



PALLET TAG PROGRAM LABORATORY REPORT



PROSOCO, Inc.

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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: Mark O' Keefe
cc: Paul Tessier

SUBJECT: Techlith (Napa Valley Cast Stone)
Napa, CA

DATE: February 20, 2005

PROJECT: 0412-11 PTP

SAMPLES SUBMITTED: Four types of smooth decorative cast stone on Styrofoam backing.

Sample	Color	Size
"17C"	Light Red	24" x 6" x 2"
"20C"	Dark Gray	24" x 10" x 3 ½"
"31W"	Tan	24" x 6" x 4"
"38W"	Light Orange	24" x 6" x 2"

Submitted by: Mark O'Keefe



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PURPOSE OF TESTING:

Four types of smooth decorative cast stone on Styrofoam backing were submitted for testing using PROSOCO, Inc.'s new construction cleaning products, water repellents, and stain repellents suitable for cast stone.

A. New Construction Cleaning – Enviro Klean[®] Safety Klean, Enviro Klean[®] SafEtch, and Sure Klean[®] Light Duty Concrete Cleaner were evaluated at various dilutions for removal of laboratory applied grout.

To simulate new construction soiling, samples 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 sample and filled with a wet mixture of unsanded grout. The wet, grout-filled cylinder is allowed to remain in contact with the sample for 10 minutes before removal.

Heavy deposits of grout are removed with dry scraping after 24 hours. Prepared cleaning solutions are then evaluated for their effectiveness in removing residual unsanded grout staining after 7 days of curing.

B. Limiting Surface Alterations – Enviro Klean[®] Safety Klean, Enviro Klean[®] SafEtch, and Sure Klean[®] Light Duty Concrete Cleaner were tested at various dilutions to determine if a cleaning program implemented to remove excess grout and related new construction soiling would otherwise alter the appearance of cleaned surfaces. Surface alterations were evaluated visually based upon perceived discoloration or erosion/etching of the sample.

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

Substrate Deterioration is the visual examination of the sample comparing the surface of the untreated control 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 untreated control surface to 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.

C. Protective Water Repellents - Stand Off[®] SLX100 Water & Oil Repellent and Sure Klean[®] Weather Seal SL100 Water Repellent were evaluated for their ability to provide water repellency to the submitted samples.

D. Stain Repellency – Stand Off[®] SLX100 Water & Oil Repellent was evaluated for its ability to provide stain repellency to the submitted samples.



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PRODUCTS EVALUATED

CLEANING AND LIMITING SURFACE ALTERATIONS

SAMPLE	PRODUCT	DILUTION
All Submitted Cast Stone	Enviro Klean [®] Safety Klean	1:2, 1:3
	Enviro Klean [®] SafEtch	1:2, 1:3
	Sure Klean [®] Light Duty Concrete Cleaner	1:2, 1:3

PROTECTIVE WATER REPELLENTS

SAMPLE	Product	Dilution
All Submitted Cast Stone	Sure Klean [®] Weather Seal SL100 Water Repellent	Concentrate
	Stand Off [®] SLX100 Water & Oil Repellent	Concentrate

STAIN REPELLENCY

SAMPLE	Product	Dilution
All Submitted Cast Stone	Stand Off [®] SLX100 Water & Oil Repellent	Concentrate

*Dilution ratios refer to mixtures of concentrated product : fresh water.



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SECTION A – NEW CONSTRUCTION CLEANING

DESCRIPTION OF PRODUCTS EVALUATED – New Construction Cleaning

These cleaning trials were conducted to determine the optimal cleaning/cure time combinations to most efficiently remove unsanded grout from the submitted samples.

The unsanded grout was prepared in compliance with the manufacturer's instructions, applied to the cast stone and allowed to cure for 7 days. The removal of grout was visually evaluated.

Enviro Klean® Safety Klean – An effective, safe alternative to acidic compounds for cleaning brick, tile and concrete surfaces. Safety Klean rids new masonry construction of excess grout, dirt and other common job site soiling. It's ideal for projects where traditional acidic cleaners are not allowed. Non-fuming Safety Klean contains no hydrochloric or other traditional inorganic acids and is safe for use on and around most metal surfaces. Always test. Additionally, it is up to 70 percent more effective than citric and glycolic acids, and 50 percent more effective than phosphoric acid.

