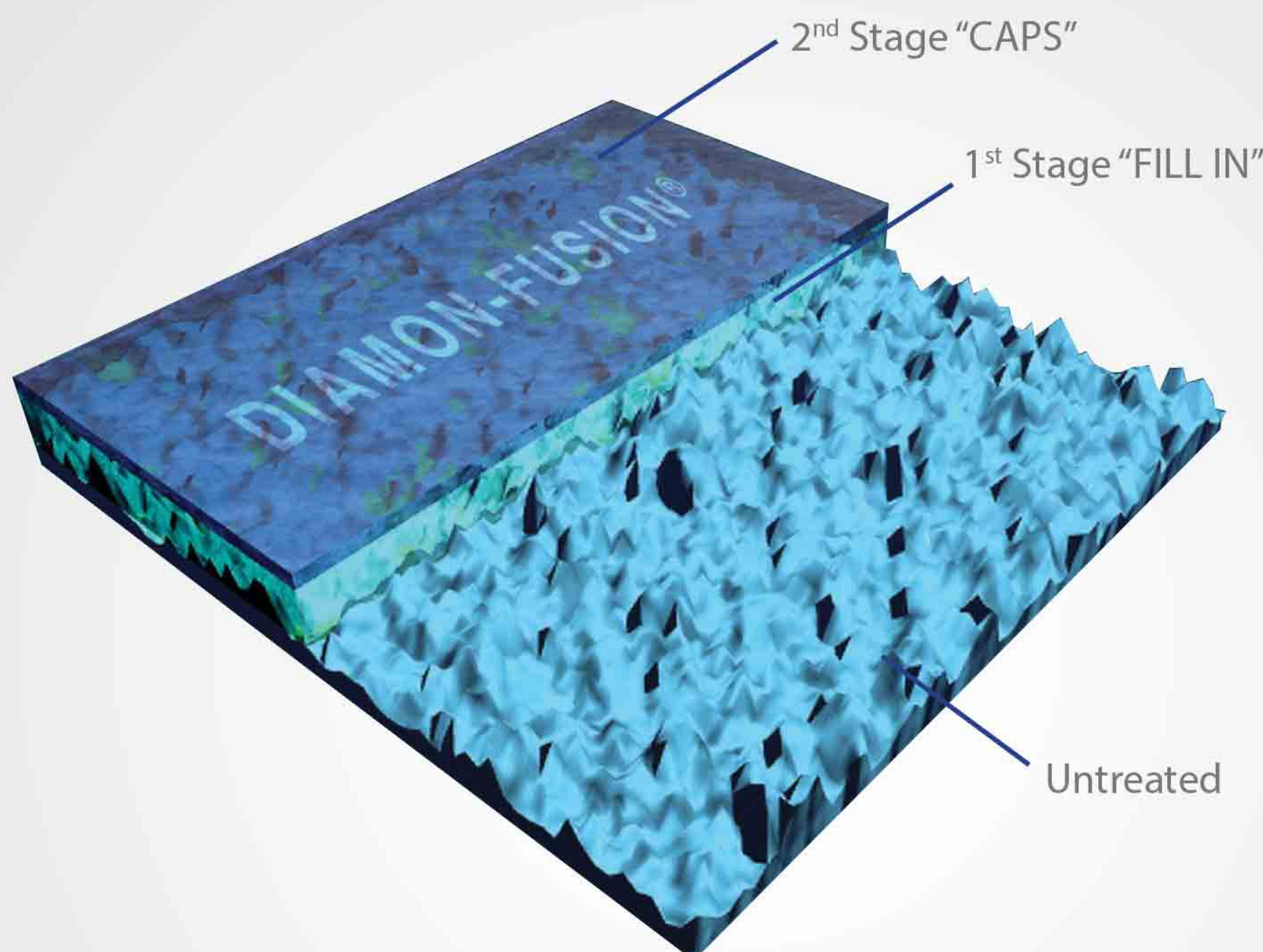


Diamon-Fusion®

Technical Overview & Features

Technical Summary

Untreated glass is a naturally porous surface, which means it contains thousands of microscopic peaks and valleys. As a result, mineral deposits, soap scum and other contaminants are able to penetrate the surface of glass causing stains and corrosion. This inevitably makes the glass tougher to clean and eventually results in damaged glass that cannot be restored. The solution? Diamon-Fusion protective coating - an optically clear, low-maintenance coating that fills in the peaks and valleys of the surface via a two-stage chemical process:



Stage One

Diamon-Fusion fills in the glass by creating a chemical reaction that causes a "cross-linked" and "branched" silicone film to be grown from below the surface out.

