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 Technical Services TECH Note RILEM Tube Test Procedures

 Product Data literature for all products evaluated

Submitted Information

For: Joel Edwards, Masolite
cc: Brian Koenings
 Jeff Lucas

Subject: Masolite
 Fort Wayne, IN

Date: February 14, 2008

Project: 0710-02 PTP

Samples Submitted: 4 types of CMUs, each with a Split-Face and Smooth-Face side

Name	Color	Type	Size
"Raspberry"	Red	Split-Face and Smooth-Face	16" x 8" x 8"
"Walnut"	Brown	Split-Face and Smooth-Face	16" x 8" x 8"
"Buff"	Tan	Split-Face and Smooth-Face	16" x 8" x 8"
"Charcoal"	Gray	Split-Face and Smooth-Face	16" x 8" x 8"

Submitted by: Joel Edwards, Masolite

Introduction

Architectural Materials Testing (AMT) Laboratories is a Boyer Industries company that provides laboratory testing and consulting services for the construction industry. Laboratory testing includes evaluating chemical cleaning products and protective treatments for a variety of new and existing architectural materials.

This report includes descriptions of the PROSOCO, Inc. products and test methods that were used. Following test results and conclusions, the report provides recommendations for the most effective products and procedures.

Purpose of Testing

Four types of integrally colored CMUs (each with a split-face and a smooth-face side), all with large, small and fine aggregate, were submitted for testing to AMT Laboratories by PROSOCO, Inc. to determine the optimum concentration of cleaner for complete removal of mortar and related new construction soiling. The effectiveness of protective water repellents and graffiti control products suitable for CMUs was also evaluated.

New Construction Cleaning – Sure Klean® Custom Masonry Cleaner, Sure Klean® Burnished Custom Masonry Cleaner, and Sure Klean® Concrete Brick Cleaner were evaluated to determine the optimal concentration of cleaner for removal of laboratory applied mortar which also leaves the external surface looking most like the natural through-body color of the CMU.

To simulate new construction soiling all samples were placed on a bench with finished surface facing upward. Hollow cylinders measuring 50 mm in diameter and 75 mm tall were positioned on top of each sample and filled with a wet mixture of Type S mortar. The wet, mortar-filled cylinder was allowed to remain in contact with the samples for 10 minutes before removal.

Heavy deposits of mortar were removed with dry scraping after 24 hours. Prepared cleaning solutions were then evaluated for their effectiveness in removing residual Type S mortar staining after 3 days, 7 days, and 14 days of curing.

Color uniformity was evaluated by comparing aggregate exposure and surface pigment alteration/removal of each cleaned surface compared to the natural through-body color of the CMU.

Aggregate Exposure is the visual examination comparing aggregate exposure of the interior, through-body section of the CMU to surfaces cleaned with selected product(s) at given dilutions.

Surface Pigment Alteration/Removal is the visual examination comparing the pigmentation of the interior, through-body section of the CMU 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 CMUs.

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

In addition to removing excess mortar and construction related soiling, the goal of any cleaning operation undertaken on an integrally colored CMU 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 CMU wall is improved.

Protective Water Repellents – Sure Klean® Weather Seal Blok-Guard® & Graffiti Control, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II, Sure Klean® Custom Masonry Sealer, and Sure Klean® Weather Seal Siloxane WB Concentrate were evaluated for their ability to provide water repellency to the submitted samples.

Graffiti Control – Sure Klean® Weather Seal Blok-Guard® & Graffiti Control, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II, and Sure Klean® Custom Masonry Sealer were evaluated for their 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 samples.

