



PALLET CARD PROGRAM LABORATORY REPORT

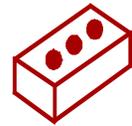


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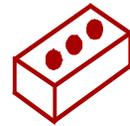
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ATTACHMENTS

- ASTM C 67 Immersion Testing
- Technical Services TECH Note RILEM Test Method No. II.4
- Product Data literature for all products evaluated
- Material Safety Data Sheets for all products evaluated



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FOR: Steve Young
Boral Brick Company
212 North Loop 337 East
Conroe, TX 77301

cc: Paul Tessier

SUBJECT: Boral Brick – Muskogee Plant
Muskogee, OK

DATE: January 16, 2001

PROJECT: 0009-18 PC

SAMPLES SUBMITTED: 11 styles of new clay brick (1 sleeve each)

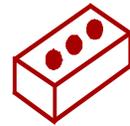
Brick	Size
"Crimson" - orange w/ red finish	3" X 3" X 10"
"Bridlewood" - red w/ red finish	3" X 3" X 10"
"Remington" - orange w/ red & black finish	3" X 3" X 10"
"Autumn Mist" - red w/ purple, black & white	3" X 3" X 10"
"Bunker Hill" - red w/ black & white finish	3" X 3" X 10"
"Brookfield" - red w/ black & white finish	3" X 3" X 10"
"Castlebrook" - red w/ black & white finish	3" X 3" X 10"
"Hollow Creek" - red w/ black & white finish	3" X 3" X 10"
"Aztec" - red w/ maroon, black & white	3" X 3" X 10"
"Tuscan Rose" - orange w/ light pink finish	3" X 3" X 10"
"Winchester" - red w/ brown, black & white	3" X 3" X 10"

NOTE: "Castlebrook" was not available for cleaning evaluation due to damaged samples.
Water repellent evaluations were done on this brick type.

Submitted by: Steve Young
Boral Brick Company
212 North Loop 336 East
Conroe, TX 77301



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PURPOSE OF TESTING:

Samples of 11 different red clay brick units were submitted to PROSOCO, Inc.'s Testing Laboratory with a request to determine if application of the products evaluated will produce any adverse effects during new construction cleaning operations. Additionally, the effectiveness of water repellents, suitable for clay brick masonry, will be evaluated.

A. New Construction Cleaning – Sure Klean® New Construction Cleaners were evaluated for removal of laboratory applied mortar.

To simulate new construction soiling, the ability of each cleaner to remove hardened deposits of type "N" cementitious mortar was evaluated and is reported below. Mortar was applied by placing the fired clay units face down in a smooth-finished tray of prepared mortar for 10 minutes. The mortar-stained brick were cured at 75% ± 5% RH and 70°F ± 5°F before any cleaning tests were attempted.

Heavy deposits of mortar are removed with dry scraping after 24 hours. Sure Klean® 600 Detergent, Sure Klean® 101 Lime Solvent and Sure Klean® Vana Trol® were tested for removal of gray type "N" masonry cement mortar after 7, 14 and 21 days of curing.

B. Surface Alteration Testing - Sure Klean® 600 Detergent, Sure Klean® 101 Lime Solvent and Sure Klean® Vana Trol® were tested at various dilutions to determine if they would produce any adverse effects during the cleaning process. Surface Alteration was evaluated visually based upon perceived discoloration or erosion/etching of the masonry unit.

Surface Finish Removal is the visual examination of the brick 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 brick 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 brick.

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.

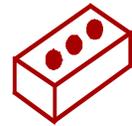
Staining is the visual examination for changes that are the result of a chemical reaction that leaves a staining precipitate.

Scale used for reporting results of all categories

0 – no change	3 – 50-74% change – heavy
1 – 1-24% change – slight	4 – 75-100% change – excessive
2 – 25-49% change – moderate	



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PRODUCTS EVALUATED:

CLEANING PRODUCTS

BRICK TYPE	101 Lime Solvent	600 Detergent	Vana Trol®
All submitted brick samples	1:6	1:6	1:6
	1:8	1:8	1:8

SURFACE ALTERATION PRODUCTS EVALUATED

BRICK TYPE	101 Lime Solvent	600 Detergent	Vana Trol®
All submitted brick samples	1:6	1:6	1:6
	1:8	1:8	1:8

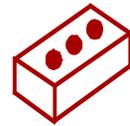
WATER REPELLENT PRODUCTS EVALUATED

Sample	Siloxane PD	Siloxane WB
All submitted brick samples	Concentrate	1:9

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 combination to most efficiently remove type N mortar from the submitted fired clay units.