Enviro Klean® SafEtch – An effective, safe alternative to acidic compounds for cleaning and preparing textured concrete surfaces for clear or pigmented coatings. SafEtch rids textured concrete of excess grout, embedded oil, grease, or efflorescence and dirt.

Sure Klean® Light Duty Concrete Cleaner – Removes common construction and atmospheric staining from custom masonry and other architectural concrete surfaces. This general-purpose, non-etching acidic cleaner removes rust, mud, oil, atmospheric dirt, grout smears and other stains without altering the surface texture.

TEST METHOD – New Construction Cleaning

Dilution ratios refer to mixtures of concentrated cleaner : fresh water. Chemical cleaners were evaluated using the following procedure:

1. Prewet the surface with water.
2. Apply the cleaner.
3. Allow the appropriate dwell time, as specified.

Safety Klean.....	3-5 minutes
SafEtch.....	3-5 minutes
Light Duty Concrete Cleaner.....	3-5 minutes
4. Rinse thoroughly*.

*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 – New Construction Cleaning

% Removal – Unsanded Grout

“17C” Cast Stone		
Product	Dilution	7 day
Safety Klean	1:2	95%
Safety Klean	1:3	80%
SafEtch	1:2	70%
SafEtch	1:3	70%
Light Duty Concrete Cleaner	1:2	70%
Light Duty Concrete Cleaner	1:3	70%
“20C” Cast Stone		
Product	Dilution	7 day
Safety Klean	1:2	95%
Safety Klean	1:3	70%
SafEtch	1:2	99%
SafEtch	1:3	80%
Light Duty Concrete Cleaner	1:2	70%
Light Duty Concrete Cleaner	1:3	60%
“31W” Cast Stone		
Product	Dilution	7 day
Safety Klean	1:2	95%
Safety Klean	1:3	90%
SafEtch	1:2	90%
SafEtch	1:3	85%
Light Duty Concrete Cleaner	1:2	80%
Light Duty Concrete Cleaner	1:3	80%
“38W” Cast Stone		
Product	Dilution	7 day
Safety Klean	1:2	85%
Safety Klean	1:3	70%
SafEtch	1:2	100%
SafEtch	1:3	85%
Light Duty Concrete Cleaner	1:2	80%
Light Duty Concrete Cleaner	1:3	80%

