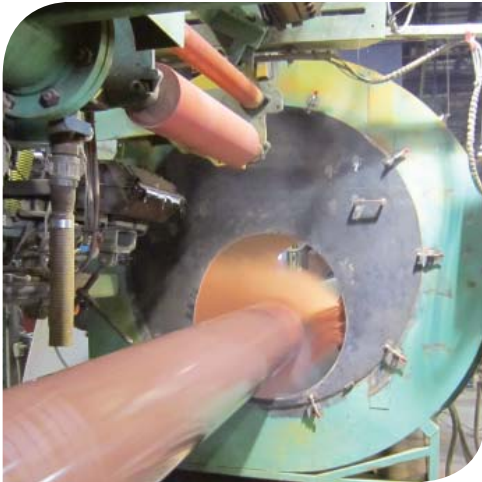


Ultra FBE Abrasion

Fusion Bond Epoxy - Abrasion resistant external pipe coating system

ENERGY & MINING



Ultra FBE Abrasion is a dual layer Fusion Bond Epoxy system. Its design consists of anti-corrosion FBE overcoated with an anti-abrasion FBE which provides mechanical protection and gouge resistance during directional drills or slip bore crossings. The application process involves the spraying of both FBE powders consecutively following abrasive cleaning and heating of the pipe.

Product Features

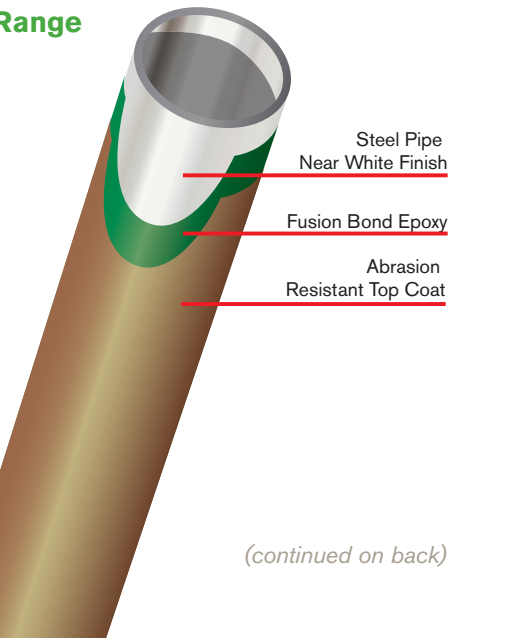
- Standard Fusion Bond Epoxy powders are designed for
- operating temperatures between -40°C and 65°C . Depending on manufacturer's recommendations and environment the pipeline is operating in, temperature ratings may be able to exceed 65°C
- Ideal for directional drilling, slip bores and road crossings
- Provides superior damage resistance to pipeline in rocky and mountainous environments
- Intended for use as an external coating system for buried or submerged pipelines transporting oil, gas or water
- Offers excellent adhesion, cathodic disbondment resistance, and impact resistance

Pipe Application Range

- Minimum Pipe Diameter
 - 88.9mm (3.5 inches)
- Maximum Pipe Diameter
 - 1524mm (60 inches)
- Minimum Pipe Length
 - 5.5m (18 feet)
- Maximum Pipe Length
 - 25m (82 feet)

Compliance

CSA Z245.20-10 2B
ISO 9001:2008



(continued on back)

Typical Properties and Performance Characteristics

Dual Layer FBE Properties as per CSA Z245.20-10 System 2B

Test	Conditions	Requirements	Typical Values
Adhesion	24 hours @ 75°C	Rating 1 - 3	Rating 1
Cathodic disbondment	24 hours @ 65°C @ 3.5V	≤ 11.5mm	2.0mm
Cross-section porosity		Rating 1 -4	Rating 1 - 2
Flexibility	1.5 degrees @ -30°C	No cracking	No cracking
Impact resistance	-30°C	≥ 3.0 J	No holidays @ 12.0 J
Gouge resistance	75 kilo load @ -30°C with R33 bit	Purchaser's specification	No basecoat exposed
Gouge resistance	50 kilo load @ 20°C with R33 bit	Purchaser's specification	No basecoat exposed

Dimensional Properties as per BPPC™ Quality Plan

	Minimum Thickness	Nominal Thickness
FBE anti-corrosion base coat	305 micrometers (12 mils)	356 micrometers (14 mils)
FBE anti-abrasion top coat*	457 micrometers (18 mils)	508 micrometers (20 mils)

*Customer may designate alternate top coat thickness depending on the aggressiveness of the directional drilling conditions.

Operating Properties

Maximum operating temperature	65°C wet, 110°C dry*
Minimum handling temperature	-40°C

* A temperature rating of 110°C is dependent on moisture, soil conditions, type of FBE powder and applied thickness.

Girth Weld Protection: Bayou Perma-Pipe Canada, Ltd. can supply liquid epoxies or heat shrinkable sleeves for completion of coating on field joint areas

Note: For contractual purposes, the most recent edition of CSA Z245.20 shall apply, plus additional written agreements between the Customer and Bayou Perma-Pipe Canada, Ltd.



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