unmatched toughness

Even at the extremes

HIGH PERFORMANCE CERAMIC-FILLED EPOXY COATINGS

- High quality raw material selection
- Optimum product formulations
- Pore-free applications
- Extreme proven durability

Powercrete®

Liquid Pipeline Coating Technology

SEALFORLIFE

Powercrete is part of Seal For Life Industries, which is the name of a closely associated group of companies engaged in preventing and combating corrosion in the broadest possible sense. Seal For Life is the statement through which we demonstrate our thinking about the concept of ‘people, planet, profit’ – as well as about the quality and therefore the lifespan of our solutions. It shows what we think about markets, complete solutions, cost of ownership, the often sensitive infrastructures within which we work, and about our sustainable cost-effective solutions.

Welcome to Seal For Life Industries.

Why use Powercrete® coatings?

Powercrete are solvent free ceramic filled coatings used for rehabilitation, directional drilling (ARO), girth weld protection, bends, fittings, valves, underground storage tanks, offshore applications, internal flow efficiency, potable water applications and patch- and repair of immersed or submerged structures and equipment. Powercrete coatings are designed to meet the requirements of the most demanding pipeline applications, but also for other demanding coatings applications where abrasion resistance and toughness are required.

With 20+ years of experience in the pipeline industry, Powercrete has been recognized as the category performance leader in industry-sponsored independent testing.

What is Powercrete®?

Powercrete high performance ceramic-filled epoxy coatings offer a variety of formulas for specific applications:

1. Directional Drill Coatings

- Abrasion Resistant Overlay (ARO) applied over FBE
- Extremely high adhesion to the FBE mainline coatings
- Excellent impact resistance
- Excellent abrasion and impact resistance as corrosion protective coating on girth welds
- Flexible application in the field or in shop

2. Corrosion Prevention of new pipelines, bends, fittings and valves

- Meets DIN EN 10289
- Corrosion protection to bare steel
- Corrosion protection for girth welds
- Patch and repair coating

3. Rehabilitation Coatings

- Bell hole rehab, long or short pipe sections
- Cost effective recoating solution
- Allows for rapid recoat process

4. Water, Wastewater & Tank Coatings

- Meets the requirements of BS:6920 standard
- Exceeds AWWA C 210 requirements
- Chemical resistant and non-leachable

5. Fieldjoint Coating

- Meets ISO 21809-3
- Easy to apply
- Quickest cures at lowest temperatures
- Can be manually applied by special tools
- Available in small kits and cartridges
- Same product formula for hand-and spray application

6. Glass Reinforced Solutions for field and plant applications

- Easy to install
- Can be combined with visco-elastic coatings for anti-corrosion avoiding need for blasting, high surface profiles
- Flexible
- Tough

7. Under Insulation

- Excellent resistance against corrosion under insulation
- Prefab Insulated Anti-Corrosion PipeCoating

8. Internal Lining

- Flowcoat for gasline
- API RP 5L2 and ISO 15741 tested and approved

Directional drill coatings

Corrosion prevention of new pipelines

Rehabilitation coatings

Water, wastewater & tank coatings

High performance ceramic-filled epoxy coatings

Powercrete DD was the first ARO product on the market in the 1980's and is still the number one liquid-curing product used. The damage caused by HDD action can be best described as shear scratch resistance which is duplicated in the gouge resistance test. Powercrete has better gouge, impact and abrasion numbers than our main competitors.

Powercrete DD is the absolute no. 1 ARO coating in the world.

The Gouge Resistance Test

HDD Competition by Carboline

	PC DD	SP 2888	Protal ARO
Type	epoxy	Epoxy/urethane	Epoxy
Mix Ratio	9.75:1	3:1	3:1
Dry to Touch	2 hours	1 hour	1 hour
Dry to Handle	4 hours	4 hours	3 hours
Dry to Transport	10 hours	12 hours	10 hours
Gouge resistance with 50kg weight	350 micron	No data	450 micron
Gouge resistance with 50kg weight, double-cut burr	630 micron	No data	No data
Shore D	85	85	85
Taber abrasion CS-17, 1000g. load	1562 cycles/mil	No data	1429 cycles/mil
Impact resistance direct @23˚C	9.0J	5.0 J	8.5 J
Flexibility CSAZ245.20 @25˚C	0.79˚/PD	No data	.79˚/PD