Type N cementitious mortar was prepared in compliance with the manufacturers instructions, applied to the brick surface and allowed to cure for 7, 14 and 21 days prior to removal with high pressure water rinse using pressure rinsing equipment and chemical assist. The removal of gray Type N cementitious masonry cement mortar after 7, 14, and 21 days of curing was visually evaluated.

Sure Klean® 101 Lime Solvent – A general purpose, concentrated acidic cleaner for dark colored brick, tile and concrete surfaces. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-10 parts water. Apply by brush or low-pressure spray.

Sure Klean® 600 Detergent – A general purpose, concentrated acidic cleaner for brick, tile and concrete surfaces. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-25 parts water. Apply by brush or low-pressure spray.

Sure Klean® Vana Trol® - A concentrated acidic cleaner for new masonry surfaces that are subject to vanadium, manganese and other metallic stains. Use on: gray, brown, white and most light-colored brick; natural stone; cast stone. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-25 parts water. Apply by brush or low-pressure spray.

TEST METHOD – New Construction Cleaning

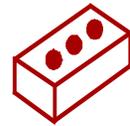
Dilution ratios refer to mixtures of concentrated cleaner : fresh water. Chemical cleaners were evaluated using the following procedure:

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

101 Lime Solvent.....	3 minutes
600 Detergent.....	5 minutes
Vana Trol®	5 minutes
4. Pressure rinse thoroughly.



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Test Results - New Construction Cleaning

% removal

Crimson

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	100%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	100%	100%	100%
SK Vana Trol [®] (1:8)	100%	100%	100%

Bridlewood

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	99%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	100%	100%	100%
SK Vana Trol [®] (1:8)	100%	100%	100%

Remington

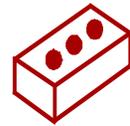
	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	99%
101 Lime Solvent (1:8)	100%	99%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	100%	98%	100%
SK Vana Trol [®] (1:8)	100%	98%	99%

Autumn Mist

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	100%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	99%
SK Vana Trol [®] (1:6)	100%	100%	99%
SK Vana Trol [®] (1:8)	100%	100%	99%



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Cleaning Test Results (cont.)

Bunker Hill

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	100%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	95%	100%	100%
SK Vana Trol [®] (1:8)	100%	100%	100%

Brookfield

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	100%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	100%	100%	100%
SK Vana Trol [®] (1:8)	100%	100%	100%

Castlebrook

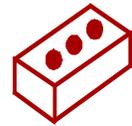
	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	N/A	N/A	N/A
101 Lime Solvent (1:8)	N/A	N/A	N/A
SK 600 Detergent (1:6)	N/A	N/A	N/A
SK 600 Detergent (1:8)	N/A	N/A	N/A
SK Vana Trol [®] (1:6)	N/A	N/A	N/A
SK Vana Trol [®] (1:8)	N/A	N/A	N/A

Aztec

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	100%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	100%	100%	100%
SK Vana Trol [®] (1:8)	100%	100%	100%



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Hollow Creek

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	100%	100%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	100%	100%	100%
SK Vana Trol [®] (1:8)	100%	100%	100%

Tuscan Rose

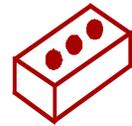
	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	99%	100%	99%
SK 600 Detergent (1:6)	100%	100%	99%
SK 600 Detergent (1:8)	100%	100%	100%
SK Vana Trol [®] (1:6)	100%	100%	99%
SK Vana Trol [®] (1:8)	100%	100%	100%

Winchester

	<u>7 day</u>	<u>14 day</u>	<u>21 day</u>
101 Lime Solvent (1:6)	100%	100%	100%
101 Lime Solvent (1:8)	100%	98%	98%
SK 600 Detergent (1:6)	100%	100%	100%
SK 600 Detergent (1:8)	100%	99%	80%
SK Vana Trol [®] (1:6)	100%	100%	100%
SK Vana Trol [®] (1:8)	98%	98%	100%



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CONCLUSIONS - Cleaning:

Based on the test results, all of the selected cleaners performed extremely well in removing excess mortar smears on the submitted brick samples. The cleaners performed well in removing the mortar soils even after allowing the mortar to remain on the surface of the brick for 21 days under ideal curing conditions. In almost all tests, 600 Detergent, 101 Lime Solvent and Vana Trol[®] performed equally, removing close to 100% of the latent mortar soil.

It is also recommended that the selected cleaners always be used in the lowest possible concentration, typically a 1:8 dilution. They should be rinsed with the lowest pressure of water as practical, garden hose strength preferred, to minimize removal of the decorative sand finish. It is recommended that all cleaning be done within 7 days of soiling to facilitate easier removal of excess mortar and construction dirt.

