TECHNICAL DATA SHEET

ShieldCrete®

ShieldPatch™ POLEKOTE

Advanced Brush Grade Urethane

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Product Description

Polekote is a slow gel time (~15 Minutes) two component, hand applied castor-based polyurethane ideal for patch repair of high-performance urethanes and polyurea, or coating steel or concrete poles, pipelines, and piles to protect them from in-ground corrosion. Its excellent electrical properties also make it a good option for repairing and restoring damaged cable sheathes. It has excellent adhesion, abrasion resistance (no damage from whipper snippers), chemical resistance and high mechanical strength.

It is supplied in handy single-use, pre-measured blister packs of 350mL however larger volumes and sprayable versions can be manufactured upon request.

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

- ✓ Structural Steel
- ✓ Utility Poles
- ✓ Fertilizer Plants
- ✓ Warehouse Baseplates
- ✓ Mining Operations
- ✓ Marine Environments
- ✓ Piles
- ✓ Pipelines
- ✓ Polyurea/Urethan>e Repair & Penetration Sealing
- ✓ Paper & Pulp Mills
- ✓ Parking Garages
- ✓ Walkways and Balconies
- ✓ Water and Wastewater Treatment
- ✓ Industrial and Manufacturing Facilities
- ✓ Cable Sheath Repair

Features

- ✓ Excellent thermal stability
- ✓ Zero VOC
- ✓ No toxic vapours
- ✓ Odourless
- ✓ 100% Solids
- ✓ Seamless
- ✓ Flexible at low temperatures
- ✓ Non-reactive
- ✓ Good chemical resistance
- ✓ Can be used without primer in some applications (particularly steel and cable repair).
- ✓ Used with or without reinforcement in transitional areas.

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. For circumferential encapsulation of poles, the surface should be either whip blasted, or hand abraded with 100 grit sandpaper to provide increased adhesion and remove the shine of the galvanising, then wiped with ketone solvent (Acetone or similar) on a clean, lint-free rag.

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. Custom colours can be produced on request but may require additional lead time, minimum order quantities and price premium. Contact your local distributor for availability. Black tends to chalk slightly on the surface with UV exposure, other colours will tend to yellow or darken over time with UV exposure, but the coating will maintain its physical properties.

Polekote can be top coated for a colour-fast finish if required.

System Specification

Primer

Refer to ShieldCrete® technical representatives and distributors for recommendations based on your specific application. In most cases, no primer is required, even on difficult to stick to surfaces. In high abrasion polyurea or polyurethane repair environments, use ShieldPrime primer.

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 whipper snipper resistance (abrasion), the recommended minimum is 0.7mm. Recommended minimum thickness for high corrosion and chemical resistance duty is 2mm. 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 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