Powercrete® Typical Lab Values

	Ratio	Pot-life in min. At 23˚C	Shore D75 at 23˚C in hours	Impact G14 at 23˚C (650-800 micron DFT)	G95 30D at max. Op.Temp. CD in mm.	24H Water absorption D4060 in %	Adhesion ASTM 4541 in MPa	Flex NACE RP0394 At 23˚C ˚/PD	Abrasion ASTM D4060 cycles/ micron
DD	9.75:1	22	10	9.0J	10	0.40	24	0.36	60
J	4.8:1	20	5.2	4.4J	10	0.40	21	0.19	47
R-60	4.8:1	22	5.2	4.8J	10	0.30	22	0.19	54
F1	2:1	9	1.4	6.8J	5	0.20	23	0.20	45
HiFlex	2:1	14	3.5	6.6J	6	0.44	24	1.68	45
R-95	3.6:1	14	5	5.0J	8	0.20	24	0.27	35
R-150	3.6:1	14	5	5.0J	<12	0.20	24	0.27	35
PW	3:1	15	4.5	6.9J	10	0.12	20	1.17	40
PW-LT	3:1	15	4.5	7.0J	10	0.12	20	1.00	45

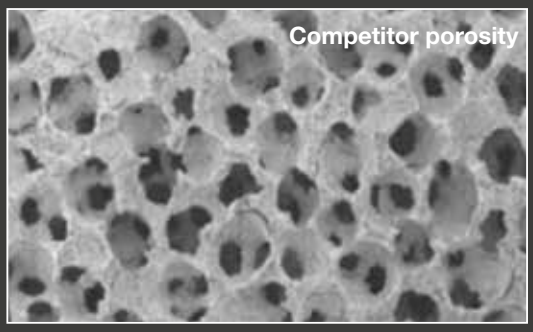

KOMATSU

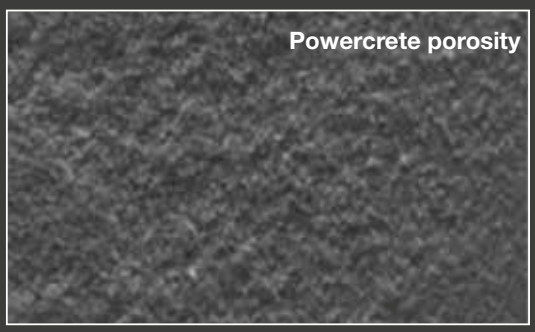
PC-R-95 direct to metal (DTM)

Price versus Quality

Powercrete High performance ceramic-filled epoxy coatings are known for:

- Excellent adhesion direct on blasted steel and FBE
- Excellent substrate wetting and flow
- Better CDT and creep resistance
- Less pores/better corrosion barrier/ less osmotic sensitive
- Less stress during cure and operation
- Better temperature stability
- Better chemical resistant





Powercrete R-65/F1 after 6 months

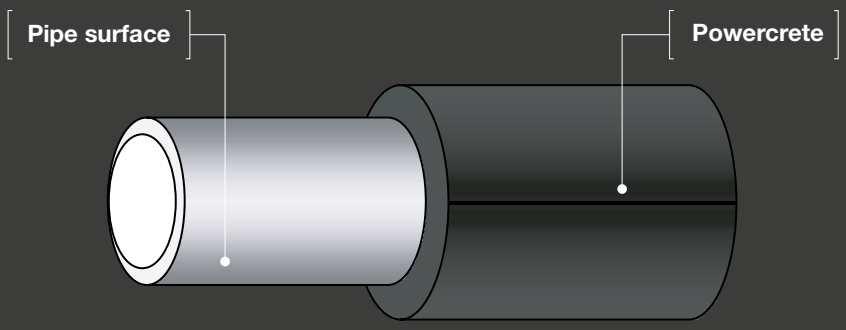
Versatile and Cost Effective

All Powercrete formulations are developed to be field friendly and cost effective. The ease of application can be achieved either by hand (roller, brushes or trowels) or with spray equipment which delivers high-build in a single multi-pass layer, thereby reducing application time. This engineered application flexibility allows the contractor to stock and manage a single product for any application requirement.