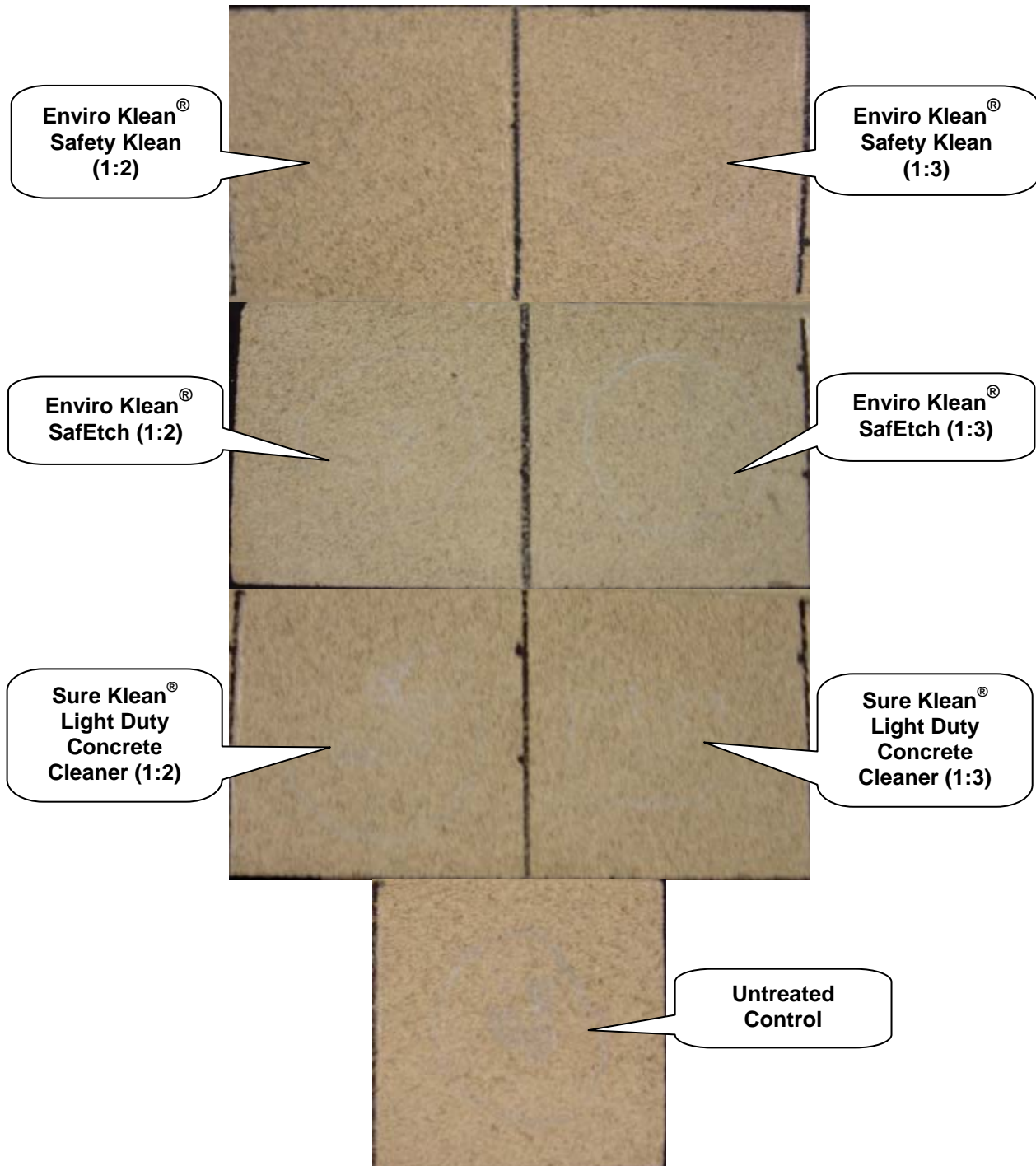


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PHOTOGRAPHS- New Construction Cleaning: Unsanded grout

“31W” – 7 Day Cleaning





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CONCLUSIONS – New Construction Cleaning

The results of the new construction cleaning are listed in the table below. The cleaners performed well in removing the grout even after allowing the grout to remain on the surface of the cast stone for 7 days under ideal curing conditions.

It is recommended that the selected cleaners always be used in the lowest possible concentration. To facilitate easier removal of excess grout and construction dirt while minimizing any potential surface alterations to the cast stone, clean within 7 days of construction.

RECOMMENDATIONS – New Construction Cleaning

Recommendations for cleaning for the cast stone submitted by Techlith (Napa Valley Cast Stone), Napa, CA, are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of grout.

Sample	New Construction Cleaning (Unsanded Grout, 7 day cleaning)
"17C"	Enviro Klean [®] Safety Klean (1:2)
"20C"	Enviro Klean [®] Safety Klean (1:2) OR Enviro Klean [®] SafEtch (1:2)
"31W"	Enviro Klean [®] Safety Klean (1:2) OR (1:3) OR Enviro Klean [®] SafEtch (1:2) OR (1:3)
"38W"	Enviro Klean [®] Safety Klean (1:2) OR Enviro Klean [®] SafEtch (1:2) OR (1:3)

The most appropriate cleaner and dilution should be determined on the specific job-site, and will be dependent primarily on the nature and severity of soiling present at that location. Pressure rinsing equipment providing at least 400 psi at 4-6 gpm delivered through a 15-40 degree fan spray often produces best cleaning 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 cleaning product and procedures for a particular project. See product literature for additional application and product information.



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SECTION B – LIMITING SURFACE ALTERATIONS

DESCRIPTION OF PRODUCTS EVALUATED – Limiting Surface Alterations

Enviro Klean® Safety Klean – An effective, safe alternative to acidic compounds for cleaning brick, tile and concrete surfaces. Safety Klean rids new masonry construction of excess grout, dirt and other common job site soiling. It's ideal for projects where traditional acidic cleaners are not allowed. Non-fuming Safety Klean contains no hydrochloric or other traditional inorganic acids and is safe for use on and around most metal surfaces. Always test. Additionally, it is up to 70 percent more effective than citric and glycolic acids, and 50 percent more effective than phosphoric acid.

