

PRODUCT INFORMATION

Generic Type	Ceramic Modified Epoxy for Directional Drill and High Abrasion Applications.
Description	Powercrete® DD is a solvent free epoxy ARO (Abrasion Resistant Overly) polymer concrete coating designed to protect FBE (Fusion Bonded Epoxy) coated pipe for directional drilling, thrust (slick) bore and pull-through applications. The product is applied directly on the FBE mainline coating of a pipeline to provide a high-performance protection to the system under rough terrain conditions. Powercrete® DD offers exceptional abrasion, strength, hardness, impact resistance and adhesion properties and has therefore been specified and installed successfully in many directional drilling projects as the number one abrasion resistant overlay (ARO) for over twenty years.
Features	<ul style="list-style-type: none"> • Ultimate directional drill ARO Coating • For oil and gas pipeline is the ultimate ARO coating when applied on FBE. • 100% Solids Epoxy • No content of VOC • Excellent adhesion to FBE • Excellent mechanical properties • Superior abrasion resistance • Widely used in directional drill and thrust bore applications. • Suitable for pipeline operating temperatures to 55°C (130°F) • Can be sprayed and hand applied up to 500micron (20mils) in one multi-pass layer
Colour	Black and tan available on other colours on order
Finish	Gloss
Primer	No primer necessary on FBE and direct to metal
Dry Film Thickness	20 – 80 mils (500 - 2000 µm) for most applications For higher dry film thickness consult Seal For Life representative. Coating builds to 20 mils in vertical per coat, on rollers the coating could be built at 40 mils in a single pass depending on rotation speed.
Solids by Volume	100 %
Theoretical Coverage Rate	81.5 ft ² per Gallon at 20 mils (500 µm) thickness (DFT) 40.1 ft ² per Gallon at 40 mils (500 µm) thickness (DFT) 26.7 ft ² per Gallon at 60 mils (500 µm) thickness (DFT)

	20.0 ft ² per Gallon at 80 mils (500 μm) thickness (DFT)
VOC Values	0 g/l (No recordable VOC values)
Limitations	Epoxies lose gloss, discolor and eventually chalk in sunlight exposure. If the coating is going to be exposed more than 6 months a polyurethane or acrylic top-coat is recommended. Consult Seal for Life Representative. For Oil and Gas pipeline is recommended to apply it on FBE.

SUBSTRATE AND SURFACE PREPARATION

General	The area to be coated must be clean, dry, and free from oil, grease, and dust. All contamination that could interfere with the adhesion of the coating has to be removed according to SSPC-SP1.
Preventing Condensation	Prior and during the surface preparation, the temperature of the substrate(s) must be at least 5°F (3°C) above the dew point.
Steel	Abrasive blast to SSPC SP 10 (ISO Sa 2½ a minimum cleanliness level. The anchor profile shall be angular with a range of 3 – 4.5 mils (75 to 112 μm) when measure by ASTM D 4417 Method C (Replica Tape).
FBE	Abrasive blast surface following procedures of SSPC SP 7 (ISO Sa 1) obtaining a dense angular profile with a range of 2.5 to 4.0 mils (62 – 100 μm) when measure by ASTM D 4417 Method C (Replica Tape) all gloss removed.

MIXING AND THINNING

Application Safety	Read the Product Data Sheet and follow the caution statements on the Safety Data Sheet (SDS). Personnel exposed to the product shall wear appropriate protection equipment. Follow best painting practices and safety guidelines.
Mixing Ratio	9.75:1 (A to B in volume) 100:5.5 (A to B by weight)
Mix each Component	Power mix part A and part B separately until uniform for plural airless spray application. Do not incorporate air by mixing too fast, warm material will be easier to mix. Hand apply is possible in plant application only for small repair and patch work.