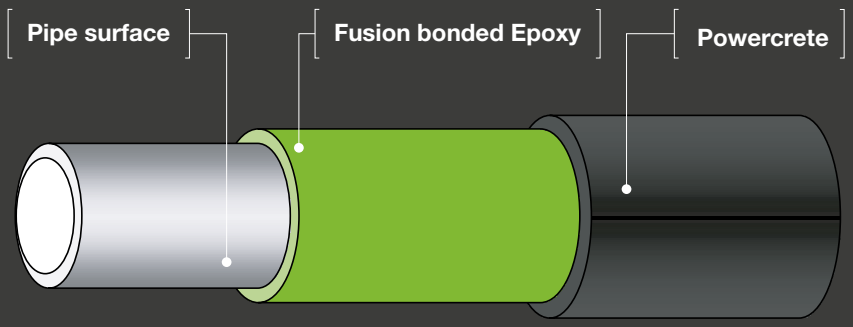
As with all coatings, the performance of Powercrete is governed by the care and attention to detail that is exhibited by the applicator. In general, all prevailing standards call for a metal surface to be clean, free of grease, salts and other contaminations. Addtionally, an angular surface profile has to be achieved to increase the adhesion strength to the substrate.

The versatility of Powercrete allows it to be used as an abrasion resistant overlay to FBE and abrasive blasted direct to metal (DTM) coating. The final coating thickness for either use should be specified by the end user. Below ground soil conditions, the wall thickness of the pipe and the application must be considered in determining the final thickness.

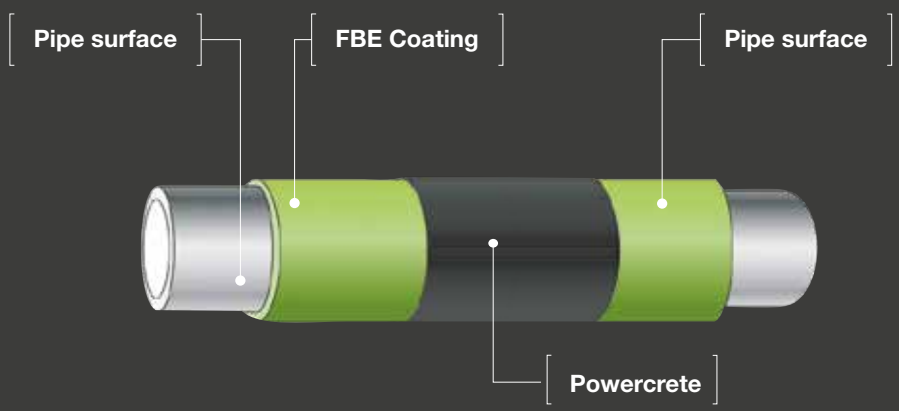
Direct bonded to abrasive blasted steel: direct to metal (DTM)