Products Evaluated**New Construction Cleaning Products Evaluated**

Sample	Product	Dilution
All Submitted CMUs	Sure Klean® Custom Masonry Cleaner	1:2, 1:4, 1:6
	Sure Klean® Burnished Custom Masonry Cleaner	1:2, 1:3
	Sure Klean® Concrete Brick Cleaner	1:2, 1:3

Protective Water Repellent Products Evaluated

Sample	Product	Dilution
All Submitted CMUs	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	Concentrate
	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate
	Sure Klean® Custom Masonry Sealer	Concentrate
	Sure Klean® Weather Seal Siloxane WB Concentrate	1:9

Graffiti Control Products Evaluated

Sample	Product	Dilution
All Submitted CMUs	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	Concentrate
	Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	Concentrate
	Sure Klean® Custom Masonry Sealer	Concentrate

Graffiti Removal Products Evaluated

Sample	Product	Dilution
All Submitted CMUs	Sure Klean® Fast Acting Stripper	Concentrate
	Defacer Eraser® Graffiti Wipe	Concentrate

New Construction Cleaning

These cleaning trials were conducted to determine the optimal concentration of cleaner to most efficiently remove Type S mortar from the submitted samples while providing the best color uniformity when compared to the through-body color of the submitted CMUs.

Description of Products Evaluated – New Construction Cleaning

Sure Klean® Custom Masonry Cleaner – A general purpose, concentrated acidic cleaner for most custom masonry and colored concrete. Removes concrete splashes, excess mortar, mud, heavy efflorescence and surface soiling, leaving the masonry clean and uniform with no acid burning or streaking. Liquid concentrate for dilution with 2-6 parts water. Apply by brush or low-pressure spray.

Sure Klean® Burnished Custom Masonry 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, 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® Concrete Brick Cleaner – Removes common construction and atmospheric staining from concrete brick 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. Concrete Brick Cleaner adds depth to colors and brightens white matrices and exposed aggregate.

Sample Preparation – New Construction Cleaning

Type S mortar was prepared in compliance with the manufacturer's instructions, applied to the samples and allowed to cure for 3, 7, and 14 days. Mortar removal was accomplished using chemical assistance and a high-pressure water rinse with pressure rinsing equipment. The removal of Type S masonry mortar was visually evaluated after 3, 7, and 14 days of curing. A visual examination was also made to determine the optimal dilution of the tested cleaners that provides the best color uniformity when compared to the through-body color of the CMUs.

Test Method – New Construction Cleaning

Chemical cleaners were evaluated using the following procedure:

1. Pre-wet the surface with water.
2. Apply at the appropriate dilutions.
3. Allow appropriate dwell time, as specified.

Sure Klean® Custom Masonry Cleaner.....	3-5 minutes
Sure Klean® Burnished Custom Masonry Cleaner	3-5 minutes
Sure Klean® Concrete Brick Cleaner	3-5 minutes
4. Reapply the product 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 Equipment** – Masonry washing equipment generating approximately 700-800 psi with a water flow rate of 8 gallons per minute delivered through a 45 degree fan spray tip was used for rinsing.

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“Raspberry” Split-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	80%	80%	85%
Custom Masonry Cleaner	1:4	80%	85%	80%
Custom Masonry Cleaner	1:6	75%	80%	85%
Burnished Custom Masonry Cleaner	1:2	90%	75%	90%
Burnished Custom Masonry Cleaner	1:3	95%	75%	90%
Concrete Brick Cleaner	1:2	90%	75%	90%
Concrete Brick Cleaner	1:3	95%	75%	90%
“Walnut” Split-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	90%	90%	90%
Custom Masonry Cleaner	1:4	85%	90%	85%
Custom Masonry Cleaner	1:6	77%	75%	85%
Burnished Custom Masonry Cleaner	1:2	90%	95%	80%
Burnished Custom Masonry Cleaner	1:3	90%	95%	80%
Concrete Brick Cleaner	1:2	90%	95%	80%
Concrete Brick Cleaner	1:3	90%	95%	80%
“Buff” Split-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	100%	100%
Custom Masonry Cleaner	1:4	100%	100%	100%
Custom Masonry Cleaner	1:6	100%	100%	100%
Burnished Custom Masonry Cleaner	1:2	100%	100%	100%
Burnished Custom Masonry Cleaner	1:3	100%	100%	100%
Concrete Brick Cleaner	1:2	100%	100%	100%
Concrete Brick Cleaner	1:3	100%	100%	100%
“Charcoal” Split-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	95%	100%	100%
Custom Masonry Cleaner	1:4	85%	100%	95%
Custom Masonry Cleaner	1:6	90%	85%	100%
Burnished Custom Masonry Cleaner	1:2	90%	75%	85%
Burnished Custom Masonry Cleaner	1:3	80%	75%	85%
Concrete Brick Cleaner	1:2	90%	75%	85%
Concrete Brick Cleaner	1:3	80%	75%	85%

