

## HBE-ARMOR

### Abrasion Resistant Overcoat for FBE Pipelines

HBE-ARMOR is a heavy duty liquid ARO (Abrasion Resistant Overcoat) system designed to protect fusion bond epoxy (FBE) coated mainline pipe. It is a two-component epoxy formulated with one of the toughest minerals on earth to act as a true armor over top of FBE. HBE-ARMOR can protect FBE mainline and liquid epoxy field joint coatings during backfilling, directional drilling, thrust boring and other rough terrain or handling conditions. This environmentally friendly, 100% solids, epoxy coating can either be spray applied or brush applied in the plant or field. Not designed for direct-to-steel applications.

#### Heavy-Duty Mechanical Resistance

- HBE-ARMOR provides the highest resistance to abrasion, gouge, and impact forces with the utmost durability.

#### Excellent Adhesion to FBE and HBE

- HBE-ARMOR will bond to FBE and other HBE coatings with tenacious pull-off strength >3400 psi (>23 MPa).

#### Added Layer of Protection

- HBE-ARMOR can protect a pipeline's anticorrosion coating (FBE) when severe handling or aggressive pipelay construction methods are expected or encountered.

#### High Build in Single Coat

- A single pass application over top of FBE will achieve a high build coating thickness of 20-40mils (500-1000 microns).

#### Plant-Applied or Field-Applied Uses

- Abrasion resistant overcoat for mainline pipelines, rehabilitation projects, girth weld field joints, or pipeline valves, fittings and bends.



#### Applications



High Abrasion Environments



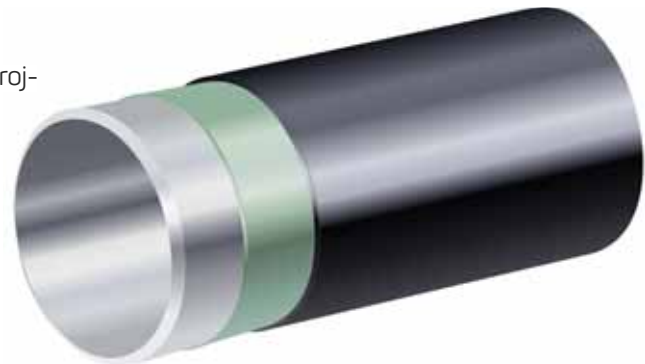
Oil & Gas Pipelines





Water Pipelines



Rehabilitation



Fusion Bonded Epoxy (FBE)   
HBE-ARMOR 

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## Abrasion Resistant Overcoat for FBE Pipelines

Coating Properties	Test Method	Typical Values
Service Temp.		Up to 95°C (203°F)
Typical Thickness		> 20 mils
Mixing Ratio (by volume)		3 parts base : 1 part cure
Percent Solids		100%
Specific Gravity (g/cc)		1.946 base, 1.019 cure
Hardness	ASTM D2240	85 Shore D
Adhesion to FBE	ASTM D4541	> 3448 psi
Adhesion to HBE	ASTM D4541	> 3400 psi
Cathodic Disbondment @ 28 days, 23°C	CSA-Z245.20-10	6.0 mm
Cathodic Disbondment @ 28 days, 95°C	CSA-Z245.20-10	8.8 mm
Impact Resistance @ -30°C	ISO 21809-3	≤ 7.0 J
Impact Resistance @ 23°C	ISO 21809-3	> 7.0 J
Hot Water Immersion @ 28 days, 95°C	CSA-Z245.20-10	Rating 1
Gouge Resistance @ 50 kg, 23°C	CSA-Z245.20-10	13 mil depth
Abrasion Resistance Wear: 5000 cycles CS-17 1 kg	ASTM D4060	2540 cycles/mil
Abrasion Resistance Weight Loss: 1000 cycles CS-17 1 kg	ASTM D4060	0.036 grams
Flexibility @ -30°C	CSA-Z245.20-10	0.75°/pd
Shelf Life	3 years when stored in original packaging between 5°C (40°F) and 40°C (105°F).	

Cure Speed <sup>1</sup>	Test Method	Typical Values
Gel Time	100 gram Mass	50 minutes
Dry To Touch Time	ASTM D1640	4 hours 30 minutes
Hard Dry Time (Shore D > 70)	ASTM D2240	8 hours

Typical Kit Size Required by Pipe Diameter <sup>2</sup>	
4" – 12"	0.5 Liter Kit
14" – 22"	1.0 Liter Kit
24" – 32"	1.5 Liter Kit

<sup>1</sup> Cure Times measured @ 23°C (73°F)

<sup>2</sup> Based on 400 mm coating width, 40 mils (1016 micron) average thickness and 50% wastage factor

### Safety

Handle with care. Before and during use, observe all safety labels on packaging containers, consult with Canusa-CPS Material Safety Data Sheets and abide by all local or national safety regulations.

Since 1967, Canusa-CPS has been a leading developer and manufacturer of specialty pipeline coatings for the sealing and corrosion protection of pipeline joints and other substrates. Canusa-CPS high performance products are manufactured to the highest quality standards and are available in a number of configurations to accommodate many specific project applications.

The product information shown here is intended as a guide for standard products.

Consult your Canusa representative for specific projects or unique applications.



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### Quality Management system registered to ISO 9001

Canusa warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the product data sheet when used in compliance with Canusa's written instructions. Since many installation factors are beyond our control, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection therewith. Canusa's liability is stated in the standard terms and conditions of sale. Canusa makes no other warranty either expressed or implied. All information contained in this data sheet is to be used as a guide and is subject to change without notice. This data sheet supersedes all previous data sheets on this product. E&OE

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