Over FBE coating



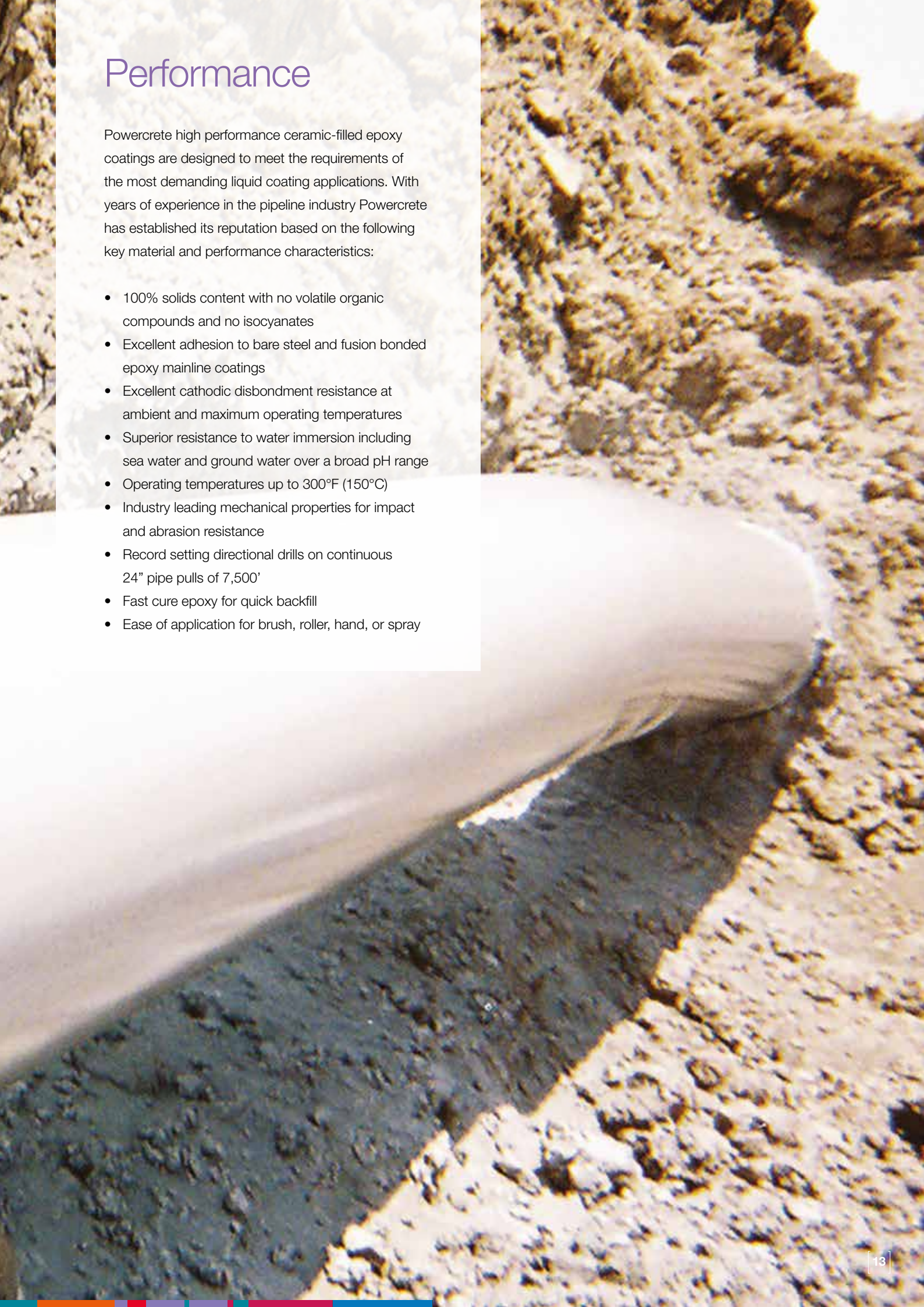
Liquid epoxy on girth-weld



Performance

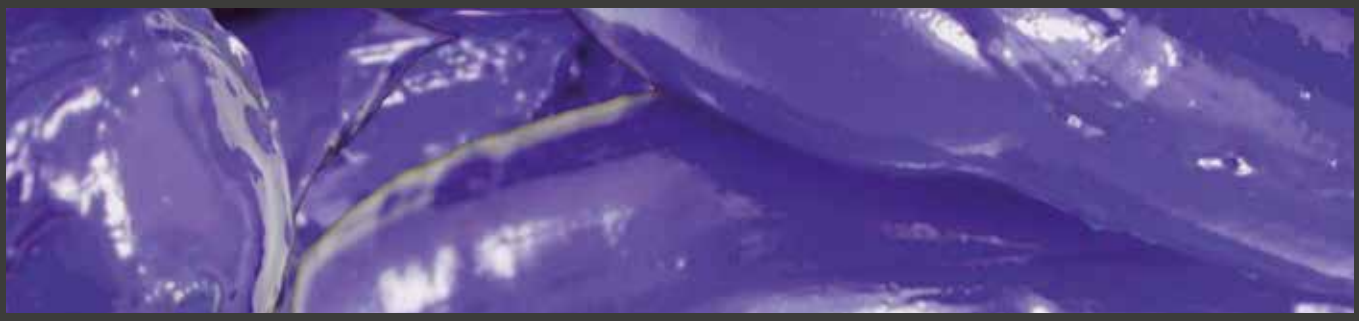
Powercrete high performance ceramic-filled epoxy coatings are designed to meet the requirements of the most demanding liquid coating applications. With years of experience in the pipeline industry Powercrete has established its reputation based on the following key material and performance characteristics:

- 100% solids content with no volatile organic compounds and no isocyanates
- Excellent adhesion to bare steel and fusion bonded epoxy mainline coatings
- Excellent cathodic disbondment resistance at ambient and maximum operating temperatures
- Superior resistance to water immersion including sea water and ground water over a broad pH range
- Operating temperatures up to 300°F (150°C)
- Industry leading mechanical properties for impact and abrasion resistance
- Record setting directional drills on continuous 24” pipe pulls of 7,500’
- Fast cure epoxy for quick backfill
- Ease of application for brush, roller, hand, or spray