Test Results – New Construction Cleaning**Cleaning Effectiveness (% Type S Mortar Removal)**

“Raspberry” Smooth-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	90%	95%	100%
Custom Masonry Cleaner	1:4	90%	100%	95%
Custom Masonry Cleaner	1:6	90%	90%	100%
Burnished Custom Masonry Cleaner	1:2	90%	85%	100%
Burnished Custom Masonry Cleaner	1:3	90%	88%	95%
Concrete Brick Cleaner	1:2	90%	85%	100%
Concrete Brick Cleaner	1:3	90%	88%	95%
“Walnut” Smooth-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	90%	90%
Custom Masonry Cleaner	1:4	98%	100%	85%
Custom Masonry Cleaner	1:6	95%	95%	80%
Burnished Custom Masonry Cleaner	1:2	85%	85%	80%
Burnished Custom Masonry Cleaner	1:3	85%	85%	85%
Concrete Brick Cleaner	1:2	85%	85%	80%
Concrete Brick Cleaner	1:3	85%	80%	85%
“Buff” Smooth-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	85%	100%	98%
Custom Masonry Cleaner	1:4	85%	100%	95%
Custom Masonry Cleaner	1:6	85%	100%	95%
Burnished Custom Masonry Cleaner	1:2	85%	85%	90%
Burnished Custom Masonry Cleaner	1:3	85%	85%	90%
Concrete Brick Cleaner	1:2	85%	85%	90%
Concrete Brick Cleaner	1:3	85%	85%	90%
“Charcoal” Smooth-Face CMU				
Product	Dilution	3 day	7 day	14 day
Custom Masonry Cleaner	1:2	100%	95%	90%
Custom Masonry Cleaner	1:4	90%	95%	85%
Custom Masonry Cleaner	1:6	85%	95%	90%
Burnished Custom Masonry Cleaner	1:2	75%	90%	90%
Burnished Custom Masonry Cleaner	1:3	80%	85%	90%
Concrete Brick Cleaner	1:2	75%	90%	90%
Concrete Brick Cleaner	1:3	80%	85%	90%

Test Results – Color Uniformity

Substrate: Split-Face CMU		Pigment Color: "Raspberry"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	3	3
Burnished Custom Masonry Cleaner	1:3	3	3
Concrete Brick Cleaner	1:2	3	3
Concrete Brick Cleaner	1:3	3	3
Substrate: Split-Face CMU		Pigment Color: "Walnut"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Concrete Brick Cleaner	1:2	4	4
Concrete Brick Cleaner	1:3	4	4
Substrate: Split-Face CMU		Pigment Color: "Buff"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	3	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	3	3
Burnished Custom Masonry Cleaner	1:3	3	3
Concrete Brick Cleaner	1:2	3	3
Concrete Brick Cleaner	1:3	3	3
Substrate: Split-Face CMU		Pigment Color: "Charcoal"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Concrete Brick Cleaner	1:2	4	4
Concrete Brick Cleaner	1:3	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