Thinning	No thinning is necessary
Pot Life	22 minutes at 25 °C (77 °F)

APPLICATION EQUIPMENT GUIDELINES

Spray Application

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Use only heated plural component Airless equipment capable to maintain a 9.75:1 ratio in volume and 1.25 Gallon/4,73 Liter per minute output, with heated drums, insulated (heated) hoses and minimum 170bar (2500psi.) fluid pressure for Part A and 124bar (1800psi) for Part B. Use Graco XRT, Binks 1M or equal airless spray-gun or equal with preferably changeable spray tips. Consult SEAL FOR LIFE for specific information.

- Transfer pumps (Graco 5:1 or 10:1)
- Agitation (expandable blade mixer)
- Heated drums for A and B
- High pressure filter (60 mesh)
- Hose bundle (A hose = ½", B hose = 1/8") I.D.
- Static mixers set of 2 – 12" static mixer 3/8" separated by whip hose
- Whip hose and mixer assembly max length at 20 ft
- High pressure fluid heater and temperature control (5400 watts)
- Spray Temperature (Part A 130 – 160 F and Part B 68 - 86 F)
- Pump Ratio: 56:1 (min.)
- Volume Output: 4.73 l or 1.25 Gallons per minute as minimum
- Tip Size: (0.021-0.025")
- Pressure: Part A 2500 - 2800 psi (170 Bar); Part B 1800 - 2500 Psi (124 Bar)
- Airless Spray Gun: Graco XRT, Binks or similar

Temperature During Application

Part A must be heated up and maintained to a temperature of 54 - 82°C (130 – 160 °F) and Part B must be heated up and maintained at 20 -30 °C (68-86°F).

Brush and Roller Application

POWERCRETE DD is not commonly applied with brush or roller. For small repairs and hand application, spray product from plural component rig in a container and pour onto surface while spreading the coating to desired thickness using applicator blade, stiff-brush, or roller. This procedure is only for plant application. For other hand application situations please contact Seal For Life.

Certification | POWERCRETE DD is installed only by Approved Applicators trained by our Technical Service Specialist.

APPLICATION CONDITIONS

	Product	Surface	Ambient	Humidity
Optimum	130°F (55°C)	70-90°F (21-32°C)	70-90°F (21-32°C)	25-50%
Minimum	122°F (50°C)	50°F (10°C)*	35°F (2°C)	0%
Maximum	140°F (60°C)	180°F (82°C)	120°F (49°C)	85%

* If the surface to be coated is below 10°C (50°F), preheating of the substrate is recommended. Preheat temperatures should not exceed 82°C (180°F). Prior and during the application, the temperature of the substrate must be at least 3°C above the dew point. Note: For best results preheating is done before abrasive blasting.

CURING SCHEDULE

Gel Time	39 minutes at 25 °C (77 °F)
Dry to Touch	2.5 Hours at 25 °C (77 °F)
65 Shore D Hardness	7.75 Hours at 25 °C (77 °F) – Ready for Holiday Testing
75 Shore D Hardness	10 Hours at 25 °C (77 °F) – Full Cure ready for handle
Note	<p>Cure time is based on 40 mils (1000micron) DFT. Recoat interval at 21°C (70°F) is 30-120minutes and 10-15 minutes at 65°C (150°F).</p> <p>Consult POWERCRETE DD Gel, Re-Coat and Curing Time Chart for more specific information.</p> <p>Warning: Under 4 °C (40 °F) coating mixture is frozen, and no chemical reaction will occur.</p>

Temperature	Gel Time	Min. Recoat Time	Max. Recoat Time	Dry to Touch	Time to 65 Shore D	Time to 75 Shore D
50 °F (10 °C)	100 min	90 min	4 hrs	7 hrs	120 hrs	144 hrs
60 °F (16 °C)	50 min	45 min	3 hrs	5 hrs	31 hrs	42 hrs
70 °F (21 °C)	42 min	37 min	2 hrs	3 hrs	13 hrs	16 hrs
80 °F (27 °C)	39 min	36 min	1.5 hrs	2.5 hrs	8 hrs	10 hrs
90 °F (32 °C)	32 min	29 min	1 hr	2 hrs	7 hrs	8.5 hrs
100 °F (38 °C)	28 min	25 min	50 min	1.5 hrs	6 hrs	7 hrs
110 °F (43 °C)	26 min	23 min	30 min	45 min	3 hrs	4 hrs
120 °F (49 °C)	20 min	17 min	20 min	40 min	1.5 hrs	2 hrs