Product selection guide

Applications											
Directional drill & thrust bore	Girth welds	Bends, fittings, elbows & odd shapes	Pipeline rehabilitation	Offshore risers & spans	Water pipe OD (AWWA C210)	Water pipe ID	ID of natural gas trasmission	Product (Available color)	Description	Key product features	°C	°F
•								Powercrete DD	100% solids high performance polymer concrete for directional drills and thrust bore applications applied over FBE	1. Taber Abrasion CS-17; 1.563 cycles/mil (63 cycles/micron) 2. Adhesion to FBE > 2.500 psi/17 MPa	55	130
•	•	•	•	•	•	•		Powercrete J	100% solids high performance designed as a primary corrosion coating to bare steel and over FBE coatings	1. Excellent substrate wetting 2. Low build, multi-coat system 3. Adhesion to bare steel >3.850 psi/26 MPa 4. Exceeds AWWA C-210	60	140
		•	•	•	•			Powercrete R-60 Burgundy	100% solids high performance designed as a primary corrosion coating to bare steel and over FBE coatings	1. 20 mils (0.5 mm) build-up in single coat 2. Adhesion to bare steel: 4.000 psi /27 MPa 3. High performance coating for medium operating temp.	60	140
	•	•	•	•	•			Powercrete R-65/F1	Very fast setting, 100% solids high performance designed as a primary corrosion protection to bare steel and over FBE coatings	1. Easy 2:1 mix ratio 2. 75 Shore "D" reading: 40 mils (1mm) in 75 mins @ 25°C (77°F) 3. Cathodic disbondment at 60ºC (140ºF) is < 0.4 inch (<10 mm) 4. Cures fast in cold environment	65	149
•	•	•	•	•	•			Powercrete R-95	100% solids high performance novolac designed to direct bond to bare steel and over FBE coatings	1. 40 mils (1.0 mm) build in single coat 2. Adhesion to bare steel; 3.550 psi/26 MPa 3. Cathodic disbondment; 0.3 inch/8.0 mm at 95°C (203°F) 4. Premium ceramic-filled epoxy novolac coatings	95	203
	•	•	•					Powercrete R-150	100% solids high performance novolac designed to direct bond to bare steel and over FBE coatings (for high operating temperature conditions)	1. 40 mils (1.0 mm) build in single coat 2. Adhesion to bare steel; 3.700 psi/26 MPa 3. Cathodic disbondment; <0.5 inch/<12mm at 150°C (302°F) 4. Premium ceramic-filled epoxy novolac coatings	150	302
•			•		•	•		Powercrete W	100% solids high performance designed for coating ID and OD of Pipelines carrying sea/river/process/fire water, storage tanks and sewage pipes	1. 20 mils (0.5 mm) build in single pass 2. Adhesion to bare steel; 3.000 psi (20 MPa) 3. Tough & Abrasion resistance 4. Cathodic disbondment; <8mm/<0.31 inch at 43°C (110°F)	55	131
			•		•	•		Powercrete PW	100% solids high performance coating as an internal lining for potable/drinking water carrying pipelines and storage tanks	1. Exceed AWWA C-210 2. meets BS:6920 3. 20 mils (0.5 mm) build in single pass	60	140
							•	Powercrete Superflow	Epoxy coating (FEC) for ID of natural gas transmission through steel pipe. A two-component flow efficiency.	1. Meets API RP 5L2 2. Meets ISO 15741 3. Savings in energy cost during gas transmission	120	248



Total care








Application and support

Seal For Life Industries demonstrates a commitment to projects and end users by assisting with the application of corrosion protection products through the technical service program. The goal of the program is to work with the end user and all affiliated companies to obtain the best applied coating on the substrate to be protected. This value-added program, coupled with our proven high performance coatings serves as the basis for long-term protection of metal structures against corrosion and mechanical damage in a wide range of different environments.