Test Results – Color Uniformity

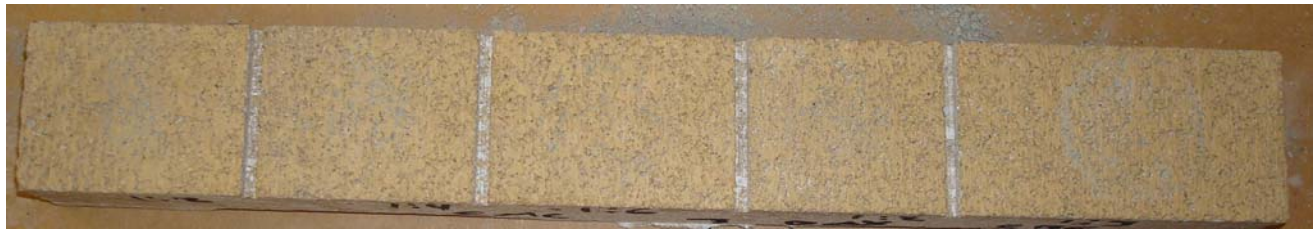
Substrate: Smooth-Face CMU		Pigment Color: "Raspberry"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Concrete Brick Cleaner	1:2	4	4
Concrete Brick Cleaner	1:3	4	4
Substrate: Smooth-Face CMU		Pigment Color: "Walnut"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Concrete Brick Cleaner	1:2	4	4
Concrete Brick Cleaner	1:3	4	4
Substrate: Smooth-Face CMU		Pigment Color: "Buff"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Concrete Brick Cleaner	1:2	4	4
Concrete Brick Cleaner	1:3	4	4
Substrate: Smooth-Face CMU		Pigment Color: "Charcoal"	
Product	Dilution	Aggregate Exposure	Surface Pigment Alteration/Removal
Custom Masonry Cleaner	1:2	4	4
Custom Masonry Cleaner	1:4	4	4
Custom Masonry Cleaner	1:6	4	4
Burnished Custom Masonry Cleaner	1:2	4	4
Burnished Custom Masonry Cleaner	1:3	4	4
Concrete Brick Cleaner	1:2	4	4
Concrete Brick Cleaner	1:3	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 – New Construction Cleaning

“Buff” Smooth-Face CMU; 3 Day Cleaning; Type S Mortar



Sure Klean® Custom Masonry Cleaner (1:2)	Sure Klean® Custom Masonry Cleaner (1:4)	Sure Klean® Custom Masonry Cleaner (1:6)	Sure Klean® Burnished Custom Masonry Cleaner (1:2)	Sure Klean® Burnished Custom Masonry Cleaner (1:3)
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Sure Klean® Concrete Brick Cleaner (1:2)	Sure Klean® Concrete Brick Cleaner (1:3)
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Untreated Control

Photographs – New Construction Cleaning

“Buff” Smooth-Face CMU; 7 Day Cleaning; Type S Mortar



Sure Klean® Custom Masonry Cleaner (1:2)	Sure Klean® Custom Masonry Cleaner (1:4)	Sure Klean® Custom Masonry Cleaner (1:6)	Sure Klean® Burnished Custom Masonry Cleaner (1:2)	Sure Klean® Burnished Custom Masonry Cleaner (1:3)
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Sure Klean® Concrete Brick Cleaner (1:2)	Sure Klean® Concrete Brick Cleaner (1:3)
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Untreated Control

