



Advanced Brush Grade Urethane

Product Description

ShieldPatch X1 is a general-purpose two-part polymer resin for hand applied repairs which require a quick and efficient coating solution. Developed for use in rectifying corrosion related issues with steel substrates such a steel power poles, pipe spools and wet processing plant equipment. X1 is also suited for repairs to a wide range of applications including rubber, urethanes, steel, and concrete. In addition, X1 also has strong dielectric properties suitable for electrical insulation applications.

It is supplied in handy single-use, pre-measured blister packs of 350ml, but we can do larger volumes and sprayable versions.

Technical/Performance Data

Hardness, ASTM D-2240	65 Shore D
Mix Ratio by Volume	100A:28B
Gel/Set Time	~15 min @30°C ambient
Tack-free Time	~45 min (temperature dependant)
Maximum Recoat Window	24 Hours
Taber Abrasion Resistance; C-17,1000cycles, 1kg	75 mg
Tensile Strength ASTM412-C	14 MPa
Elongation, ASTM412-C	65-70%
Tear, ASTM 624-86	55 kN/m
Service Temperature	-40°C to 90°C
Volume resistivity	8x10 ¹⁴ Ohm.cm
Dielectric Strength	>20 kV/mm

Benefits

Application

This product is supplied in handy blister packs, which allow easy storage, minimal wastage, hand mixing and ease of application.

Electrical Properties

The excellent electrical properties of this product prevent debonding from impressed or stray currents and galvanic currents and insulate electrical hazards.

Toughness and Flexibility

The high tensile strength and good elongation of this product provides protection from mechanical damage, abrasion, and resistance to puncture and compression.

Increased Productivity and Economy

This product may be applied to thicknesses up to 1mm per coat when reinforcement is used and is rain insensitive once tack free.

Safety

This product contains no volatile or flammable solvents. This reduces hazards during transport, storage, and application.

Application Areas

- ✓ Tanks & Launderers
- ✓ Structural Steel
- ✓ Utility Poles
- ✓ Mining Operations
- ✓ Marine Environments
- ✓ Piles
- ✓ Polyurea/Urethane Repair & Penetration Sealing
- ✓ Paper & Pulp Mills
- ✓ Parking Garages
- ✓ Walkways and Balconies
- ✓ Water and Wastewater Treatment
- ✓ Industrial and Manufacturing Facilities
- ✓ Cable Sheath Repair

Features

- ✓ In-situ repair
- ✓ 1-2-hour repair time
- ✓ Zero VOC
- ✓ No toxic vapours
- ✓ 100% Solids
- ✓ Seamless
- ✓ Wet and dry process applications
- ✓ Non-reactive
- ✓ Good chemical resistance
- ✓ Can be used without primer in some applications (particularly steel and cable repair)
- ✓ Flexible at low temperatures

Typical Wet Properties

Material Property	Component A (Isocyanate)	Component B (Resin)
Density (kg/L)	1.24	1.05
Viscosity (Cps @ 21°C)	350	10,000
Mix ratio (by volume)	100:28	
Solids (mixed) by volume	100%	
Flash Point (Pensky Martens Closed Cup)	>145°C	
Theoretical Coverage	1L = 1mm thick over 1m ² .	

Application Guidelines

This coating is designed for application by brush, trowel, or roller.

It is imperative that the product is thoroughly mixed prior to application. This will require a minimum of 30 seconds aggressively massaging the blister pack after removing the separator.

Surface Preparation

The surface must be clean and free from mill scale, corrosion by-products, oil, grease, salts, and other contaminants. Ensure surface is rough and wipe down with Acetone, MEK, Xylene or similar solvent.

For rubber, the surface must be clean and prepped correctly. Use a low-speed rubber buffing disk to prepare the rubber surface and roughen with a recommended buffing disk of 12 or 24 grit.

For any steel surface substrates, the surface should be cleaned to SA 2.5 with a minimum surface profile of 50 microns.