Enviro Klean® SafEtch – An effective, safe alternative to acidic compounds for cleaning and preparing textured concrete surfaces for clear or pigmented coatings. SafEtch rids textured concrete of excess grout, embedded oil, grease, or efflorescence and dirt.

Sure Klean® Light Duty Concrete Cleaner – Removes common construction and atmospheric staining from custom masonry and other architectural concrete surfaces. This general-purpose, non-etching acidic cleaner removes rust, mud, oil, atmospheric dirt, grout smears and other stains without altering the surface texture.

TEST METHOD – Limiting Surface Alterations:

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, as specified.

Safety Klean.....	3-5 minutes
SafEtch.....	3-5 minutes
Light Duty Concrete Cleaner.....	3-5 minutes
4. Pressure rinse thoroughly.*
5. Allow the sample 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 – Color Uniformity

Substrate: Cast Stone		Pigment Color: "17C"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Enviro Klean® Safety Klean	1:2	0	0	0	0
Enviro Klean® Safety Klean	1:3	0	0	0	0
Enviro Klean® SafEtch	1:2	0	0	0	0
Enviro Klean® SafEtch	1:3	0	0	0	0
Sure Klean® Light Duty Concrete	1:2	0	0	0	0
Sure Klean® Light Duty Concrete	1:3	0	0	0	0
Substrate: Cast Stone		Pigment Color: "20C"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Enviro Klean® Safety Klean	1:2	0	0	0	0
Enviro Klean® Safety Klean	1:3	0	0	0	0
Enviro Klean® SafEtch	1:2	0	0	0	0
Enviro Klean® SafEtch	1:3	0	0	0	0
Sure Klean® Light Duty Concrete	1:2	0	0	0	0
Sure Klean® Light Duty Concrete	1:3	0	0	0	0
Substrate: Cast Stone		Pigment Color: "31W"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Enviro Klean® Safety Klean	1:2	0	0	0	0
Enviro Klean® Safety Klean	1:3	0	0	0	0
Enviro Klean® SafEtch	1:2	0	0	0	0
Enviro Klean® SafEtch	1:3	0	0	0	0
Sure Klean® Light Duty Concrete	1:2	0	0	0	0
Sure Klean® Light Duty Concrete	1:3	0	0	0	0
Substrate: Cast Stone		Pigment Color: "38W"			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
Enviro Klean® Safety Klean	1:2	0	0	0	0
Enviro Klean® Safety Klean	1:3	0	0	0	0
Enviro Klean® SafEtch	1:2	0	0	0	0
Enviro Klean® SafEtch	1:3	0	0	0	0
Sure Klean® Light Duty Concrete	1:2	0	0	0	0
Sure Klean® Light Duty Concrete	1:3	0	0	0	0

0 – No change 3 – change – heavy
 1 – change – slight 4 – change - excessive
 2 – change – moderate

