TECHNICAL DATA SHEET

ShieldPoly CV

ShieldCrete®

Advanced Pure Polyurea

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Product Description

ShieldPoly CV is a 100% solids elastomeric polyurea developed primarily as a rubber repair system topcoat with cross linking properties to ShieldPrime CV/SP to complete our BeltShield® Rubber Belt Repair System (RBRS) and ensure maximum adhesion to rubber as well as other hard to adhere to substrates. The entire Beltshield® system is VOC free, with 1:1 mix ratio, applied with plural component spray equipment.

The ShieldPoly CV as part of the BeltShield® system is designed to tear off if damaged, rather than peel off like other membrane systems can. Avoiding significant production downtime. The system can be applied to running or static belts for patch or longitudinal repairs/rejuvenation.

Technical/Performance Data

Cured Film Properties	Test Method	Typical Value
VOC	Theoretical	0%
Solids Content	Theoretical	100%
Shore A Hardness	ASTM D2240	80 - 85
Elongation	ASTM D638	300 - 450%
Tensile Strength, MPa	ASTM D638	6MPa - 9MPa
Elastic Modulus, MPa	ASTM D638	3.5MPa - 9MPa
Tear Strength	ASTM D624	53 - 79 kN/m
Moisture Vapour Transmission	ASMT E-96	0.02 perm
Taber Abrasion, mg wt loss (1000g, 1000rev CS-17)	ASTM D4060	8 - 18
Gel Time	ASTM D1640	10 - 18 seconds
Tack Free	ASTM D1640	~2 - 3 minutes
Maximum Recommended Recoat	Theoretical	12 hours

The value ranges stated in this Technical Data Sheet are based on system processing under laboratory conditions. Equipment configurations and/or field application conditions may produce variances in final system values.

Limitations: ShieldPoly CV should not be used for direct contact with extremely high or low pH attack. Composite systems are available. Consult ShieldCrete® Technical Group.

Usage

ShieldPoly CV provides less shrinkage with improved elongation characteristics. As a result, it makes an excellent polyurea for liners, rubber repairs, and applications where flexibility, resilience and durability are required. ShieldPoly CV may be applied at varying thicknesses in a single application using a multi-pass spray technique.

We only supply to approved applicators. Contact us if you wish to be trained or to set up as an applicator.

Benefits

Abrasion Resistance
The balance of physical properties inherent in this elastomer provides outstanding abrasion resistance.

Toughness and Flexibility
The tensile strength and elongation of this product provides protection from mechanical damage and resistance to puncture and compression.

Increased Productivity and Economy
This product maybe sprayed to thicknesses exceeding 2mm per pass and cures to become rain insensitive within minutes.

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

Application Areas

- ✓ Rubber Repairs
- ✓ Geotextile Liners
- ✓ Secondary Containment
- ✓ Oil Production
- ✓ Water / Condensate Containments
- ✓ Foam Topcoat
- ✓ Flexible Waterproofing Membranes
- ✓ Liners
- ✓ Wastewater

Advantages

- ✓ 100% solids
- ✓ No early glass phases
- ✓ Rapid cure
- ✓ Immediate return to service
- ✓ Applied by plural component spray
- ✓ Odourless
- ✓ No VOC's
- ✓ Low curing shrinkage stress
- ✓ Exposure temperatures -40°F (-40°C) to 350°F (175°C) dry
- ✓ FLL Root Resistant
- ✓ ANSI/GRHC/SPRI VR-1 (2011) compliant

Typical Wet Properties

Material Property	Component A (Isocyanate)	Component B (Resin)
Density (kg/L)	1.11	1.00
Viscosity (Cps @ 21°C)	260	380
Mix Ratio (by volume)	1:1	
Solids (mixed) by volume	100%	
Flash Point (Pensky Martens Closed Cup)	> 93°C	
Theoretical Coverage	1L = 1mm thick over 1m^2	

Colours

Standard Gray. Custom colours can be produced on request but may require additional lead time and price premium. Contact your local distributor for availability.

Due to its aromatic composition, ShieldPoly CV is UV stable but will tend to yellow or darken in colour and will become matt after exposure to UV light (not colour stable). It can be top coated with an aliphatic polyurethane coating for a colour-fast finish.

Application Guidelines

This coating is designed for application through heated, plural component, high pressure reactor spray equipment capable of supplying material at the spray gun at a minimum of 2000 psi spray pressure and material temperature of 60-80°C (depending on geographical location). Graco plural component reactors using impingement mix tips in plural component air and mechanical purge guns (air purge recommended) are typically used.

If there is any change in colour or consistency of the material, the sprayer should stop immediately and troubleshoot the equipment.

Filters should be checked periodically for any build-up of material.

