

ShieldPoly CV AR

Advanced Thermoset Coating

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Product Description

ShieldPoly AR (Abrasive Resistant) is 100% solids elastomeric pure polyurea with advance wear properties developed for composite high wear belt feeder rubber repair solutions, with AR's advanced cross-linking properties to ShieldPrime SP with our RBRs system and ensures maximum adhesion to rubber as well as most substrates.

ShieldPoly AR produces an extremely tough film, fast set at varying thicknesses, superior metal coating material designed specifically for industrial applications receiving constant or intermittent attack from contained materials, most corrosive substances, and abrasive action. ShieldPoly AR is a volatile free, odourless system applied with 1:1 mix ratio with plural component spray equipment.

Technical Properties

Technical Property	Test Method	Typical Values
VOC	Theoretical	0%
Solids Content	Theoretical	100%
Shore D Hardness	ASTM D2240	50-55%
Elongation	ASTM D638	400-500%
Tensile Strength (MPa)	ASTM D638	17 MPa – 21 MPa
Elastic Modulus (MPa)	ASTM D638	3.96 MPa – 4.65 MPa
Tear Strength (N/mm)	ASTM D624	2700 – 3400 kN/m ²
Moisture Vapour Transmission	ASTM E-96	0.02 perm
Taber abrasion, mg weight loss (1000g, 1000 revs, H-18)	ASTM D4060	80 – 100
Gel Time	ASTM D1640	10 – 18 seconds
Tack Free	ASTM D1640	~20 – 30 seconds

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

Benefits

- Abrasion Resistance**
The balance of physical properties inherent in this elastomer provides outstanding abrasion resistance.
- Potable Water**
This product is suitable for lining tanks used to store water intended for human consumption.
- Toughness and Flexibility**
The exceptionally high 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

- ✓ Airports
- ✓ Hotels and Casinos
- ✓ Power Plants
- ✓ Residential Applications
- ✓ Structural Steel
- ✓ Fertilizer Plants
- ✓ Warehouse Flooring
- ✓ Cold Storage Facilities
- ✓ Mining/Landfill heap/Leach Containment
- ✓ Marine Environments
- ✓ Paper & Pulp Mills
- ✓ Primary Containment
- ✓ Secondary Containment
- ✓ Trafficable Parking Decks
- ✓ Potable Water
- ✓ Wastewater Treatment
- ✓ Food Processing Plants
- ✓ Geotextile Rehabilitation Composite

Features

- ✓ Excellent thermal stability
- ✓ Zero VOC
- ✓ No toxic vapours
- ✓ Odourless
- ✓ Meets USDA criteria
- ✓ 100% Solids
- ✓ Seamless
- ✓ Low water vapour permeability
- ✓ Flexible at low temperatures
- ✓ Non-reactive
- ✓ Good chemical resistance
- ✓ Can be used without primer in some applications (particularly steel)
- ✓ Used with or without reinforcement in transitional areas

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	

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 24°C and 10°C respectively. Maximum recommended substrate temperature is 50°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 maybe 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.

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.

Acetic Acid (10%)	R	Phosphoric Acid (10%)	R
Ammonium Hydroxide (20%)	R	Potassium Hydroxide (10%)	R
Ammonium Hydroxide (50%)	RC	Potassium Hydroxide (20%)	RC
Hydraulic Fluid	R	Sodium Hydroxide (10%)	R
Hydrochloric Acid (10%)	R	Sodium Hydroxide (50%)	RC
Gasoline (unleaded)	R	Sulphuric Acid (15%)	R
Hydrogen Sulphide (gas)	R	Wastewater	R
Diesel Fuel (Kerr-McGee)	RC	Sea Water	R
Motor Oil, Brake Oil	RC	Water (Tap) @ 80°C	R

R Resistant, RC Slight surface change, discolouration with no loss of hardness.

Colours

Standard grey/black/white and natural/cream. 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 AR will tend to yellow or darken in colour and will become matt after exposure to UV light. It can be top coated with an aliphatic polyurethane coating for a colour-fast finish.

System Specification

Primer

Refer to ShieldCrete® technical representatives and distributors for recommendations based on your specific application.

Recommended Thickness

Recommended minimum thickness for abrasion resistant duty is 3mm. 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 of 2 hours. Contact your distributor for reactivation requirements for coating over cured product.

Topcoat

An aliphatic polyurea or polyurethane, or polyaspartic polyurea 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

The Part A should be kept properly closed and stored indoors in a well-ventilated area under normal factory conditions. 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. Drum heaters may be used with the heat setting at low.

The material should be agitated to uniformly distribute the heat. In no circumstances should the material be heated above 80°C during melting. 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 nominal storage life of 12 months. If either component is opened and partially used, it should be purged with nitrogen or desiccated air and resealed or refilled into smaller containers to their maximum volume.

Packaging

Standard 400L kits, 2x200L Drums per kit. Other sizes may be available on request.

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.