

# SURFIX™ DFS

HIGH-STRENGTH, FAST-SETTING, TROWEL-GRADE PATCH FOR DEEP FILL APPLICATIONS

## DESCRIPTION

SURFIX™ DFS is a high early strength, fast-setting, cementitious compound used for areas where fast repairs are necessary and the concrete surface must be put back in service promptly. SURFIX™ DFS is excellent for use in areas that are exposed to cold temperatures. Used from 1/2"-2" (13-51 mm) thick and can be extended with aggregate for thicker repairs.

## APPLICATIONS

Concrete roads and highways  
Bridge decks and parking garages  
Airport runways and taxiways  
Warehouse and distribution centers  
Manufacturing and storage facilities  
Cold storage and food processing plants  
Loading docks and wastewater treatment facilities

## ADVANTAGES

One component product mixed with clean water. No need for primers or liquid activators

A hydraulic-based, non-corrosive cementitious product that is fully compatible with concrete

Fast-setting and rapid-strength development allows fast turnaround of repaired areas. High early strength - over 2000 psi (13.8 MPa) in 1 hour

Can be extended with pea gravel for large or thick repairs, which allows for a higher yield

Freeze/thaw durable and resistant to scaling by de-icing chemicals, allowing for excellent long-term performance in cold environments

Contains both polymers and fibers, increasing bond, tensile and flexural strength

Meets ASTM C928 (Specification for Very Rapid Hardening Cementitious Repair Materials)

Zero VOC: SURFIX™ DFS contains zero volatile organic content and is safe for use outdoors and in confined indoor spaces

## SHELF LIFE / STORAGE

12 months from the date of manufacture, when unopened bags are properly stored in a cool, dry place, unexposed to moisture and sunlight.

## PACKAGING

50-lb (22.7-kg) bags

## TECHNICAL DATA

### Compressive strength (ASTM C109):

1 hour	2,100 psi (14.5 MPa)
3 hours	4,500 psi (31 MPa)
24 hours	6,000 psi (41.4 MPa)
7 days	7,000 psi (48.3 MPa)
28 days	8,000 psi (55.2 MPa)

### Approximate coverage (Yield) per 50-lb (22.7-kg) bag:

Up to 5 ft<sup>2</sup> (0.46 m<sup>2</sup>) at 1" (2.5 cm) or 0.41 ft<sup>3</sup> (0.012 m<sup>3</sup>)

### Installation thickness:

1/2"-2" (13-51 mm) thick

**NOTE:** Can be extended with aggregate for thicker installations

### Application temperature range:

50-95°F (10-35°C)

**NOTE:** Above 85°F (29°C), use ACI Hot Weather Application Guidelines.

### Set (ASTM C266):

Initial set	15 minutes
Final set	20 minutes

### Scaling resistance to de-icing chemicals (ASTM C672):

25 cycles	0.71 lb/sq ft (3.5 kg/m <sup>2</sup> )
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### Freeze/thaw resistance (ASTM C666):

99.2% D.F.

### Relative dynamic modulus (Procedure B):

300 cycles

### Patch thickness limitations:

#### Light duty (cars)

Minimum	1/2" (13 mm)
Maximum	2" (51 mm) unextended

#### Heavy duty (trucks)

Minimum	2" (51 mm)
Maximum	Unlimited extended

Applications over 2" (51 mm) thickness must be extended by the addition of pea gravel (see "Mixing")

### Color:

Gray

**NOTE:** Cooler temperatures, inadequate ventilation and higher humidity can extend drying times. All data derived from tests under laboratory conditions; field conditions may yield slightly different results.

## DIRECTIONS FOR USE

### Surface preparation:

Mechanically prepare concrete surfaces to a minimum Concrete Surface Profile (CSP) 4 to 5, as per the International Concrete Repair Institute (ICRI) Guideline No. 310.2-1997. Square off and vertical cut or undercut the patch area edges. Surfaces must be clean, sound, dry, minimum 50°F (10°C) and free of oil, gypsum

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compounds, wax, grease, sealers, coatings, curing compounds, urethane, paint, asphalt, dirt, loose surface material or any contaminant that will act as a bond breaker. Never use acid or mastic removers on any surface where a Penetron Specialty Products material will be applied. Unsound concrete surfaces must be prepared to solid sound concrete by additional means and methods, as per International Concrete Repair Institute (ICRI) Guideline No. 310.2R-2013 "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair."

**NOTE:** Moisten patch area thoroughly to a Surface Saturated Dry (SSD) condition with no standing water, keep continuously damp, for at least 1 hour before placement of the SURFIX™ DFS. Remove all standing water prior to placement.