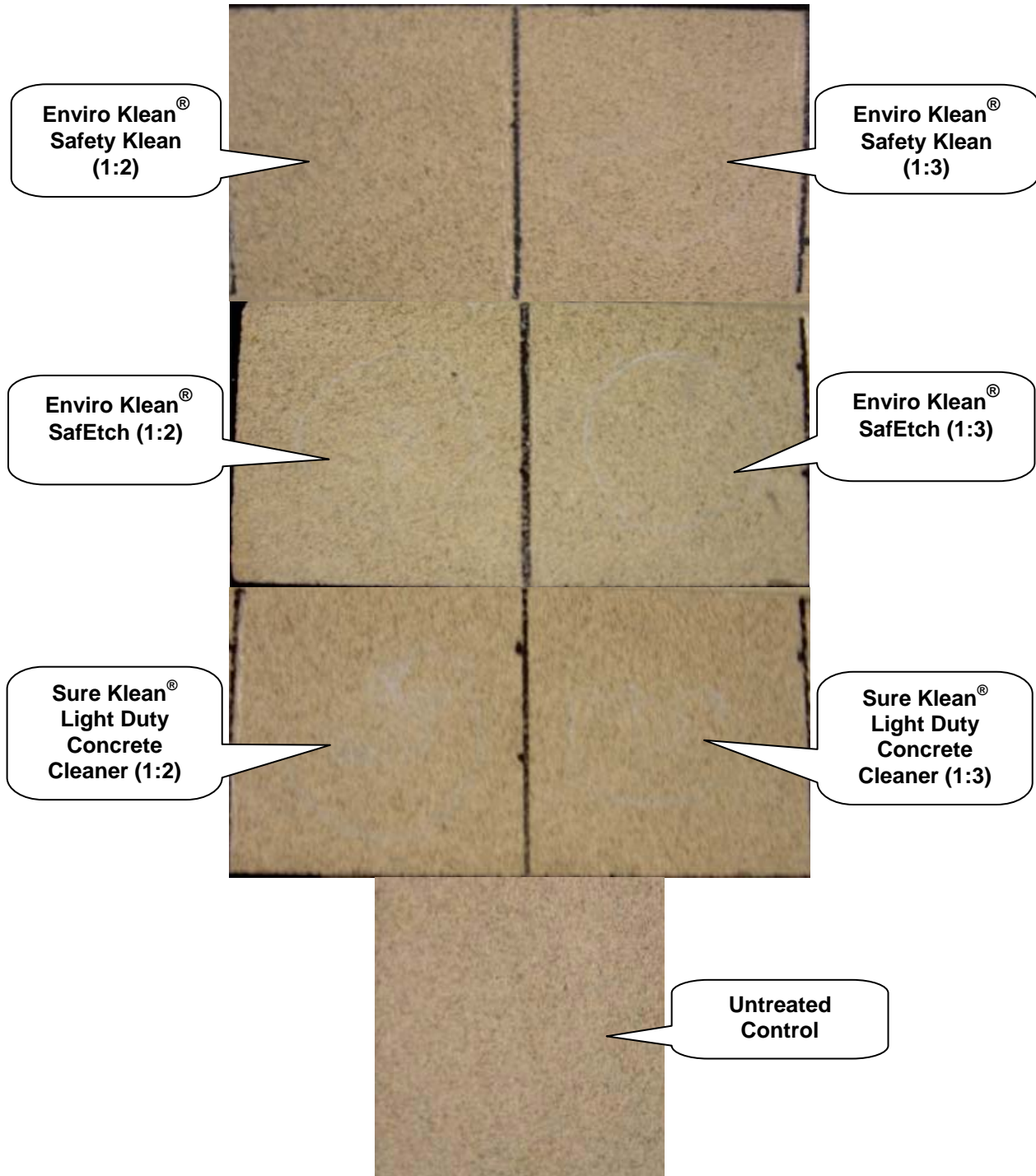


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PHOTOGRAPHS- Limiting Surface Alterations

"31W" Cast Stone





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CONCLUSIONS – Limiting Surface Alterations

All dilutions of Enviro Klean® Safety Klean, Enviro Klean® SafEtch, and Sure Klean® Light Duty Concrete Cleaner tested affected the substrate in a similar manner, removing slight to moderate amounts of pigmented matrix. All dilutions enhanced the natural appearance of the integrally colored cast stone.

RECOMMENDATIONS – Limiting Surface Alterations

Product recommendations for limiting surface alterations for each type of cast stone submitted by Techlith (Napa Valley Cast Stone), Napa, CA, are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while limiting surface alterations.

Sample	Recommendations
"17C"	Enviro Klean® Safety Klean (1:2) OR (1:3) OR Enviro Klean® SafEtch (1:2) OR (1:3) OR Sure Klean® Light Duty Concrete Cleaner (1:2) OR (1:3)
"20C"	Enviro Klean® Safety Klean (1:2) OR (1:3) OR Enviro Klean® SafEtch (1:2) OR (1:3) OR Sure Klean® Light Duty Concrete Cleaner (1:2) OR (1:3)
"31W"	Enviro Klean® Safety Klean (1:2) OR (1:3) OR Enviro Klean® SafEtch (1:2) OR (1:3) OR Sure Klean® Light Duty Concrete Cleaner (1:2) OR (1:3)
"38W"	Enviro Klean® Safety Klean (1:2) OR (1:3) OR Enviro Klean® SafEtch (1:2) OR (1:3) OR Sure Klean® Light Duty Concrete Cleaner (1:2) OR (1:3)

