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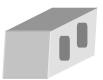
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ATTACHMENTS

Technical Services TECH Note RILEM Tube Test Procedures

Product Data literature for all products evaluated





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FOR: Paul Tessier

SUBJECT: Artisan Stone

Omaha, NE

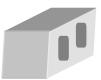
DATE: August 13, 2004

PROJECT: PTP 0407-16

SAMPLES SUBMITTED: One type of "Dry-Tamp Cast Stone"

Sample	Name/Color	Size
"Dry-Tamp Cast Stone"	"9-3-02A"	8" x 8" x 3"





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PURPOSE OF TESTING:

One integrally colored dry-tamp cast-stone, with large, small and fine aggregate was submitted for testing using PROSOCO's new construction cleaning, water repellent products, and graffiti control products.

A. Cleaning Concrete Masonry Units: Sure Klean® Burnished Custom Masonry Cleaner and Sure Klean® Vana Trol® were evaluated for removal of laboratory applied mortar.

To simulate new construction soiling, the cast stone is 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 the cast stone and filled with a wet mixture of Ash Grove[®] Type S mortar. The wet, mortar-filled cylinder is allowed to remain in contact with the cast stone for 10 minutes before removal.

Heavy deposits of mortar are removed with dry scraping after 24 hours. Prepared cleaning solutions are then evaluated for their effectiveness in removing residual Ash Grove® Type S mortar staining after 7 days and 14 days of curing*.

B. Color Uniformity Testing* - Sure Klean® Burnished Custom Masonry Cleaner and Sure Klean® Vana Trol® were evaluated at various dilutions to determine the optimal concentration of cleaner that leaves the external surface looking most like the natural through-body color of the cast stone. Color uniformity was evaluated by comparing aggregate exposure and surface pigment alternation/removal of each cleaned surface compared to the natural through-body color of the cast stone.

<u>Aggregate Exposure</u> is the visual examination comparing aggregate exposure of the interior, throughbody section of cast stone to surfaces cleaned with selected product(s) at given dilutions.

<u>Surface Pigment Alteration/Removal*</u> is the visual examination comparing the pigmentation of the interior, through-body section of the cast stone to surfaces cleaned with selected product(s) at given dilutions.

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

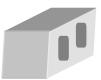
- 0 **Worst** match to through-body
- 3 Good match to through-body
- 1 **Poor** match to through-body
- 4 Best match to through-body
- 2 **Fair** match to through-body

NOTE: When cleaning integrally colored cast stone.

Integrally colored cast stone frequently have high amounts of pigments concentrated on the surface of the cured concrete unit. Variation of surface pigment concentrations from one cast stone to the next creates a blotchy appearance in the completed wall. Allowed to remain on the surface of the cast stone, the weakly bound pigment will weather and streak, further detracting from the appearance of the completed cast stone wall.

In addition to removing excess mortar and construction related soiling, the goal of any cleaning operation undertaken on integrally colored cast stone should include removal of unnaturally high concentrations of surface pigment. By revealing the natural through-body color on the integrally colored unit, the overall color uniformity and weathering resistance of the completed cast stone wall is improved.





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- **C.** Protective Water Repellents Sure Klean[®] Custom Masonry Sealer, Sure Klean[®] Weather Seal Siloxane PD, and Sure Klean[®] Weather Seal Siloxane WB Concentrate were evaluated for their ability to provide water repellency to the submitted sample.
- **D. Graffiti Control** Sure Klean[®] Weather Seal Blok-Guard® & Graffiti Control and was evaluated for its ability to control graffiti on the submitted samples. Sure Klean[®] Fast Acting Stripper and Defacer Eraser[®] Graffiti Wipe were evaluated for their ability to remove graffiti from the submitted sample.





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PRODUCTS EVALUATED FOR CLEANING AND COLOR UNIFORMITY

Sample Type	Product	Dilution
"9-3-02A" Dry-Tamp	Sure Klean [®] Burnished Custom Masonry Cleaner	1:2
Cast Stone	Sure Klean® Vana Trol®	1:6, 1:8

WATER REPELLENT PRODUCTS EVALUATED

Sample Type	Product	Dilution
	Sure Klean [®] Custom Masonry Sealer	Concentrate
"9-3-02A" Dry-Tamp Cast Stone	Sure Klean [®] Weather Seal Siloxane PD	Concentrate
	Sure Klean [®] Weather Seal Siloxane WB Concentrate	1:9