Stage Two

The second stage "caps" the entire chain of atoms. This unique "capping" substantially increases the hydrophobicity and durability of the glass.

Diamon-Fusion Nanochemistry

The chemical reaction bonds to form an ultra-thin protective layer of optically clear durable material, a "web-like" nano structure, making the surface significantly easier to clean and more resistant to weathering. This method is done at nano-scale levels, thus also called "nano-chemistry" which is a length scale of approximately 1 – 100 nanometer range (1 nanometer is 1/1,000,000,000 meter, or 1 billionth of a meter).

Diamon-Fusion Covalent Bond

The bond created in the Diamon-Fusion patented process is a covalent bond, meaning that the coating shares the electrons within the glass itself, thus becoming a part of the glass. Covalent Bonds are approximately 10 times stronger than hydrogen-bridge bonds, which are commonly present in most other water repellent coatings.

Diamon-Fusion *Features/Benefits*

- **Hydrophobic (water repellency):**
90% easier to clean
- **Oleophobic (oil repellency):**
90% easier to clean
- **Stain and graffiti resistant:**
easier to remove
- **Optical clarity:**
100% optically clear
- **Environmentally friendly:**
no harsh chemical cleaners needed
- **Brilliance:**
adds more shine
- **UV resistant:**
won't breakdown in sunlight
- **Scratch resistant:**
prevents abrasion and scuffs



- **Impact resistant:**
helps prevent chipping
- **Contact Angle*:**
> 100°
- **Sliding Angle*:**
< 15°
- **Temperature resistant:**
Up to 600° F / 315° C
- **Chemical resistant:**
acid resilient
- **Coating Thickness:**
< 40nm (nanometers)

* **Contact Angle** – How high a bead of water stands on a surface. More specifically, it measures the angle created between the edge of a drop of liquid and the surface of the substrate. The more repellent a surface is to that liquid, the higher the contact angle.

* **Sliding Angle** – Measures the “smoothness” of a surface by placing a drop of water at the end of the glass and tilting the glass until the drop begins sliding. The tilt of the glass at that very instant is the sliding angle. This is also known as the coefficient-of-friction (COF). The lower the sliding angle, the smoother the surface.



HPD's Available and LEED-Compliant

DFI has published HPD's for Diamon-Fusion that are available on the HPD Public Repository. Diamon-Fusion can also contribute to LEED points in: Sustainable Sites, Energy and Atmosphere, Indoor Environmental Quality and Materials and Resources.

Wide application range

Diamon-Fusion can be applied to any glass surface including, tempered, acid etched, sandblasted, patterned/textured, bent, tinted, and frosted glass.

No cure time

Unlike other protective coatings, Diamon-Fusion has no cure time; so, once the protective coating is applied to any surface, the benefits can be noticed immediately and the glass is ready for handling and/or shipping.

No revitalizer or special cleaning products required

Diamon-Fusion shower doors come with a lifetime warranty that need only to be upheld by following the basic care instructions. Also, no special cleaning products or revitalizer are required to maintain the warranty.

Seals the glass surface

When applied to untreated glass, Diamon-Fusion chemically bonds to the silica in the glass, sealing the surface from harmful contaminants. After application, the glass is safe and easy to handle.

Warranty

Diamon-Fusion comes with a limited lifetime warranty on all residential applications – guaranteed to perform for the lifetime of the glass and will never yellow, chip, haze, peel, crack or discolor. A 15-year warranty is offered for commercial glass surfaces and can be extended to 30 years with a factory authorized revitalization.