The most appropriate cleaner and dilution should be determined on the specific job-site, and will be dependent primarily on the nature and severity of soiling present at that location. Pressure rinsing equipment providing at least 400 psi at 4-6 gpm delivered through a 15-40 degree fan spray often produces best cleaning 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 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

DESCRIPTIONS OF PRODUCTS EVALUATED - Protective Water Repellents:

Sure Klean® Weather Seal SL100 Water Repellent – A modified, “neat” silane system that offers invisible protection and low volatility. SL100 protects horizontal and vertical concrete and masonry surfaces against water and waterborne contaminants. The small molecular structure of SL100 ensures maximum penetration and colorless protection of dense, color-sensitive surfaces. Ideal for GRFC, integrally colored pre-cast concrete and many types of natural stone.

Stand Off® SLX100 Water & Oil Repellent – Combines water and oil repellency on most substrates to prevent staining by waterborne and oily substances. This modified “neat” silane system, offers invisible protection and low volatility.

SAMPLE PREPARATION - Protective Water Repellents:

The submitted cast stone were scored, allowed to dry, and to reabsorb atmospheric humidity for 24 hours prior to treatment. The treatment method consisted of a single, saturating brush application. All treatments were allowed to cure at least 72 hours prior to testing.



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TEST METHODS - Protective Water Repellents:

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

The water absorption tube test simulating wind driven and wind blown rain conditions was performed. Tests were run with vertical 5.0-milliliter head pressures. Filled to 5 milliliters, a water absorption tube produces a 98 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 ml of water or more, then:

A rating of **AA** *Above Average* water repellent performance would require loss of no more than 5 ml X 20% = 1 ml.

A rating of **A** *Average* water repellent performance would require loss of no more than 5 ml X 50% = 2.5ml.

A rating of **BA** *Below Average* water repellent performance would be reported for treatments which result in a loss of more than 50% X 5ml = 2.5ml+.



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TEST RESULTS - Protective Water Repellents:

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

AA = Above Average

A = Average

BA = Below Average

"17C" Cast Stone	Results in mL loss	Ranking
Untreated Control	0.1	--
Sure Klean® Weather Seal SL100 Water Repellent	0.0	<u>AA</u>
Stand Off® SLX100 Water & Oil Repellent	0.0	<u>AA</u>
"20C" Cast Stone	Results in mL loss	Ranking
Untreated Control	2.7	--
Sure Klean® Weather Seal SL100 Water Repellent	0.0	<u>AA</u>
Stand Off® SLX100 Water & Oil Repellent	0.0	<u>AA</u>
"31W" Cast Stone	Results in mL loss	Ranking
Untreated Control	5.0	--
Sure Klean® Weather Seal SL100 Water Repellent	0.0	<u>AA</u>
Stand Off® SLX100 Water & Oil Repellent	0.2	<u>AA</u>
"38W" Cast Stone	Results in mL loss	Ranking
Untreated Control	0.6	--
Sure Klean® Weather Seal SL100 Water Repellent	0.0	<u>AA</u>
Stand Off® SLX100 Water & Oil Repellent	0.0	<u>AA</u>