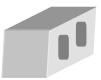
GRAFFITI CONTROL PRODUCTS EVALUATED

Sample Type	Product	Dilution
"9-3-02A" Dry-Tamp Cast Stone	Sure Klean [®] Weather Seal Blok-Guard® & Graffiti Control	Concentrate

GRAFFITI REMOVAL PRODUCTS EVALUATED

Sample Type	Product		
"9-3-02A" Dry-Tamp Cast Stone	Sure Klean [®] Fast Acting Stripper		
To be one of the original of t	Defacer Eraser [®] Graffiti Wipe		





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SECTION A – CLEANING INTEGRALLY COLORED CAST STONE

DESCRIPTION OF PRODUCTS EVALUATED

These cleaning trials were conducted to determine the optimal cleaning/cure time combination.

Sure Klean® Burnished Custom Masonry Cleaner – Removes common masonry 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, mortar smears and other stains without altering the surface texture. Burnished Custom Masonry Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

Sure Klean® Vana Trol® - A concentrated acidic cleaner for new masonry surfaces that are subject to vanadium, manganese and other metallic stains. Vana Trol® is designed to simplify rinsing and reduces potential for efflorescence.

TEST METHOD - Cleaning

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

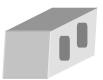
- 1. Prewet the surface with water.
- 2. Apply each cleaner at the appropriate dilutions.
- 3. Allow appropriate dwell time for each cleaner:

Burnished Custom Masonry Cleaner	3-5 minutes
Vana Trol®	3 minutes

- 4. Reapply the products and moderately agitate with a brush.
- 5. Pressure rinse thoroughly.*
- 6. Allow the surface to dry for at least 18 hours and visually examine.

^{*}Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.





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TEST RESULTS – Cleaning

% Removal of Type S Mortar

"9-3-02A" Dry-Tamp Cast Stone					
Product	Dilution	7 day	14 day		
Burnished Custom Masonry Cleaner	1:2	50%	10%		
Vana Trol®	1:6	95%	95%		
Vana Trol®	1:8	85%	90%		

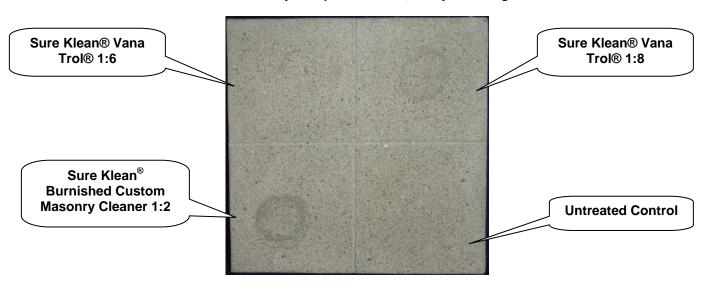




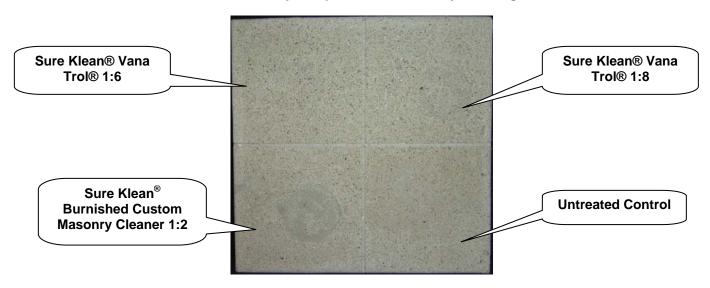
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PHOTOGRAPHS- Cleaning

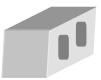
"9-3-02A" Dry-Tamp Cast Stone; 7 Day Cleaning



"9-3-02A" Dry-Tamp Cast Stone; 14 Day Cleaning







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CONCLUSIONS – Cleaning

Based on the test data, the submitted sample was efficiently cleaned with Sure Klean® Vana Trol® diluted with six parts water. Use higher concentrations and surface agitation to maximize aggregate exposure. Use lower concentrations and surface agitation to minimize aggregate exposure.

All dilutions of Sure Klean[®] Burnished Custom Masonry Cleaner and Sure Klean[®] Vana Trol[®] tested affected the substrate in a similar manner, removing slight amounts of pigmented matrix from the cast stone, and enhancing the natural appearance of the integrally colored concrete masonry unit.