If the product is not fully encapsulating the item, the surface should be cleaned to SA 2.5 with a minimum surface profile of 50 microns.

If being used as a repair coating for Polyurea or Polyurethane, thoroughly key the surface with 40-80 grit media and remove any chalky areas. Lap between 100-300mm over existing coating (depending on how aggressive the exposure is) and leave 5-10mm demarcation (uncoated) around edge of prepared area.

Application Temperatures

Minimum recommended material and substrate temperatures are 20°C and -10°C respectively. Maximum recommended substrate temperature is 50°C. Maximum recommended material temperature is 40°C. Wider temperature windows can be achieved but please consult your technical representative for specific advice.

Cure Time and Recoat Time

Development of a full cure may take up to 24 hours. Material may be recoated when tack-free. Old, sound coatings should be lightly abraded to remove any oxidized material and cleaned thoroughly prior to recoat. Consult your technical representative for options regarding treatment of day joints and coating over cured product.

Colours

Standard Black and Grey.

System Specification

Primer

Refer to ShieldCrete® technical representatives and distributors for recommendations based on your specific application. Primer is supplied as a one-part solution, brush on adhesion promoter that strengthens the adhesion between the polymer resin and rubber substrate, including other substrates.

Ensure the primer has tacked off before applying the resin otherwise solvents might be trapped under the primer. Apply a thin layer of X2 to wet out the primer surface then apply a thicker layer and spread out with the brush or scraper.

Recommended Thickness

Recommended minimum thickness for regular corrosion protection is 0.4mm when not exposed to abrasion or full UV exposure. For general corrosion and abrasion resistance, the recommended minimum is 1mm. Recommended minimum thickness for high corrosion and chemical resistance duty is 2-3mm. Contact your local distributor for application specific recommendations.

Number of Coats

This product can be applied in thicknesses up to approximately 1mm in one monolithic coat (depending on temperature, reinforcement, and surface orientation, 0.5mm recommended without reinforcement). To build to specification, allow just enough cure time for the first coat to become firm, then apply the next coat. The use of reinforcement aids in the build of film thickness as well as increasing longevity. Do not exceed recommended recoat windows.

Additional coats should be applied as soon as possible after the preceding coat has gone tack-free, but no longer between coats than the specified recoat window.

Contact your distributor for reactivation requirements for coating over cured product.

Topcoat

An aliphatic polyurea, polyurethane, polyaspartic polyurea or other topcoat may be required for some applications, particularly where colour stability is required (this product is UV stable, but not colour stable). Contact your distributor for a range of options. The topcoat shall be applied as soon as possible following the final coat reaching tack-free status, with a maximum time between coats as specified by the recoat window of this product.

Storage and Handling Precautions

Storage at room temperature (20-25°C) also provides a convenient viscosity for handling. Storage at low temperatures (below 10°C) is not recommended because it may lead to some crystallisation: this material must be protected from frost.

If crystallization does occur, it is recommended to discard the material and replace it with a new batch.

Storage temperatures above 50°C are not recommended since they can accelerate the formation of insoluble solids and also increase the viscosity over extended storage intervals.

Under the recommended storage conditions and in properly sealed containers, the components have a minimum storage life of 24 months. Blister packs and unused material should be disposed of as general waste once the material is allowed to harden.

Packaging

Standard 350mL kits in boxes of 10. Other sizes including 4L kits may be available on request. Maximum single blister pack size is 600mL.

DISCLAIMER

The information provided herein, especially recommendations for the usage and the application of our products, is based upon our knowledge and experience. Due to different materials and equipment used, as well as varying working conditions and environments beyond our control we strictly recommend carrying out intensive trials to test the suitability of our products regarding the required processes and applications. This data sheet is provided free of charge, and we do not accept any liability regarding the above information or regarding any verbal recommendation, except for cases where we are liable of gross negligence or false intention.