Training and certification

On a global basis, Seal For Life Industries trains and certifies applicators and end users. Balancing classroom and hands-on practical training, the course includes:

- Presentations by leading industry experts
- History and types of epoxies
- Chemistry of liquid epoxies
- Proper product selection
- Training on specific standards and test methodologies
- Field health and safety guidelines
- Coatings case study reviews
- Application specifics
- Troubleshooting and maintenance of equipment
- Equipment setup and teardown procedures

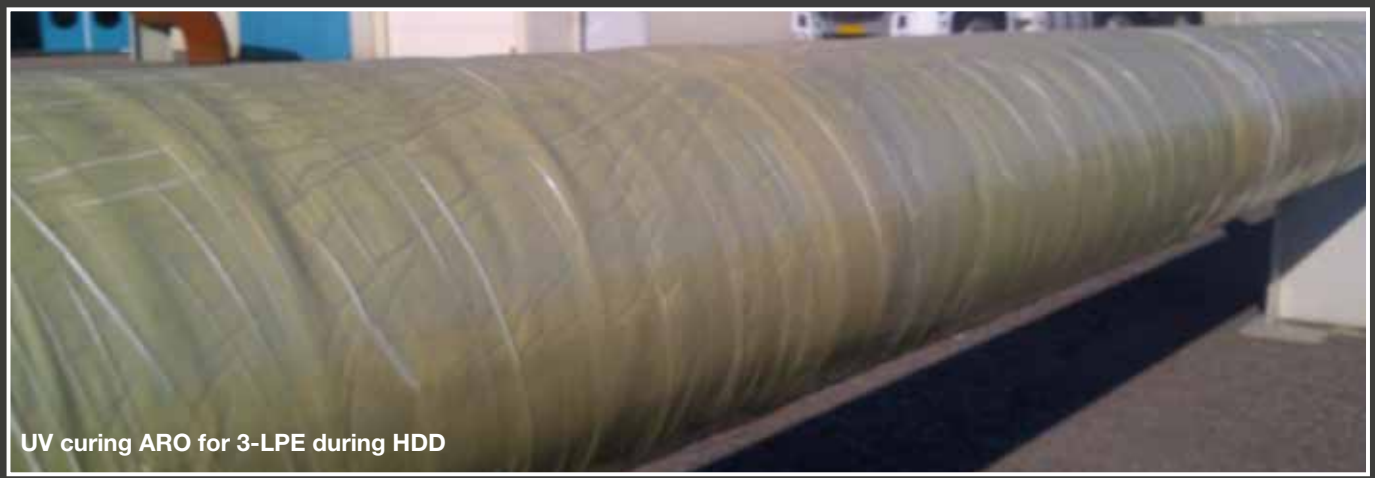
Equipment

Powercrete application specifications provide guidance for equipment selection and appropriate configurations. Air/hydraulic, plural component and hot airless machines can be purchased, leased or contracted from a variety of suppliers.

Packaging

Powercrete is available in various packaging options to meet the application and volume requirements of each specific project. Standard packaging includes 55 gal (200 L) drums and 5 gal (20 L) pails. Kits are packaged standard in 0.5 Liter, 1.0 Liter and 2.0 Liter. All kits contain the base and curing component. Small Cartridge Packs are also available for certain products.

New product release



UV curing ARO for 3-LPE during HDD


Powercrete®
Liquid Pipeline Coating Technology
SEALFORLIFE
+
Covalence®
Heat Shrinkable Technology
SEALFORLIFE
=
Cathodic Disbondment Resistant Primer
STOPAQ®
Self healing corrosion prevention & sealant technology
SEALFORLIFE
+
Powercrete®
Liquid Pipeline Coating Technology
SEALFORLIFE
=
Factory Applied Glass Reinforced Coating
Powercrete®
Liquid Pipeline Coating Technology
SEALFORLIFE
+
Polyken®
Pipeline Tape Technology
SEALFORLIFE
=
Quick Curing Primer

The synergy of Seal For Life Industries

Everyday brings us new opportunities to put the combined synergistic and innovative strengths of our companies into practice wherever required, throughout the world.
It's a world that we face with an unequivocal mission which we consider so important that we've named our collective business after it: Seal For Life.

Above or under water, from salty swamps to complex polar operations, Seal For Life offers a number of specialist and proven products. The best approach for many projects is to combine these products, thus delivering a tailor made and optimized solution for each individual project.

Flexible 1 + 1 = 3 principle
We call this the 1 + 1 = 3 principle, which is made possible by the direct and open contacts between our product specialists. It means that Seal For Life can respond rapidly and effectively to any project, no matter what combination of products and specialisms is applied.

1+1 = 3 principle is made a reality by Seal For Life Industries. Seal For Life is the constant factor!

For more information regarding specifications, track records and other commercial/technical information, please consult us at:

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