RECOMMENDED PRODUCTS AND DILUTIONS - CLEANING

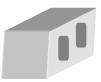
Recommendations for cleaning for the cast stone submitted by Artisan Stone, Omaha, NE, are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar.

Sample	New Construction Cleaning (Type S mortar, 14 day)		
"9-3-02A" Dry-Tamp Cast Stone	Sure Klean® Vana Trol® 1:6		

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 though 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 – COLOR UNIFORMITY:

DESCRIPTION OF PRODUCTS EVALUATED – Color Uniformity:

Sure Klean® Burnished Custom Masonry Cleaner – Removes common masonry 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, mortar smears and other stains without altering the surface texture. Burnished Custom Masonry Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

Sure Klean® Vana Trol® - A concentrated acidic cleaner for new masonry surfaces that are subject to vanadium, manganese and other metallic stains. Vana Trol® is designed to simplify rinsing and reduces potential for efflorescence.

TEST METHOD – Color Uniformity Testing:

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.
- 4. Reapply the products and moderately agitate with a brush.
- 5. Pressure rinse thoroughly.*
- 6. Allow the sample to dry for at least 18 hours and visually examine.
- 7. Break the sample in half and compare the through-body surfaces to the cleaned surfaces for the best match.

^{*}Pressure rinsing was conducted at approximately 1300 psi with a warm water flow rate of 1.9 gallons per minute.





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TEST RESULTS – Color Uniformity

Substrate: Dry-Tamp Cast Stone	Pigment Color: "9-3-02A"			
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal	
Burnished Custom Masonry Cleaner	1:2	4	4	
Vana Trol®	1:6	4	4	
Vana Trol®	1:8	4	4	

Scale used for reporting results of both categories

0 – **Worst** match to through-body

3 – **Good** match to through-body

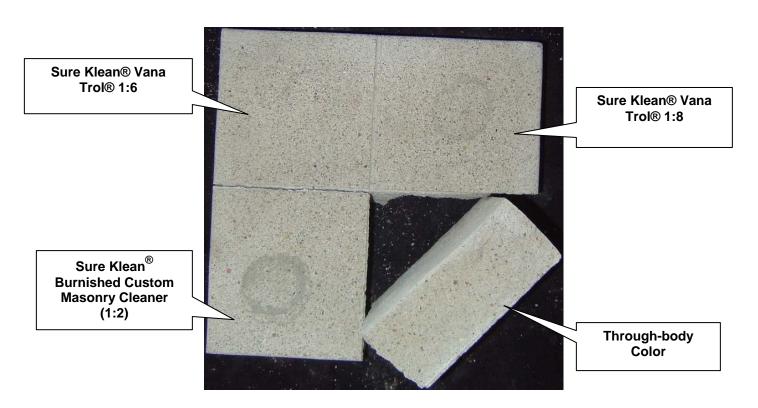
1 – **Poor** match to through-body

4 - **Best** match to through-body

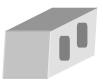
2 - Fair match to through-body

PHOTOGRAPHS – Color Uniformity

""9-3-02A" Dry-Tamp Cast Stone; Through-body







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CONCLUSIONS: COLOR UNIFORMITY:

All dilutions of Sure Klean[®] Burnished Custom Masonry Cleaner and Sure Klean[®] Vana Trol[®] 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 - COLOR UNIFORMITY

Recommendations for color uniformity for each type of cast stone submitted by Artisan Stone, Omaha, NE, are provided in the chart below. Recommendations are based on the optimum dilution that provides the best color uniformity.

Sample	Color Uniformity
"9-3-02A" Dry-Tamp Cast Stone	Sure Klean® Vana Trol® 1:6

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 though 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 Repellent

Sure Klean Custom Masonry Sealer – A clear, solvent-based silicone elastomer formulated to weatherproof custom masonry units, cast stone, architectural concrete block, pre-cast concrete, wood and porous masonry. Custom Masonry Sealer penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

Sure Klean Weather Seal Siloxane PD – A ready-to-use, water-based silane/siloxane water repellent for concrete, GFRC, and most masonry and stucco surfaces. Siloxane PD will not impair the natural breathing characteristics of treated surfaces. It helps masonry resist cracking, spalling, staining, and other damage related to water intrusion. Low odor and alkaline stable, Siloxane PD is ideal for field and in-plant application.

