

Protecting Stone and Concrete Floors

Technical Bulletin

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Introduction

Despite the best care and maintenance practices, sometimes events will occur that can damage stone floors, leaving unsightly stains or marks. The 3M™ Stone Protection System, comprising 3M Trizact™ HX Discs and Scotchgard™ Stone Floor Protector, is an extra layer of protection against many of these events. The system offers excellent stain resistance against many common stains as well as a good level of abrasion resistance. The purpose of this technical bulletin is to illustrate some of the system benefits that help maintain the floor in good condition and preserve the significant investment of installing a concrete or terrazzo floor.

Stain Resistance

The 3M Stone Protection System not only provides concrete and terrazzo floors a glossy, natural appearance, but it also serves as a protective barrier against many common retail and industrial chemicals and stains.

In order to illustrate the benefits of the 3M Stone Protection System, bare concrete tiles and concrete tiles treated with 3M Trizact™ HX Discs and Scotchgard™ Stone Floor Protector were exposed to staining agents for 1 and 8 hours. After the contact time, the staining agents were removed, the surfaces rinsed, and the impact of the staining agent was evaluated on a 0 (no stain) to 4 (heavy stain) scale. Figure 1 is visual key that illustrates how the stains were evaluated.

Figure 1: Visual Stain Rating Key


	Rating	Description
	4	Heavy stain
	3	Moderate stain
	2	Light stain
	1	Very light stain

Table 1: Stain Resistance on Concrete

Staining Agents	3M Stone Protection System				
	Bare		Protection System		
	1 Hr	8 Hrs	1 Hr	8 Hrs	
Food	Red Wine	4	4	0	0
	Vinegar	4	4	1	3
	Coffee	3	2	0	0
	Mustard	4	4	0	0
	Fruit drink (red)	2	4	0	4
	Tea	3	4	2	3
	Cola	3	3	0	0
	Ketchup	4	4	0	0
Industrial	Kerosene	0	1	0	0
	Dirty motor oil	3	3	0	0
	Hydraulic fluid	2	2	0	0
Healthcare	Urine ¹	1	1	0	0
	Hand sanitizer ²	2	2	0	1
Cleaning	Bleach	2	0	0	0
	Laundry detergent ³	2	1	0	1
Total Rating		39	39	3	12

1. Wolf (www.predatorpee.com)

2. Purell® gel

3. Tide® detergent

Table 1 lists the resistance against various staining agents. As is evident from the total rating values, the 3M Stone Protection System provides excellent level of stain protection at both 1 and 8 hours contact time when compared to a bare concrete surface.

That said, it is always important to promptly clean up any spills in a timely manner to avoid any long term damage and/or safety hazards.

If staining or etching damage does occur to a surface treated by the 3M Stone Protection System, it can be repaired by following the process outlined in the 3M Technical Data Sheet "Repairing Etched or Stained Stone Floor" (September 2012).



Abrasion Resistance

Floors take an extraordinary amount of surface abuse from traffic (carts, foot, pallet) and tracked in soil, debris, and water. If the floor is not adequately protected, the wear and tear will permanently abrade and damage the surface. By using the 3M™ Stone Protection System, the life of the floor is extended by providing a protective barrier against surface abrasion events. The series of photographs in Figure 2 illustrate the benefits of the 3M Stone Protection System in protecting floors from damage by surface abrasion.

Photograph A illustrates a bare concrete tile that has been scratched in three areas by an abrasive method.¹ The three scratch lines are visually apparent on the concrete surface. Photograph B is a similar concrete tile that was pre-treated with the 3M Stone Protection System and then subjected to the same abrasive test. In this case, the surface scratch lines are much less apparent because the 3M Stone Protection System provides a protective barrier.

The benefits of the 3M Stone Protection System are further evident upon repair. Photographs C & D illustrate the impact of burnishing the abraded surfaces shown in A & B, respectively, with a Scotch-Brite™ Purple Diamond Floor Pad Plus. Even after repair of the bare concrete surface, the three scratch lines remain. On the other hand, the scratch lines are no longer visually apparent after repair in the 3M Stone Protection System tile.

To quantitatively illustrate the protective benefits of the 3M Stone Protection System, a profilometer can be used to measure the surface roughness across the surface scratch marks remaining after burnishing. Figure 3 clearly illustrates the protective benefits of the 3M Stone Protection System.

Figure 2: Surface Abrasion and Repair

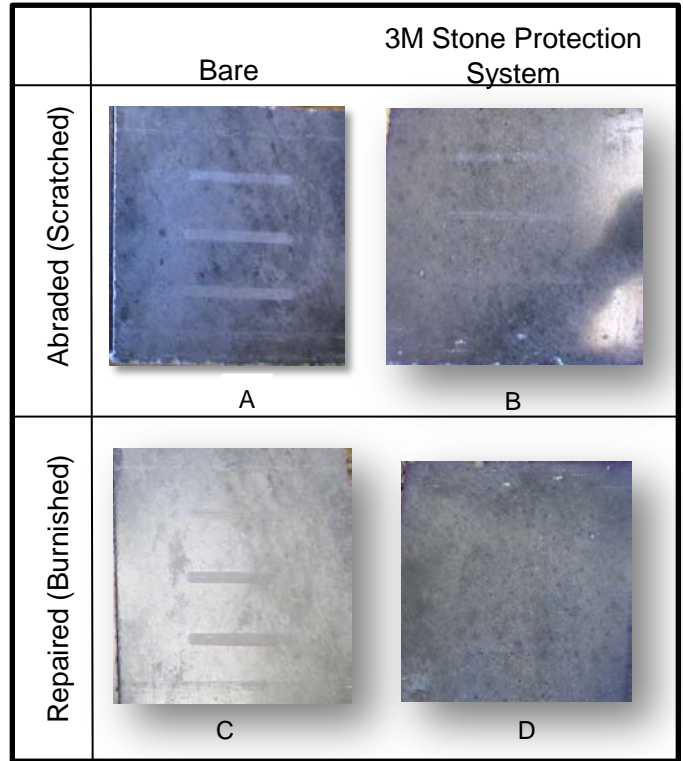
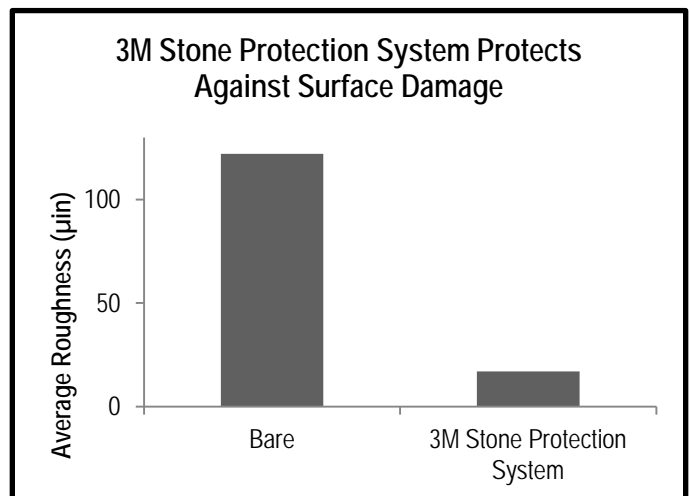


Figure 3: Surface Roughness Chart



1. All abrasion testing reported was done with a Taber linear Abraser, an H18 abradant, 50 cycles at 60 cycles/min, and loads of 350, 850, and 1100 grams.

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