	90%
4 hour	100%	100%*	100%*	80%	90%*	100%	20%	20%	100%
1 hour	100%	100%*	100%*	80%	90%*	100%	30%	30%	100%
10 min.	100%	100%	100%*	90%	100%*	100%	30%	30%	100%
Consolidex® Concrete Protector SB (2 Coats)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	80%*	90%	90%*	100%	20%	20%	90%
4 hour	100%	100%*	90%*	90%	90%*	100%	20%	20%	90%
1 hour	100%	100%*	100%*	90%	90%*	100%	20%	20%	100%
10 min.	100%	100%	100%	100%	100%*	100%	30%	30%	100%
Consolidex® Concrete Protector SB (3 Coats)									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	80%*	90%	90%*	100%	20%	20%	90%
4 hour	100%	100%*	80%*	90%	90%*	100%	30%	30%	90%
1 hour	100%	100%*	100%*	90%	90%*	100%	30%	30%	100%
10 min.	100%	100%	100%	100%	100%*	100%	30%	30%	100%
PROSOCO® SLX100® Water & Oil Repellent									
	Cola	Ketch.	Must.	Red Wine	Bals. Vin.	Soy Sauce	Olive Oil	Wesson Oil	Coffee
24 hour	100%	100%*	70%*	70%	90%*	100%	40%	40%	70%
4 hour	100%	100%*	80%*	80%	90%*	100%	50%	50%	80%
1 hour	100%	100%	100%*	80%	90%*	100%	60%	60%	100%
10 min.	100%	100%	100%*	90%	100%*	100%	70%	70%	100%

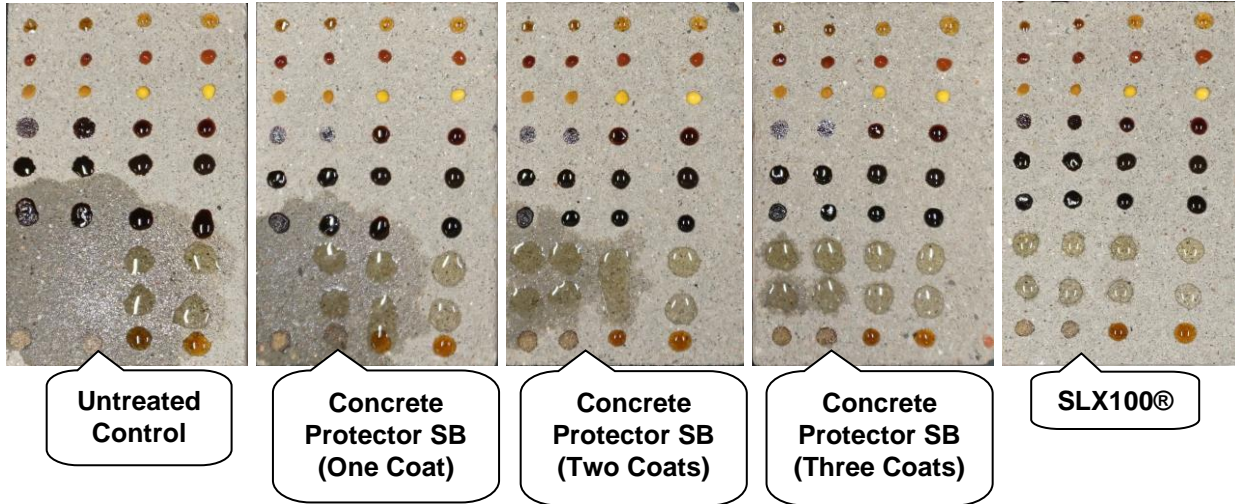
% Removal of stain following maintenance cleaning.

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

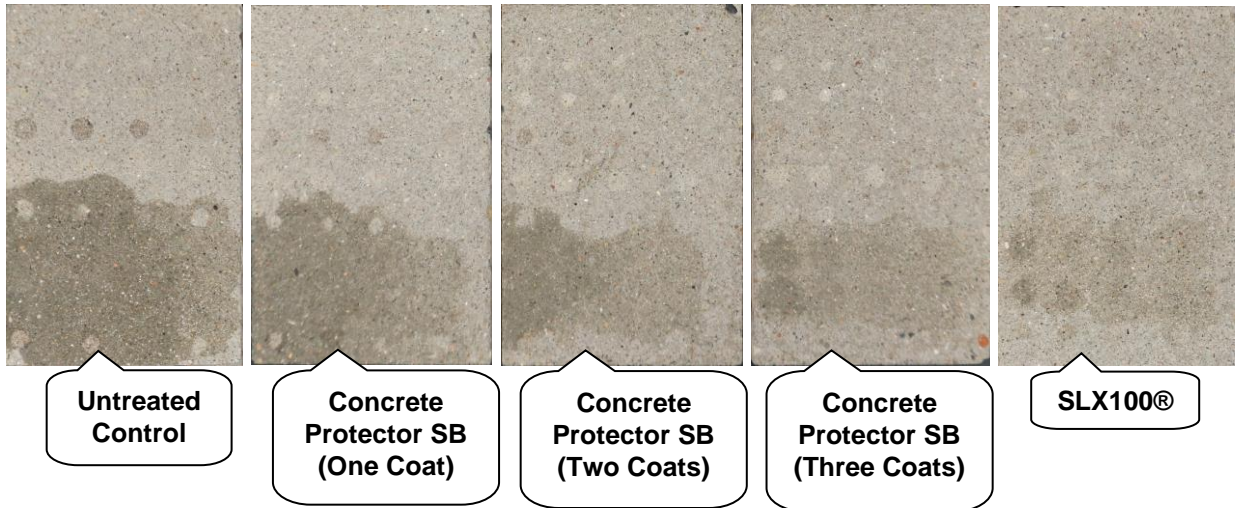
N/A Indicates the removal of the stain, following maintenance cleaning, was unable to be determined due to olive oil or Wesson oil spreading masking the area in question.