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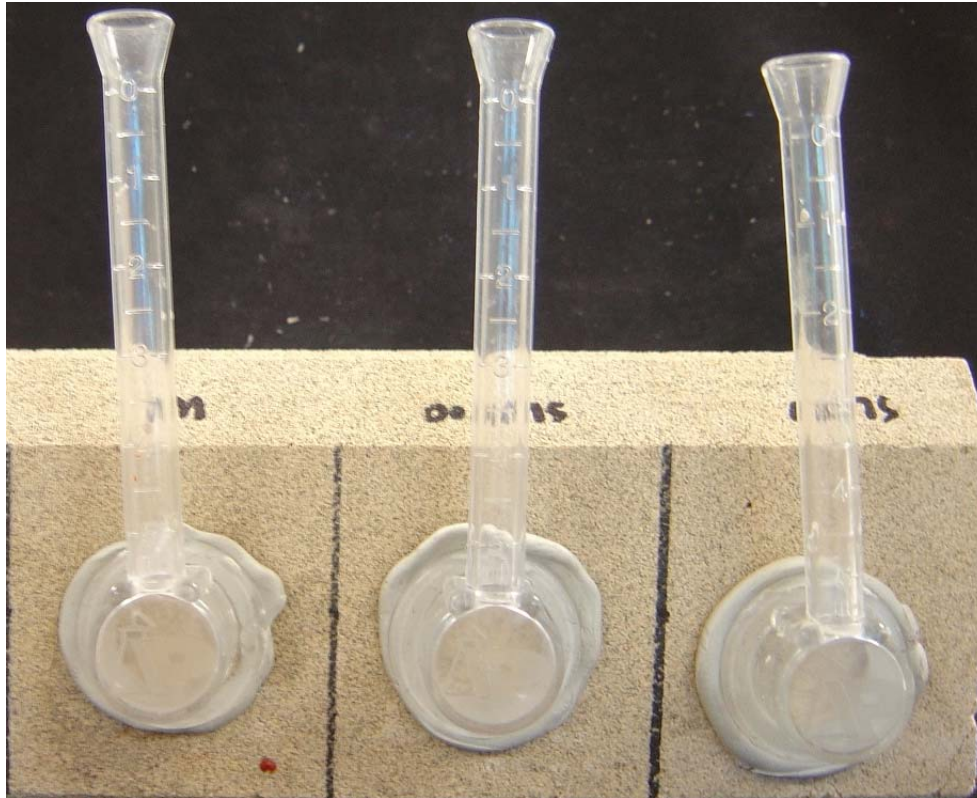


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PHOTOGRAPHS – Protective Water Repellents

“31W” Cast Stone RILEM testing



**Stand Off® SLX100
Water & Oil
Repellent**

Untreated Control

**Sure Klean® Weather
Seal SL100 Water
Repellent**



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CONCLUSIONS - Protective Water Repellents

Based upon laboratory evaluations, all of the tested PROSOCO, Inc. products provided excellent water repellency to each of the submitted samples.

RECOMMENDATIONS – Protective Water Repellents

Recommendations for water repellency treatment for each type of cast stone submitted by Techlith (Napa Valley Cast Stone), Napa, CA, 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.

Sample	Water Repellents
All Submitted Cast Stone	Stand Off® SLX100 Water & Oil Repellent OR Sure Klean® Weather Seal SL100 Water Repellent

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 REPELLENCY

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

DESCRIPTION OF PRODUCTS EVALUATED – Stain Repellency

Stand Off® SLX100 Water & Oil Repellent - Combines water and oil repellency on most substrates to prevent staining by waterborne and oily substances. This modified “neat” silane system offers invisible protection and low volatility. The small molecular structure of SLX100 allows for maximum penetration at coverage rates higher than that of conventional silanes. Depth of penetration is controlled by the application rate (loading rate). This makes SLX100 ideal for protecting granite and other dense, color-sensitive surfaces.

Kitchen Products Evaluated:

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)

SAMPLE PREPARATION – Stain Repellency

The method of application for Stand Off® SLX100 Water & Oil Repellent consisted of a single, saturating brush application.



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TEST METHOD – Stain Repellency

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 ($<90^\circ$) 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 or liquid 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)

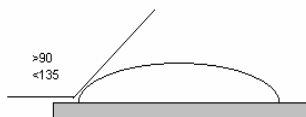
1. No wetting of contact area (no darkening); angle less than 90°



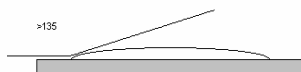
2. Wetting contained to the contact area (slight darkening); angle is less than 90°



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.



Stain Removal Evaluation

The soiling agents were allowed to dwell on the treated and untreated substrates 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 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.