Photographs – New Construction Cleaning

“Buff” Smooth-Face CMU; 14 Day Cleaning; Type S Mortar



**Sure Klean®
Custom
Masonry
Cleaner (1:2)**

**Sure Klean®
Custom
Masonry
Cleaner (1:4)**

**Sure Klean®
Custom
Masonry
Cleaner (1:6)**

**Sure Klean®
Burnished Custom
Masonry Cleaner
(1:2)**

**Sure Klean®
Burnished
Custom
Masonry
Cleaner (1:3)**



**Sure Klean®
Concrete Brick
Cleaner (1:2)**

**Sure Klean®
Concrete Brick
Cleaner (1:3)**



**Untreated
Control**

Photographs – Color Uniformity

“Buff” Split-Face CMU; Color Uniformity



**Sure Klean®
Custom
Masonry
Cleaner (1:2)**

**Sure Klean®
Custom
Masonry
Cleaner (1:4)**

**Sure Klean®
Custom
Masonry
Cleaner (1:6)**

**Sure Klean®
Burnished
Custom
Masonry
Cleaner (1:2)**

**Sure Klean®
Burnished
Custom
Masonry
Cleaner (1:3)**



**Sure Klean®
Concrete Brick
Cleaner (1:2)**

**Sure Klean®
Concrete Brick
Cleaner (1:3)**



Through-body

Conclusions – New Construction Cleaning

Based on the test data, all of the submitted CMUs were efficiently cleaned with Sure Klean® Custom Masonry Cleaner, Sure Klean® Burnished Custom Masonry Cleaner, and Sure Klean® Concrete Brick Cleaner,

Use higher concentrations and surface agitation to maximize aggregate exposure. Use low concentration and surface agitation to minimize aggregate exposure.

Recommendations – New Construction Cleaning

Recommendations for cleaning for each type of CMU submitted by Masolite, Fort Wayne, IN are provided in the chart below. Recommendations are based on the optimum dilution for complete removal of mortar while providing the best match to the through-body color of the CMUs.

Sample	New Construction Cleaning (Type S mortar, 14 day cleaning)
All Submitted CMUs	Sure Klean® Custom Masonry Cleaner (1:6) or Sure Klean® Burnished Custom Masonry Cleaner (1:3) or Sure Klean® Concrete Brick Cleaner (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.

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.

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
-

Description of Products Evaluated – Protective Water Repellents

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control – A clear, solvent-based silicone elastomer formulated to weatherproof concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control protects masonry surfaces from repeated graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering.

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II is easy to apply with low-pressure spray, brush or roller.

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 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 alkoxy siloxanes mixes easily with water to produce a penetrating water repellent ideal for application to dense or porous masonry surfaces.

Sample Preparation – Protective Water Repellents

The submitted samples were scored and allowed to dry for 24 hours prior to treatment. All of the products were applied by brush in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions. Both treatments were allowed to cure for at least 72 hours 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.

Test Results – Protective Water Repellents**Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes****Results**

“Raspberry” Split-Face CMU	
Untreated Control	<40 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	55 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	50 MPH
Sure Klean® Custom Masonry Sealer	55 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	50 MPH
“Walnut” Split-Face CMU	
Untreated Control	<40 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	55 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 MPH
Sure Klean® Custom Masonry Sealer	55 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	57 MPH
“Buff” Split-Face CMU	
Untreated Control	<40 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	60 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	55 MPH
Sure Klean® Custom Masonry Sealer	60 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 MPH
“Charcoal” Split-Face CMU	
Untreated Control	<40 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	55 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	50 MPH
Sure Klean® Custom Masonry Sealer	55 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	55 MPH

Test Results – Protective Water Repellents**Water Absorption Tube Test: RILEM II.4, 60 mph, 20 Minutes****Results**

“Raspberry” Smooth-Face CMU	
Untreated Control	<40 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	60 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	60 MPH
Sure Klean® Custom Masonry Sealer	60 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 MPH
“Walnut” Smooth-Face CMU	
Untreated Control	55 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	55 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	55 MPH
Sure Klean® Custom Masonry Sealer	55 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	58 MPH
“Buff” Smooth-Face CMU	
Untreated Control	50 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	58 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	57 MPH
Sure Klean® Custom Masonry Sealer	58 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 MPH
“Charcoal” Smooth-Face CMU	
Untreated Control	45 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control	57 MPH
Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II	41 MPH
Sure Klean® Custom Masonry Sealer	57 MPH
Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)	60 MPH

Photographs – Protective Water Repellents

“Buff” Split-Face CMU; RILEM II.4, 60 mph, 20 Minutes



**Untreated
Control**

**Sure Klean®
Weather Seal
Siloxane WB
Concentrate (1:9)**

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

**Sure Klean®
Weather Seal Blok-
Guard® & Graffiti
Control II**



**Sure Klean®
Custom Masonry
Sealer**

Conclusions – Protective Water Repellents

Based upon laboratory evaluations, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control and Sure Klean® Custom Masonry Sealer provided excellent water repellency to the submitted samples. In addition, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II provided excellent water repellency to each of the samples with the exception of “Raspberry”; split-face, “Charcoal”; split-face and “Charcoal”; smooth-face. Sure Klean® Weather Seal Siloxane WB Concentrate (1:9) provided excellent water repellency to all of the samples with the exception of the “Raspberry”; split-face sample. None of the treatments applied altered the appearance of any of the samples.

