

# X-Shield FS590

Fast cure delayed set cold spray applied elastomeric polyurea

20050506

## Product Description

X-Shield FS590 is a high elongation, elastomeric, chemically resistant waterproof coating manufactured using the latest polyurea technology. It has been specifically developed to be applied using low pressure cold spray equipment.

## Composition

X-Shield FS590 is a 100% solids (zero VOC), two component aromatic pure polyurea.

## Advantages

- Cold spray – fast start up, lower mobilization costs
- No heating – easier and safer application
- Compact equipment – suitable for use in confined areas
- High elongation – will bridge up to 1/8" (3mm) cracks
- UV resistant – no loss of properties when used in direct sunlight
- Chemical resistant – resists wide range of chemicals
- Fast cure – can be in service in 1 hour
- Delayed set – allows broadcast of aggregate
- Environmentally friendly – zero VOC
- USDA compliant – can be used in meat and poultry areas

## Uses

- Pedestrian walkways and balconies
- Cooling tower refurbishment
- Primary and secondary containment
- Freezer floors and cold rooms
- Protection of reinforced concrete structures
- Multi purpose waterproofing applications

## Laboratory Test Data

Property	Typical Results	Test Method
Tensile strength	2500psi (17MPa)	ASTM D412
Elongation	590%	ASTM D412
Hardness (Shore D)	38	ASTM D2240
Impact resistance	Pass	ASTM D2444
Crack bridging (1/8" at 60 mils)	Pass	ASTM C836
Adhesion to primed concrete	350psi (2.4MPa)	ASTM D4541
Negative hydrostatic pressure	529psi (3.6MPa)	ASTM D751

The above results were obtained on 7 day old samples cured at 95°F (35°C), applied using a GX-7 453/212 at 160°F (71°C) and a spray pressure of 2800psi.

X-Shield FS590 has also been tested for abrasion resistance, puncture resistance, tear strength, moisture vapor transmission, flexibility and weathering.

## Chemical Resistance

Test method ASTM D3912 (12 month exposure)

Gasoline	Slight surface change, no hardness loss
Diesel Fuel	No visible damage
H <sub>2</sub> SO <sub>4</sub> (20%)	Slight surface change, no hardness loss
HCl (10%)	No visible damage
NaOH (50%)	Slight surface discoloring, no hardness loss
Acetic Acid (10%)	No visible damage

## Application Properties

Application temperature	-20 to 120°F (-29 to 49°C)
Service temperature	-60 to 250°F (-51 to 120°C)
Ratio by volume	1:1
Spray pressure	30psi (0.21MPa) to 2800psi (19.3MPa)
Gel time	45 seconds
Tack free time	5 minutes
Metering equipment	Plural
Spray gun type	Impingement/static mixer

## Recommended Thickness

Immersed applications	60 to 120mils (1.5mm to 3mm)
Steel	40 to 60mils (1 to 1.5mm)
Concrete	30 to 60mils (0.8 to 1.5mm)
Geotextile	60 to 120mils (1.5 to 3.0mm)

---

### Specification Clause

The waterproof protective coating shall be a pure polyurea coating as defined by the Polyurea Development Association and the National Association of Corrosion Engineers (NACE, 6A198). When fully cured it will have an elongation of 590% and tensile strength of 2500psi as per ASTM D412. It will be able to bridge a 1/8" crack at a coating thickness of 60mils as per ASTM C836. After 7000 hrs of ASTM G53 QUV weathering the coating will exhibit no signs of cracking. The coating must pass the UL 94 HB horizontal burn test. The coating will be applied by a contractor using trained personnel and the correct equipment as recommended by the supplier. The coating will be applied strictly in accordance with the method statement prepared by the supplier.

### Color

Black, tile red, army green and dark brown.

### Coverage

25ft<sup>2</sup> per gallon at 60mils thickness (0.66m<sup>2</sup> per liter at 1.5mm).

### Packaging

10 gallon (38L) or 100 gallon (379L) sets.

### Shelf Life

24 months when stored unopened between 60 and 90°F (15 and 32°C) under shade in a dry environment.

### Installation Guidelines

X-Shield FS590 can only be applied by an X-Calibur Registered Contractor using trained personnel and the correct equipment. X-Calibur does not allow any contractor on to the register unless they satisfy strict selection criteria.

### Limitations

X-Shield FS590 is UV resistant but may discolor and lose its gloss without loss of physical properties.

Do not apply in rain or wet conditions, when temperature is below -20°F (-29°C), above 120°F (49°C) or within 5°F (3°C) of the dew point.

Do not store below 60°F (15°C) or above 90°F (32°C).

Apply only on to slabs that have a waterproofing system installed in order to prevent blistering due to osmosis.

### Health and Safety

**This product is for industrial use only by trained operatives. It is potentially hazardous if not used correctly. Please refer to the Material Safety Data Sheet (MSDS) prior to the purchase and use of this product. The MSDS can be downloaded from our website [www.x-calibur.net](http://www.x-calibur.net).**

### Authorized Technical Specialist

Please note that only X-Calibur Authorized Technical Support Specialists ('ATSS') are permitted to change any of the information in this data sheet or to provide written recommendations concerning the use of this product. Visit [www.x-calibur.net](http://www.x-calibur.net) for a full list of X-Calibur ATSS.

### Datasheet Validity

X-Calibur makes modifications to its product datasheets on a continuous basis. Please check the datasheet update section on [www.x-calibur.net](http://www.x-calibur.net). to ensure you have the latest version.

### Warranties

X-Calibur supplies products that comply with the properties shown on the current datasheets. In the unlikely event that products supplied are proved not to comply with these properties, then we will replace the non-compliant product or refund the purchase price. X-Calibur does not warrant or guarantee the installation of the products as it does not have control over the installation or end use of the products. Any suspected defects must be reported to X-Calibur in writing within five working days of being detected. X-Calibur Construction Systems Inc. **makes no warranty as to merchantability or fitness for a particular purpose and this warranty is in lieu of all other warranties express or implied.** X-Calibur Construction Systems Inc. shall not be liable for damages of any sort including remote or consequential damages, down time, or delay.

### X-Calibur Construction Systems Inc.

11471 Interchange Circle South  
Miramar, Florida 33025

**T** (954) 885 9912

**F** (954) 885 9913

**E** [tech@x-calibur.net](mailto:tech@x-calibur.net)

[www.x-calibur.net](http://www.x-calibur.net)

---