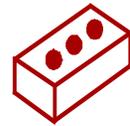
RECOMMENDED PRODUCTS AND DILUTIONS - CLEANING:

Sample	Sure Klean [®] 600 Detergent	Sure Klean [®] Vana Trol [®]	Sure Klean [®] 101 Lime Solvent
Crimson	1:8	1:8	1:8
Bridlewood	1:8	1:8	1:8
Remington	1:8	1:8	1:8
Autumn Mist	1:8	1:8	1:8
Bunker Hill	1:8	1:8	1:8
Brookfield	1:8	1:8	1:8
Castlebrook	N/A	N/A	N/A
Aztec	1:8	1:8	1:8
Tuscan Rose	1:8	1:8	1:8
Winchester	1:8	1:8	1:8
Hollow Creek	1:8	1:8	1:8

* Not enough samples were available due to damage.



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SECTION B – Surface Alteration Evaluation:

DESCRIPTION OF PRODUCTS EVALUATED – Surface Alterations:

Sure Klean® 600 Detergent - A general purpose, concentrated acidic cleaner for brick, tile and concrete surfaces. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-12 parts water. Apply by brush or low-pressure spray.

Sure Klean® 101 Lime Solvent – A general purpose, concentrated acidic cleaner for dark colored brick, tile and concrete surfaces. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-10 parts water. Apply by brush or low-pressure spray.

Sure Klean® Vana Trol® - A concentrated acidic cleaner for new masonry surfaces that are subject to vanadium, manganese and other metallic stains. Designed for use on gray, brown, white and most light-colored brick, natural stone and cast stone. Dissolves mortar smears and construction dirt quickly, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 4-10 parts water. Apply by brush or low-pressure spray.

TEST METHOD – Surface Alteration Testing:

Dilution ratios refer to mixtures of concentrated cleaner : fresh water.

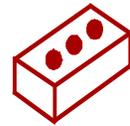
Sure Klean® 600 Detergent, Sure Klean® 101 Lime Solvent and Sure Klean® Vana Trol® were evaluated at dilutions of 1:6 and 1:8. The following procedure was used:

1. Prewet the surface with water.
2. Apply each cleaner at the appropriate dilutions.
3. Allow a 5-minute exposure time.
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 800 psi with a warm water flow rate of 1.9 gallons per minute.



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Surface Alteration Results:

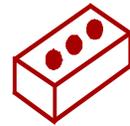
Substrate: Crimson		Pigment Color: Orange with Red Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0
Substrate: Autumn Mist		Pigment Color: Red with Purple and Black with White Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0
Substrate: Remington		Pigment Color: Orange and Red with Black Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0
Substrate: Bunker Hill		Pigment Color: Red and Black with White Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0

Scale used for reporting results of all categories

- | | |
|------------------------------|--------------------------------|
| 0 – no change | 3 – 50-74% change – heavy |
| 1 – 1-24% change – slight | 4 – 75-100% change – excessive |
| 2 – 25-49% change – moderate | |



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Surface Alteration Results Continued:

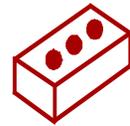
Substrate: Brookfield		Pigment Color: Red with Black and White Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0
Substrate: Winchester		Pigment Color: Red with Brown, Black and White Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0
Substrate: Hollow Creek		Pigment Color: Red with Black and White Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0
Substrate: Aztec		Pigment Color: Red with Maroon, Black and White Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0

Scale used for reporting results of all categories

- | | |
|------------------------------|--------------------------------|
| 0 – no change | 3 – 50-74% change – heavy |
| 1 – 1-24% change – slight | 4 – 75-100% change – excessive |
| 2 – 25-49% change – moderate | |



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Surface Alteration Results Continued:

Substrate: Tuscan Rose		Pigment Color: Orange with Light Pink Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0
Substrate: Castlebrook		Pigment Color: Red and Black with White Finish			
Product	Dilution	Surface Finish Removal	Substrate Deterioration	Color Change	Staining
101 Lime Solvent	1:6	1	0	1	0
101 Lime Solvent	1:8	1	0	1	0
600 Detergent	1:6	1	0	1	0
600 Detergent	1:8	1	0	1	0
Vana Trol	1:6	1	0	1	0
Vana Trol	1:8	1	0	1	0

Scale used for reporting results of all categories

- | | |
|------------------------------|--------------------------------|
| 0 – no change | 3 – 50-74% change – heavy |
| 1 – 1-24% change – slight | 4 – 75-100% change – excessive |
| 2 – 25-49% change – moderate | |

CONCLUSIONS -Surface Alterations:

Test results show that all types of the submitted brick went through a slight color change because of the removal of a small amount of the surface finish mainly due to pressure washing during the cleaning process. No other alterations were found with any of the submitted brick types.