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TEST RESULTS – Surface Beading

“17C” Cast Stone									
Product	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	4	4	4	5	5	4
SLX100	3	-	-	3	3	3	3	3	3
“20C” Cast Stone									
Product	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	4	4	4	5	5	4
SLX100	2	-	-	2	2	2	3	3	2
“31W” Cast Stone									
Product	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	5	-	-	5	5	5	5	5	4
SLX100	2	-	-	2	2	2	3	3	2
“38W” Cast Stone									
Product	Coco-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
Untreated Control	3	-	-	4	4	4	5	5	4
SLX100	2	-	-	2	2	2	3	3	2



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TEST RESULTS – STAINING REMOVAL

% Removal									
“17C” Cast Stone									
Untreated Control									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	60%	40%	60%	90%	100%	<1%	<1%	100%
4 hour	100%	100%	100%	60%	100%	100%	<1%	<1%	100%
1 hour	100%	100%	100%	80%	100%	100%	<1%	<1%	100%
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%
Stand Off® SLX100 Water & Oil Repellent									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	100%	100%	100%	100%	100%	90%	90%	100%
4 hour	100%	100%	100%	100%	100%	100%	90%	90%	100%
1 hour	100%	100%	100%	100%	100%	100%	90%	90%	100%
10 min.	100%	100%	100%	100%	100%	100%	90%	90%	100%

% Removal									
“20C” Cast Stone									
Untreated Control									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	50%	100%	100%	100%	100%	<1%	<1%	100%
4 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%
Stand Off® SLX100 Water & Oil Repellent									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	100%	100%	100%	100%	100%	70%	70%	100%
4 hour	100%	100%	100%	100%	100%	100%	70%	70%	100%
1 hour	100%	100%	100%	100%	100%	100%	70%	70%	100%
10 min.	100%	100%	100%	100%	100%	100%	70%	70%	100%



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TEST RESULTS – STAINING REMOVAL

% Removal									
"31W" Cast Stone									
Untreated Control									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	10%	90%	90%	80%	80%	<1%	<1%	100%
4 hour	100%	100%	100%	90%	80%	80%	<1%	<1%	100%
1 hour	100%	100%	100%	100%	100%	100%	<1%	<1%	100%
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%
Stand Off® SLX100 Water & Oil Repellent									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	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									
"38W" Cast Stone									
Untreated Control									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	20%	20%	70%	90%	70%	<1%	<1%	100%
4 hour	100%	100%	100%	70%	90%	70%	<1%	<1%	100%
1 hour	100%	100%	100%	70%	90%	100%	<1%	<1%	100%
10 min.	100%	100%	100%	100%	100%	100%	<1%	<1%	100%
Stand Off® SLX100 Water & Oil Repellent									
	Coca-Cola	Ketchup	Mustard	Red Wine	Balsamic Vinegar	Soy Sauce	Olive Oil	Wesson Oil	Hot Coffee
24 hr	100%	100%	100%	100%	100%	100%	80%	80%	100%
4 hour	100%	100%	100%	100%	100%	100%	80%	80%	100%
1 hour	100%	100%	100%	100%	100%	100%	80%	80%	100%
10 min.	100%	100%	100%	100%	100%	100%	80%	80%	100%



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PHOTOGRAPHS- Stain Results

"31W" Cast Stone; Stains applied



Stand Off® SLX100
Water & Oil Repellent



Untreated Control

"31W" Cast Stone; Stains removed



Stand Off® SLX100
Water & Oil Repellent



Untreated
Control



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CONCLUSIONS – Stain Repellency

Based upon laboratory evaluations, Stand Off® SLX100 Water & Oil Repellent was extremely effective in repelling the staining agents from the samples tested. Stand Off® SLX100 Water & Oil Repellent also improved the surface beading characteristics of the submitted samples.

RECOMMENDATIONS – STAIN REPELLENCY

Recommendations for stain repellency for Techlith (Napa Valley Cast Stone), Napa, CA, are provided in the chart below. Recommendations are based on the treatments that proved most effective for providing stain repellency on all types submitted.

Sample	Stain Repellent	Maintenance Cleaner
All Submitted Cast Stone	Stand Off® SLX100 Water & Oil Repellent	Enviro Klean® 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 product and procedures for a particular project. See product literature for additional application and product information.

Christopher A. Moore
Project Testing Laboratory Technician

CAM



Laboratory Report

Pallet Tag Program Evaluation

**Techlith (Napa Valley Cast Stone)
Napa, CA**

Project No. 0412-11 PTP

Prepared For:

**Techlith (Napa Valley Cast Stone)
2301 Napa Valley Highway
Napa, CA 94558**

Prepared By:



***PROSOCO, Inc.
February 2005***