Recommendations – Protective Water Repellents

Recommendations for water repellency for each CMU submitted by Masolite, Fort Wayne, IN 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	Protective Water Repellents
“Raspberry”; Split Face CMU	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or *Sure Klean® Custom Masonry Sealer
“Charcoal”; Split Face CMU and “Charcoal”; Smooth Face CMU	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or *Sure Klean® Custom Masonry Sealer or Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)
All Other Submitted CMUs	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II or *Sure Klean® Custom Masonry Sealer or Sure Klean® Weather Seal Siloxane WB Concentrate (1:9)

***NOTE:** Sure Klean® Weather Seal Blok-Guard® & Graffiti Control and Sure Klean® Custom Masonry Sealer are manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). These products may not be suitable for sale in states and districts with more restrictive AIM VOC regulations.

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.

Graffiti Control

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

Description of Products Evaluated – Graffiti Control

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 materials. Blok-Guard® & Graffiti Control protects masonry surfaces from repeated graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control penetrates and fills pores to prevent water penetration through exterior walls exposed to normal weathering. Graffiti removal is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control is easy to apply with low-pressure spray, brush or roller.

Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II – A clear-drying, water-based silicone emulsion for weatherproofing concrete block and other porous masonry materials. Blok-Guard® & Graffiti Control II also protects masonry surfaces from graffiti attacks without altering the natural appearance. Blok-Guard® & Graffiti Control II protects exterior walls exposed to normal weathering. Graffiti removal from treated surfaces is fast and easy using Defacer Eraser® Graffiti Wipe. Blok-Guard® & Graffiti Control II is easy to apply with low-pressure spray, brush or roller.

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.

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, split-face concrete block, 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)

Sample Preparation – Graffiti Control

Sections of the CMUs were treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II, and Sure Klean® Custom Masonry Sealer in accordance with the current PROSOCO, Inc. Product Data Sheet application instructions and allowed to cure for at least one day. At the end of the 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, Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II, and Sure Klean® Custom Masonry Sealer. 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:

Defacer Eraser® Graffiti Wipe	5 minutes
Sure Klean® Fast Acting Stripper	20 minutes
3. Pressure rinse thoroughly until water runs clear. *
4. Allow the surface to dry thoroughly and visually examine to determine effectiveness.

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

Test Results – Graffiti Control

“Raspberry” Split-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	75%	70%	90%	80%
Graffiti Wipe	75%	75%	70%	90%	78%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	100%	100%	100%	98%
Graffiti Wipe	90%	100%	100%	100%	98%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	90%	80%	95%	89%
Graffiti Wipe	85%	90%	80%	95%	88%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	100%	100%	100%	98%
Graffiti Wipe	90%	100%	100%	100%	98%
“Walnut” Split-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	50%	90%	75%	75%	73%
Graffiti Wipe	45%	85%	75%	75%	70%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	95%	98%	98%	95%
Graffiti Wipe	80%	95%	98%	98%	93%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	85%	85%	90%	88%
Graffiti Wipe	80%	75%	70%	75%	75%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	95%	98%	98%	95%
Graffiti Wipe	80%	95%	98%	98%	93%