RECOMMENDATIONS – Surface Alterations:

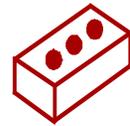
All of the recommended cleaners are to be used in the lowest possible concentration, typically a 1:8 dilution. Rinse thoroughly with a low water pressure to minimize removal of the decorative finish. Conduct all cleaning within seven days of soiling to facilitate easier removal of excess mortar and construction dirt.

Apply all products in accordance with the manufacturer’s recommendations provided on container labels and product data sheets. On-site testing should always 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 Siloxane PD - A low odor, alkaline stable, water-based blend of silanes and oligomeric alkoxysiloxanes. Weather Seal Siloxane PD is supplied pre-diluted and is designed for use on concrete and clay masonry surfaces. Weather Seal Siloxane PD penetrates more deeply than conventional water or solvent-based water repellents.

Sure Klean® Weather Seal Siloxane WB Concentrate - A self-emulsifying water repellent concentrate designed for dilution with fresh water at the job site. This solvent-free blend of silanes and oligomeric alkoxysiloxanes mixes easily with water to produce a penetrating water repellent which is ideal for application to either dense or porous masonry surfaces.

SAMPLE PREPARATION - Protective Water Repellents:

The submitted brick were cut, oven dried and allowed to reabsorb atmospheric humidity for 24 hours prior to treatment. The treatment method consisted of two 10-second immersions with a 20-second absorption period between immersions to simulate a wet-on-wet application. All treatments were allowed to cure for 14 days prior to testing.

TEST METHODS - Protective Water Repellents:

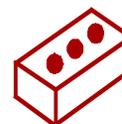
Water Absorption: ASTM C 67, Immersion

Water absorption was determined by comparing the dry weight of the sample with its weight after immersion in water at 10-minute, 30-minute, 60-minute and 24-hour intervals. See ASTM C 67 for additional information.

Reduced water absorption values – reported as effectiveness – measure the effectiveness of selected treatments in protecting samples from water penetration and water related decay mechanisms. Generally a reduction of approximately 80% is required to provide resistance to water intrusion under normal exposure conditions.



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TEST RESULTS - Protective Water Repellents:

Water Absorption: ASTM C 67, Immersion

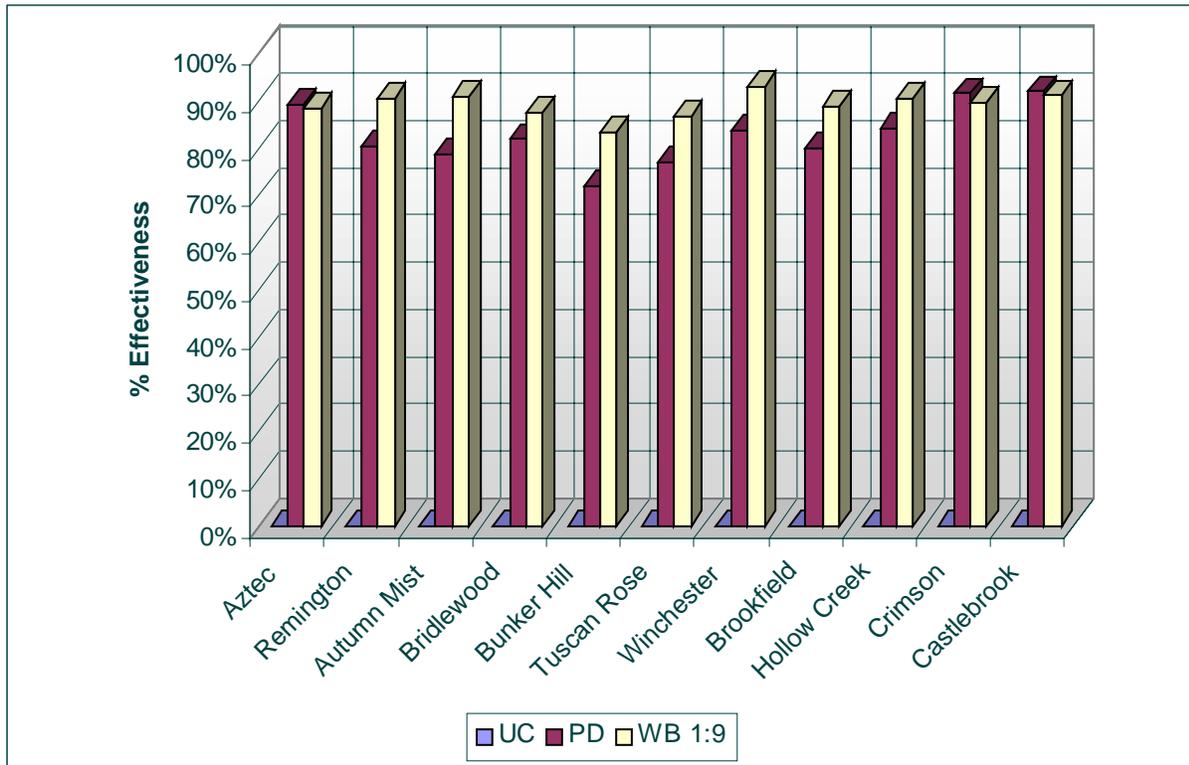
Winchester	% Absorption	% Effectiveness
Untreated Control	5.90	--
Siloxane PD	0.96	83.7
Siloxane WB Concentrate (1:9)	0.42	92.9
Brookfield	% Absorption	% Effectiveness
Untreated Control	4.90	--
Siloxane PD	0.99	79.8
Siloxane WB Concentrate (1:9)	0.55	88.8
Hollow Creek	% Absorption	% Effectiveness
Untreated Control	5.16	--
Siloxane PD	0.81	84.3
Siloxane WB Concentrate (1:9)	0.49	90.5
Crimson	% Absorption	% Effectiveness
Untreated Control	5.29	--
Siloxane PD	0.45	91.5
Siloxane WB Concentrate (1:9)	0.55	89.6
Castlebrook	% Absorption	% Effectiveness
Untreated Control	5.70	--
Siloxane PD	0.46	91.9
Siloxane WB Concentrate (1:9)	0.51	91.1
Aztec	% Absorption	% Effectiveness
Untreated Control	4.16	--
Siloxane PD	0.44	89.4
Siloxane WB Concentrate (1:9)	0.49	88.2
Remington	% Absorption	% Effectiveness
Untreated Control	4.75	--
Siloxane PD	0.94	80.2
Siloxane WB Concentrate (1:9)	0.46	90.3
Autumn Mist	% Absorption	% Effectiveness
Untreated Control	4.09	--
Siloxane PD	0.87	78.7
Siloxane WB Concentrate (1:9)	0.38	90.7
Bridlewood	% Absorption	% Effectiveness
Untreated Control	4.45	--
Siloxane PD	0.81	81.8
Siloxane WB Concentrate (1:9)	0.56	87.4
Bunker Hill	% Absorption	% Effectiveness
Untreated Control	2.68	--
Siloxane PD	0.75	72.0
Siloxane WB Concentrate (1:9)	0.45	83.2
Tuscan Rose	% Absorption	% Effectiveness
Untreated Control	5.43	--
Siloxane PD	1.26	76.8
Siloxane WB Concentrate (1:9)	0.72	86.6



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Water Absorption: ASTM C 67, Immersion



Graph 1

CONCLUSIONS - Protective Water Repellents:

Based upon laboratory evaluations, all of the submitted bricks exhibited above average water repellency when treated with Weather Seal Siloxane WB Concentrate diluted with 9 parts fresh water. Generally a reduction of approximately 80% is required to provide resistance to water intrusion under normal exposure conditions. Siloxane PD provided less water resistance than Weather Seal Siloxane WB. The effectiveness of four brick types is in the 70-80% range, which would be considered below average water repellency.



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RECOMMENDATIONS - Protective Water Repellents:

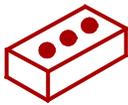
Sure Klean® Weather Seal Siloxane WB Concentrate, diluted 1:9 with fresh water provided excellent water repellent protection on all of the submitted brick types and is recommended for job site evaluations where these brick types are incorporated into the building's façade. It must be pointed out that in any installation, the brick are a single component of the masonry facade. The ability of a water repellent treatment to prevent the ingress of water is affected by a variety of other 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 water repellent product and procedures for a particular project. See product literature for additional application and product information.

David M. Regan

Chemist

DMR/csm



Laboratory Report

Pallet Card Evaluation

**Boral Brick – Muskogee Plant
Muskogee, OK**

Project No. 0009-18 PC

Prepared For:

**Steve Young
Boral Brick Co.
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Prepared By:



**PROSOCO, Inc.
January 2001**