Application Temperatures

Minimum recommended material and substrate temperatures are 60°C and 10°C respectively. Maximum recommended substrate temperature is 70°C. Wider temperature windows can be achieved but please consult your technical representative for specific advice.

Cure Time and Recoat Time

This product can be recoated within 12hrs without additional surface preparation. Development of a full cure may take up to 48 hours. Material maybe recoated when tacky.

Old, sound coatings should be abraded to remove any oxidized material and cleaned thoroughly prior to priming and recoat. Consult your technical representative for options regarding treatment of day joints and coating over cured product.

The product can generally be returned to service within 30min of application for a running conveyor belt. This should be confirmed by a ShieldCrete® representative for each case.

Mixing

The Part B should be mixed for 15min prior to application using drum mixers, and continuously mixed during application.

System Specification

Primer

Refer to ShieldCrete® technical representatives and distributors for recommendations based on your specific application. Generally, ShieldPrime CV/SP for rubber, steel and difficult substrates and ShieldPrime UNI for wood, concrete and steel.

Recommended Thickness

Recommended minimum thickness for abrasion resistant duty is 3mm, 4-10mm for heavy abrasion. Recommended minimum thickness for waterproofing is 1.5-2mm. Contact your local distributor for application specific recommendations.

Number of Coats

This product can be applied in thicknesses from 1mm up to several cm in one monolithic coat. To build to specification, allow just enough cure time for the first coat to become firm, and then spray the next coat. Do not exceed recommended recoat windows. When building to more than 4mm thickness, pause for at least 5 minutes every 3mm (approximately) to allow the coating to exotherm and cure evenly in the layers.

Sometimes two or more coats are applied using different colours as a visual wear indicator. The 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

For most rubber coating applications, no topcoat is required. If required, an aliphatic polyurea or polyurethane, or polyaspartic polyurea topcoat may be applicable 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.

Chemical Resistance

The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Contact ShieldCrete® technical representatives and distributors for specific recommendations for chemical resistance prior to specifying these products in this application type.

Test Procedure: ASDM D3912 25°C			
Acetic Acid 10%	RC	NaCl / Water 10%	R
Ammonium Hydroxide 10% / 20%	R	Phosphoric Acid 10%	R
Diesel Fuel	R	Potassium Hydroxide 10% / 20%	R
Gasoline	R	Sodium Hydroxide 10% / 20% / 50%	R
Hydraulic Fluid	R	Sugar / Water 10%	R
Hydrochloric Acid 5% / 10%	R	Sulfuric Acid 5% / 10%	R
Methanol	R	Skydrol	2
Motor Oil	R	Toluene	RC
MTBE	R	Water	R
MTBE / Gasoline 5%	R	2-Methylbutane	R

Test Procedure: ASTM D1308 25°C			
Acetone	RC	Cylloexanol	R
Antifreeze	R	Dichloroacetic Acid	RC
Benzene	R	Dimethyl Formamide	N
Benzoic Acid	R	Ethanol	2
Butyl Alcohol	R	Ethylene Glycol	1
Butyl Cellosolve	R	Gasoline	R
Carbon Dioxide	R	Hexane	R
Calcium Hypochlorite	N	Hydraulic Oil	R
Chlorine (5000 ppm in water)	2	Lactic Acid 10%	1
Citric Acid	R		

R - Resistant, **RC** – Slight surface change (discoloration with no loss of hardness), **N** – Not Recommended, **1** – Suitable for Immersion and/or Splash and Spillage conditions, **2** – Suitable for Occasional or Intermittent contact for up to 72 hours.

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Test Procedure: ASTM B117 (After 1000 hours)		Test Procedure: ASTM D 5322 (After 1000 hours)	
Blistering, Bare Steel	None	Jet Fuel A	R
Corrosion from Scribe, mm	4.0		
Adhesion, psi, Elcometer	>2000		
Note: Applied at 2-mil blast profile, KTA-Tator panels. No Primer.			

Packaging

416L kits, 2x 208L drums. Dispensed by weight so slight variations may be possible.

Shelf-life

At least one year from date of shipment, in original, unopened factory containers, under normal storage conditions of 55°F to 95°F (18-35°C).

Health and Safety Precautions

Please refer to SDS. Observe reasonable care and employ ordinary hygienic principles such as washing the hands with soap and water before eating or smoking. It is recommended to wear gloves, goggles, and nose masks while application. In case of splashes on the skin, dampen the cloth with thinner wipe the hands with the cloth. Wash then with soap and water. Dried film is nontoxic. In case of contact with eyes, rinse with plenty of water and seek medical advice. In case of continuous exposure to vapour, the applicator should be immediately moved to get fresh air. The disposal of excess or waste material should be carried out in accordance with the local legislations.

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.