The cure rate accelerates as temperature and dry film thickness increase. Touch-up of holidays can occur then as well or any time the coating is firm enough to resist damage from the procedure. Full cure will take place according to the table above. Over-coating after the maximum recoat time requires that the surface be abraded prior to application. Use a medium grit, 60 to 80 grit paper or sweep blast to roughen the surface. Clean abraded area of dust before re-coat or repair. Note: This time information is based on 40 mils (1000 DFT).

INSPECTION AND REPAIR

Inspection

The finished coating must be visually inspected for any defects, such as runs and sags, fisheyes, blistering, pinholes, missed spots and possible contaminants. Pinhole/Holiday detection must generate according to NACE SP0188 High Voltage Modality or specified standard.

Coating Thickness

The coating thickness (DFT) must be within the specified DFT range. Use calibrated equipment and measure according to SSPC-PA 2 or another specified standard.

Cure to Handling

Transport and stacking is possible after full cure of the coating and generating a Holiday test (NACE SP0188). This time can be reduced by increasing the curing temperature. Consult Powercrete[®] for specific information.

Repair

Pinholes/Holidays must be located and repaired with POWERCRETE DD, POWERCRETE R65F1 or approved material. Consult Powercrete[®] for specific information. Retest the repaired area. Consult the POWERCRETE DD Repair Instructions.

CLEAN UP AND SAFETY

Cleaning	Use MEK, Acetone or Xylene/MEK mixtures. In case of spillage, absorb and dispose of in accordance with local applicable regulations
Safety	Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.
Ventilation	When use cleaning solvent in enclosed areas, thorough air circulation must be used. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. User should test and monitor exposure levels to insure all personnel are below guidelines.

PACKAGING, HANDLING AND STORAGE

Shelf Life	Store indoor, clean and dry, away from direct sunlight in a cool place. Keep from freezing. Shelf life 24 months in the original unopened containers.	
Storage Temperature and Humidity	18-35°C (65-95°F)	
Storage	Indoors and keep dry Powercrete [®] DD.	
Shipping Weight	Product dimensions and contents:	
	Drum	
	Part A	40 gal/151.4 l (600 lb/272.2 kg)
	Part B	55 gal/208.2 l (450 lb/204.1 kg)
	Pail	
	Part A	5 gal/18.9 l (75 lb/34 kg)
	Part B	5 gal/18.9 l (40 lb/18.1 kg)
Flash Point	Mixed Material >199°F (93°C) mixed product Part A > 199°F (93°C) Part B > 199°F (93°C)	

ADDITIONAL INFORMATION

Documentation	Application instructions and other documentation can be obtained by contacting our head office, from our local distributor or by sending email to info@sealforlife.com
Certified staff	Application of the described coating system should be carried out and inspected by certified personnel.

DISCLAIMER

Seal For Life Industries warrants that the product(s) represented within conform(s) to its/their chemical and physical description and is appropriate for the use as stated on the respective technical data sheet when used in compliance with Seal For Life Industries written instructions. Since many installation factors are beyond the control of Seal For Life Industries, the user is obligated to determine the suitability of the products for the intended use and assume all risks and liabilities in connection herewith. Seal For Life Industries liability is stated in the standard terms and conditions of sale. Seal For Life Industries makes no other warranty either expressed or implied. All information contained in the respective technical data sheet(s) should be used as a guide and is subject to change without notice. This document supersedes all previous revisions. Please see revision date on the left. Powercrete[®] is a registered trademark of Seal For Life Industries.