Test Results – Graffiti Control

“Buff” Split-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	80%	50%	40%	64%
Graffiti Wipe	50%	50%	35%	35%	43%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	78%	75%	90%	85%	82%
Graffiti Wipe	85%	80%	65%	60%	73%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	90%	60%	75%	76%
Graffiti Wipe	65%	70%	40%	60%	59%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	78%	75%	90%	85%	82%
Graffiti Wipe	85%	80%	65%	60%	73%
“Charcoal” Split-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	50%	60%	50%	45%	51%
Graffiti Wipe	25%	20%	25%	40%	28%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	95%	95%	85%	89%
Graffiti Wipe	70%	95%	90%	80%	84%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	60%	70%	80%	74%
Graffiti Wipe	40%	60%	65%	75%	60%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	95%	95%	85%	89%
Graffiti Wipe	70%	95%	90%	80%	84%

Test Results – Graffiti Control

“Raspberry” Smooth-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	50%	60%	50%	59%
Graffiti Wipe	60%	45%	45%	50%	50%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	85%	90%	90%	89%
Graffiti Wipe	90%	75%	90%	90%	86%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	75%	85%	90%	85%
Graffiti Wipe	80%	70%	85%	90%	81%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	85%	90%	90%	89%
Graffiti Wipe	90%	75%	90%	90%	86%
“Walnut” Smooth-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	75%	80%	70%	76%
Graffiti Wipe	40%	50%	35%	35%	40%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	90%	95%	95%	91%
Graffiti Wipe	90%	90%	90%	95%	91%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	80%	80%	90%	81%
Graffiti Wipe	65%	75%	75%	75%	73%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	90%	95%	95%	91%
Graffiti Wipe	90%	90%	90%	95%	91%

Test Results – Graffiti Control

“Buff” Smooth-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	80%	50%	40%	35%	51%
Graffiti Wipe	65%	45%	25%	25%	65%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	85%	75%	75%	80%
Graffiti Wipe	90%	75%	75%	80%	80%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	75%	50%	50%	50%	56%
Graffiti Wipe	50%	55%	50%	30%	46%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	85%	75%	75%	80%
Graffiti Wipe	90%	75%	75%	80%	80%
“Charcoal” Smooth-Face CMU					
Untreated Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	85%	75%	58%	70%	72%
Graffiti Wipe	80%	65%	60%	65%	68%
Blok-Guard® & Graffiti Control	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	95%	85%	95%	91%
Graffiti Wipe	85%	95%	90%	90%	90%
Blok-Guard® & Graffiti Control II	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	90%	80%	85%	86%
Graffiti Wipe	80%	90%	80%	85%	84%
Custom Masonry Sealer	Red Paint	Black Marker	Green Marker	Red Marker	% Avg. Removal
Fast Acting Stripper	90%	95%	85%	95%	91%
Graffiti Wipe	85%	95%	90%	90%	90%