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

“A23” Gray Wausau Tile With Stains



“A23” Gray Wausau Tile After Stain Testing



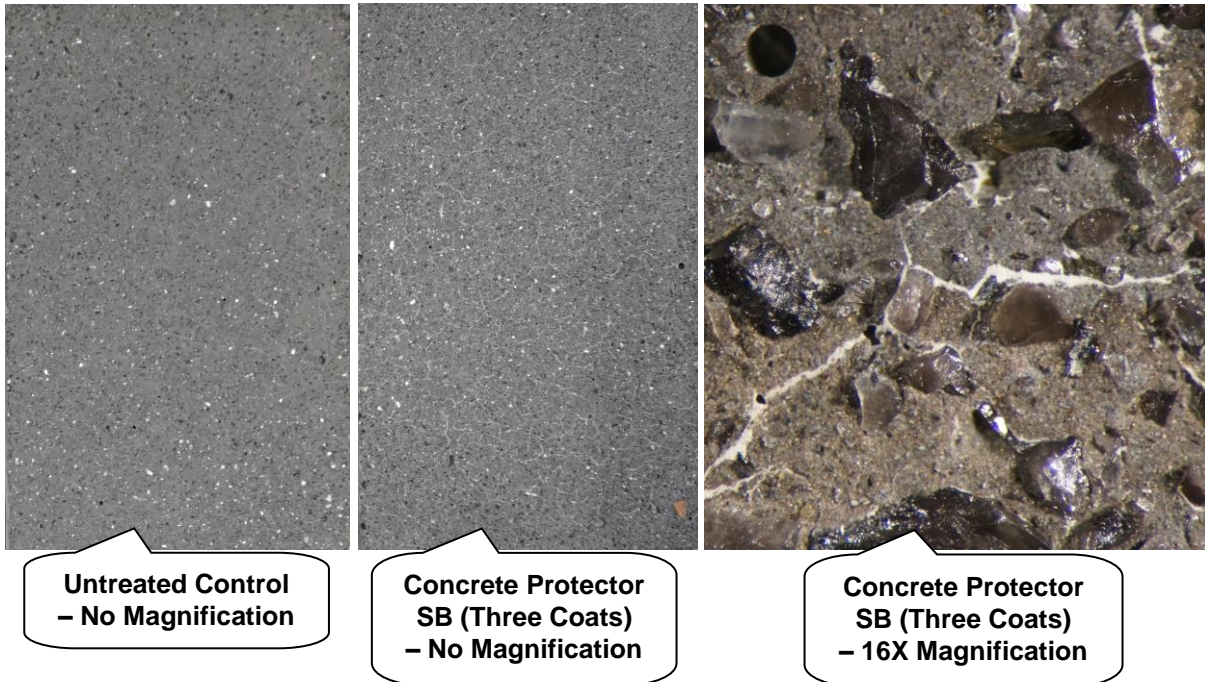
CONCLUSIONS: Surface Beading and Stain Resistance

In the surface beading evaluation, Consolideck® Concrete Protector SB (at one, two, and three coats) had the smallest angles of contact with each stain applied on the submitted samples when compared to the untreated control. This small angle correlates to “average” and “above average” repellency. These angles of contact were comparable to those provided by PROSOCO® SLX100® Water & Oil Repellent (discontinued).

In the stain resistance tests conducted, Consolideck® Concrete Protector SB (at one, two, and three coats) improved the stain resistance of the submitted samples. However, Consolideck® Concrete Protector SB proved to have limited effectiveness against olive oil and Wesson oil when compared to PROSOCO® SLX100® Water & Oil Repellent (discontinued).

Worth noting, it appears that Consolideck® Concrete Protector SB began to accumulate in the microcracks on the surface of the sample when applied in multiple coats. This accumulation was *slightly* visible with two coats of Consolideck® Concrete Protector SB on the Black Wausau Tile and three coats of Consolideck® Concrete Protector SB on the “A23” Gray Wausau Tile. This accumulation was *highly* visible with three coats of Consolideck® Concrete Protector SB on the Black Wausau Tile.

Black Wausau Tile



RECOMMENDATIONS: Stain Resistance

Recommendations for stain resistance for each type of Wausau Tile submitted by Wausau Tile, Wausau, WI 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 Resistance
"A20" White Wausau Tile	<p style="text-align: center;"><u>Stain Repellents</u> Consolideck® Concrete Protector SB (2two or 1three coats)</p> <p style="text-align: center;"><u>Maintenance Cleaner</u> Enviro Klean® Klean 'N Release Cleaner</p>
"A23" Gray Wausau Tile	<p style="text-align: center;"><u>Stain Repellents</u> Consolideck® Concrete Protector SB (2two or 1three coats)</p> <p style="text-align: center;"><u>Maintenance Cleaner</u> Enviro Klean® Klean 'N Release Cleaner</p>
Black Wausau Tile	<p style="text-align: center;"><u>Stain Repellents</u> Consolideck® Concrete Protector SB (1two coats)</p> <p style="text-align: center;"><u>Maintenance Cleaner</u> Enviro Klean® Klean 'N Release Cleaner</p>

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

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
 QC/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.