## Mixing:

Mix only an amount of SURFIX™ DFS that can be placed within a 10 minute working time. Wet the mixer for the first batch and allow to drain. Accurately measure the required amount of clean mixing water, 3.25 qt (3.1 l) per 50 lb (22.7 kg) bag of SURFIX™ DFS, and pour into the mixer. Start the mixer and slowly add SURFIX™ DFS. Mix for 1 to 2 minutes until a uniform lump free consistency is obtained. Never add additional water after initial mixing.

**NOTE:** High temperatures and over mixing will shorten working time, and cooler temperatures will prolong it.

Applications over 2" (51 mm) in thickness must be extended by the addition of 50% by weight of clean, Surface Saturated Dry (SSD), uniformly graded 3/8" (10 mm) maximum size pea gravel. Add 25 lb (11.3 kg) of pea gravel for each 50 lb (22.7 kg) bag of SURFIX™ DFS used. Add into the mixer only after a uniform lump free consistency is obtained (see above), then continue mixing until the pea gravel is fully encapsulated. Do not add additional water when using pea gravel.

## Installation:

SURFIX™ DFS should be placed without delay and quickly consolidated by tamping. The surface should be troweled or screed finished to a level slightly above the surrounding concrete. When the material starts to set, edges can be shaved to blend into the surrounding concrete. Large jobs require adequate personnel to permit mixing, placing and finishing operations to occur simultaneously without interruption, in order to avoid cold joints and irregular curing. Consideration should be given to providing stress relief (cold joints) for large patch areas.

**NOTE:** Mortar mixer can be used for larger installations.

## Curing:

For exterior applications, immediately apply a good quality water-based curing compound. Alternatively, moist cure for 1 hour after final set. Increasing the wet cure period improves physical properties and minimizes the possibility of cracking.

## APPLICATION TOOLS

Mixing pail, mixing paddle, heavy duty drill, screed and hand trowels.

## CLEAN UP

Clean all tools and equipment with water immediately after use, prior to material hardening.

## SPECIAL CONSIDERATIONS

- Penetron Specialty Products recommends installing a test area, ensuring suitability of SURFIX™ DFS for intended use
- Do not add any admixtures, sand or cement
- Do not place in lifts

- Protect from vibration, rain, wind, freezing and loading until fully cured
- Do not use for patching asphalt, latex-modified concrete or for vertical surfaces
- SURFIX™ DFS is not a vapor barrier

## JOB MOCKUPS

Penetron Specialty Products recommends that, when our products are used in any application or as part of any system that includes other manufacturers' products, the installer and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any installation. Written documentation of the tests performed shall be satisfactory to the design professional and installer. Test results must include the means and methods of application, products used, project specific conditions being addressed, and standardized tests performed for each proposed system or variation

## SAFE HANDLING INFORMATION

Before using this product, review the SURFIX™ DFS Safety Data Sheet (SDS) that can be found on the Penetron Specialty Products website: [www.penetronsp.com](http://www.penetronsp.com). Avoid contact with eyes and wear suitable protective eyewear. Avoid prolonged or repeated contact with skin. Wear gloves and suitable protective clothing. Do not breathe dust. In case of insufficient ventilation, wear respiratory equipment. For additional information regarding first aid and emergency procedures, refer to the product Safety Data Sheet (SDS).

## Waste disposal:

This product, when discarded or disposed of, is not listed as a hazardous waste in federal regulations. Dispose in a landfill in accordance with local regulations.

KEEP OUT OF THE REACH OF CHILDREN

**WARRANTY:** PENETRON SPECIALTY PRODUCTS INC. warrants that the products manufactured by it shall be free from material defects and will conform to formulation standards and contain all components in their proper proportion. Should any of the products be proven defective, the liability to PENETRON SPECIALTY PRODUCTS INC. shall be limited to replacement of the material proven to be defective and PENETRON SPECIALTY PRODUCTS INC. shall in no case be liable otherwise or for incidental or consequential damages. **PENETRON SPECIALTY PRODUCTS INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED.** User shall determine the suitability of the product for its intended use and assume all risks and liability in connection therewith.

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of Penetron Specialty Products under normal environmental and working conditions. Because each project is different, PENETRON SPECIALTY PRODUCTS INC. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

**PENETRON SPECIALTY PRODUCTS INC.**

45 Research Way, Suite 203, East Setauket, NY 11733  
(631) 941-9700 • [info@penetronsp.com](mailto:info@penetronsp.com) • [penetronsp.com](http://penetronsp.com)