Photographs – Graffiti Control

“Charcoal” Smooth Face CMU; Before Graffiti Removal



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

**Sure Klean®
Weather Seal
Blok-Guard® &
Graffiti Control II**

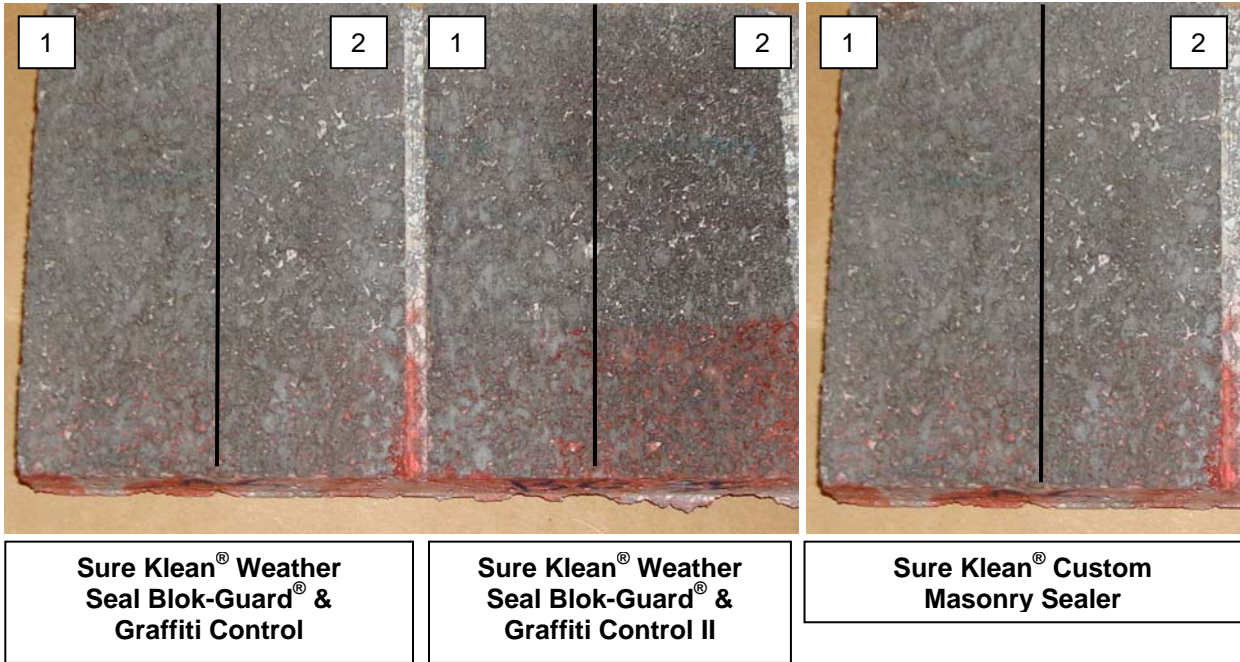
**Untreated
Control**



**Sure Klean® Custom
Masonry Sealer**

Photographs – Graffiti Control

“Charcoal” Smooth Face CMU; After Graffiti Removal



KEY

- 1. Sure Klean® Fast Acting Stripper
- 2. Defacer Eraser® Graffiti Wipe

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 and Sure Klean® Custom Masonry Sealer prior to graffiti application. Graffiti removal was improved on each of the submitted samples except the “Buff”; smooth face sample when treated with Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II. None of the treatments applied to any of the samples submitted caused any change to the appearance of the CMUs.

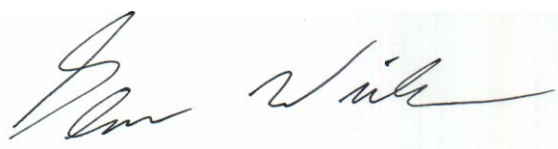
Recommendations – Graffiti Control

Recommendations for graffiti control treatment for each CMU submitted by Masolite, Fort Wayne, IN 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	Graffiti Repellents	Graffiti Removers
“Buff”; Smooth Face CMU	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or *Sure Klean® Custom Masonry Sealer	Sure Klean® Fast Acting Stripper or Defacer Eraser® Graffiti Wipe
All Other Submitted CMUs	*Sure Klean® Weather Seal Blok-Guard® & Graffiti Control or Sure Klean® Weather Seal Blok-Guard® & Graffiti Control II or *Sure Klean® Custom Masonry Sealer	Sure Klean® Fast Acting Stripper or Defacer Eraser® Graffiti Wipe

***NOTE:** Sure Klean® Weather Seal Blok-Guard® & Graffiti Control and Sure Klean® Custom Masonry Sealer are manufactured and marketed in compliance with USEPA AIM VOC regulations (40 CFR 59.403). These products may not be suitable for sale in states and districts with more restrictive AIM VOC regulations.

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.

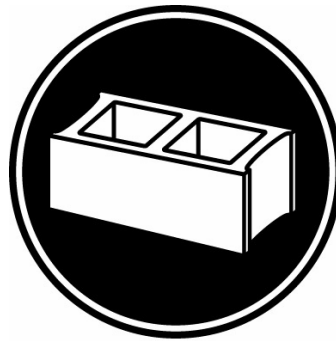


Glenn Winkler
Project Testing Laboratory Technician



PALLET TAG PROGRAM
Laboratory Report

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CMU



Project No. 0710-02 PTP

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SINCE 1939

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