Sure Klean[®] **Weather Seal Siloxane WB Concentrate** – A concentrated water repellent designed for dilution with fresh water at the jobsite. This solvent-free blend of siloxanes and oligomeric alkoxysiloxanes mixes easily with water to produce a penetrating water repellent ideal for application to dense or porous masonry surfaces. An effective alternative to conventional solvent-based silanes or siloxanes, Siloxane WB penetrates and chemically bonds deep within the masonry substrate to provide long-lasting protection against water-related staining or deterioration. Will not darken, produce a surface film or impair the natural breathing characteristics of treated surfaces.

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 wet-on-wet brush application. Sure Klean[®] Custom Masonry Sealer was allowed to cure for 24 hours. Sure Klean[®] Weather Seal Siloxane PD and Sure Klean[®] Weather Seal Siloxane WB Concentrate were allowed to cure at least 3 days prior to testing.

TEST METHODS – Protective Water Repellents:

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

The water absorption tube test simulating wind driven rain conditions was performed. This test simulates 60 mile per hour wind driven rain conditions for a period of 20 minutes. See Technical Services TECH Note RILEM Tube Test Procedures.





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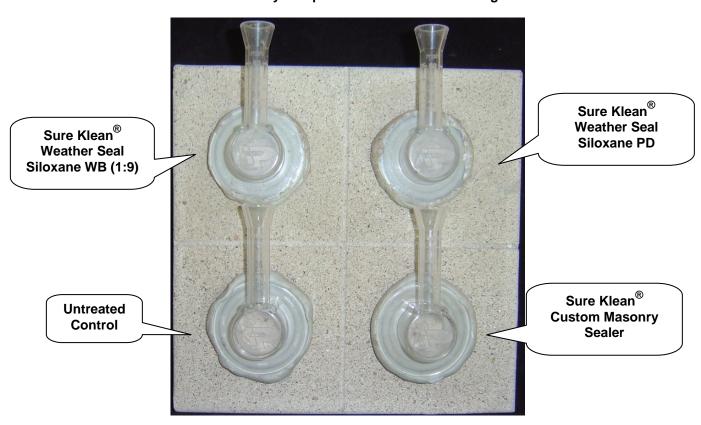
TEST RESULTS – Protective Water Repellents:

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

	RESULTS		
"9-3-02A" Dry-Tamp Cast Stone			
Untreated Control	< 40 mph		
Custom Masonry Sealer	60 mph		
Siloxane PD	60 mph		
Siloxane WB 1:9	60 mph		

PHOTOGRAPHS- Protective Water Repellents

"9-3-02A" Dry-Tamp Cast Stone - RILEM Testing







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CONCLUSIONS - Protective Water Repellents

Based upon laboratory evaluations, Sure Klean[®] Weather Seal Siloxane PD and Sure Klean[®] Weather Seal Siloxane WB Concentrate diluted with nine parts water provided excellent water repellency to the submitted sample.

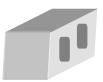
RECOMMENDATIONS - PROTECTIVE WATER REPELLENTS

Recommendations for water repellency treatment for the cast stone submitted by Artisan Stone, Omaha, NE, 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 Type	Water Repellents
"9-3-02A" Dry-Tamp Cast Stone	Sure Klean [®] Custom Masonry Sealer OR Sure Klean [®] Weather Seal Siloxane PD OR Sure Klean [®] Weather Seal Siloxane WB Concentrate 1:9

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 - GRAFFITI CONTROL

DESCRIPTION OF PRODUCTS EVALUATED

These trials were conducted to determine the optimal graffiti control treatment.

Graffiti Control Treatments

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control – A clear, solvent-based silicone elastomer formulated to weatherproof concrete block and other porous masonry material. Sure Klean® Weather Seal Blok-Guard® & Graffiti Control protects masonry surfaces from repeated graffiti attacks without altering the natural appearance.

Products Evaluated for Graffiti Removal

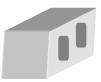
Defacer Eraser® Graffiti Wipe – An easy-to-use graffiti remover that does not contain methanol, methylene chloride or other "halogenated" solvents prohibited on many projects. Graffiti Wipe removes a variety of graffiti stains from most smooth masonry, wood and metal surfaces.

Sure Klean® Fast Acting Stripper – A thixotropic stripping compound formulated specifically for removal of high strength paints and coatings such as epoxies, polyurethanes, and floor enamels. Additionally, Fast Acting Stripper dissolves most spray paints, marking pens, lacquers and other graffiti.

Graffiti Agents

Interior/Exterior Spray Paint (Red) Permanent Marker (Green) Permanent Marker (Red) Permanent Marker (Black)





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SAMPLE PREPARATION – Graffiti Control

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

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control - Sections of the cast stone samples were treated with one coat of Sure Klean® Weather Seal Blok-Guard® & Graffiti Control, in accordance with PROSOCO, Inc.'s Product Guide application instructions and then allowed to cure for at least one day. At the end of the one-day cure period, a visual adverse effects evaluation was made and then the graffiti agents were applied to the substrates.

Spray paint and markers were applied as graffiti agents to all treated surfaces no sooner than one day following application of Sure Klean[®] Weather Seal Blok-Guard® & Graffiti Control. Removal of the graffiti agents was attempted 24 hours after application of the graffiti agents, using Defacer Eraser[®] Graffiti Wipe and Sure Klean[®] Fast Acting Stripper.

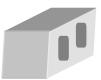
TEST METHOD - Graffiti Control

Chemical cleaners were evaluated using the following procedure:

- 1. Apply the product to a dry surface, soiled with graffiti.
- 2. Allow appropriate dwell time:

- 3. Pressure rinse thoroughly until water runs clear. *
- 4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.
- * 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 - Graffiti Control

"9-3-02A" Dry-Tamp Cast Stone					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	65%	80%	80%	80%	76%
Graffiti Wipe	60%	80%	80%	80%	75%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	99%	99%	95%	98%	98%
Graffiti Wipe	99%	99%	95%	95%	97%

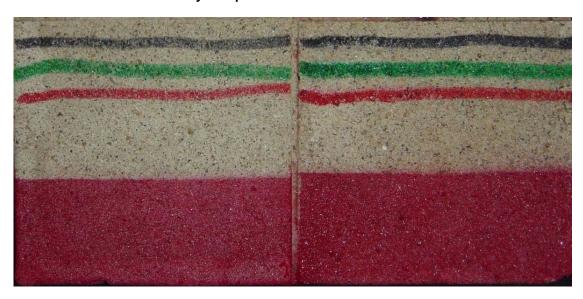




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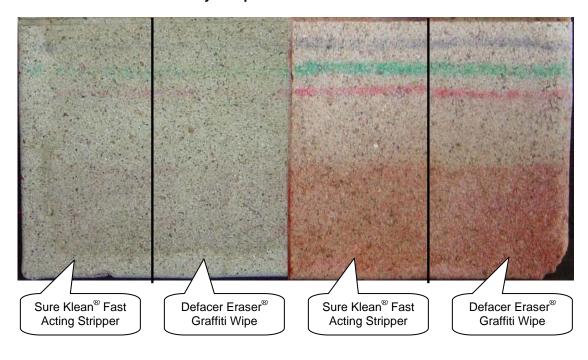
PHOTOGRAPHS – Graffiti Control

"9-3-02A" Dry-Tamp Cast Stone Before Graffiti Removal

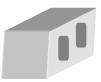


Sure Klean® Weather Seal Blok-Guard® & Graffiti Control Untreated Control

"9-3-02A" Dry-Tamp Cast Stone After Graffiti Removal







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CONCLUSIONS - Graffiti Control

Based upon laboratory evaluations, graffiti removal was improved when the submitted samples were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control prior to graffiti application. In addition, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control enhanced the appearance of the cast stone.

RECOMMENDATIONS - GRAFFITI CONTROL

Recommendations for graffiti control treatment for each type of cast stone submitted by Artisan Stone, Omaha, NE, are provided in the chart below. Recommendations are based on the treatment that proved most effective for providing graffiti repellency and the product that was most effective at removing the graffiti on all types submitted.

Sample Type	Graffiti Repellents	Graffiti Removers		
"9-3-02A" Dry-Tamp Cast Stone	Sure Klean® Weather Seal Blok- Guard® & Graffiti Control	Sure Klean [®] Fast Acting Stripper OR Defacer Eraser [®] Graffiti Wipe		

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.

For the most severe graffiti cases Sure Klean® Fast Acting Stripper is recommended for job-site testing. For mild graffiti cases, Defacer Eraser® Graffiti Wipe is recommended for job-site testing. See product literature for additional application and product information.

Christopher A. Moore Technical Analyst

CAM



Laboratory Report

Pallet Tag Program Evaluation

Artisan Stone Omaha, NE

Project No. 0407-16 PTP

Prepared For:

Artisan Stone 1624 John Pershing Dr. Omaha, NE

Prepared By:



PROSOCO, Inc. August 2004