Jotapipe AC 1003 XT

PRODUCT DESCRIPTION

This product is a fusion-bonded epoxy designed for stand-alone applications. It can be used as a primer in dual layer FBE and multi-layer polyolefin systems and as a girth weld coating. The product is available in a choice of reactivities.

Operating conditions

This product can be suitable for pipelines operating at continuous temperatures up to 105 °C (221 °F) when properly applied. The product performance and the maximum operating temperature can depend on the coating system and the field conditions such as type of soil, moisture and salt content.

POWDER PROPERTIES

Property	Standard	Result
Cure time	CSA-Z245.20 (12.1) at 232 °C (450 °F) Jotapipe AC 1003 XT 21S Jotapipe AC 1003 XT 30S	 Maximum 120 seconds Maximum 150 seconds
Gel time	CSA-Z245.20 (12.2) at 205 °C (400 °F) Jotapipe AC 1003 XT 21S Jotapipe AC 1003 XT 30S	 20-30 seconds 26-40 seconds
Moisture content	CSA-Z245.20 (12.4B)	Maximum 0.50 % (at time of manufacture)
Particle size	CSA-Z245.20 (12.5)	3.0 % max retained on 150 µm (100 mesh) 0.2 % max retained on 250 µm (60 mesh)
Density	CSA-Z245.20 (12.6)	1450 ± 50 g/l
Thermal characteristics	CSA-Z245.20 (12.7) Inflection point	T_g1 = 56-72 °C (133-162 °F) T_g2 = 105-116 °C (221-241 °F) ΔH = 55-85 J/g

Powder DSC heating cycles, 20 °C/min: 30-70 °C (conditioning), 30-270 °C (T_g1 and ΔH), 30-140 °C (T_g2). Cured film DSC heating cycles, 20 °C/min: 30-120 °C and hold 1.5 min, 30-270 °C (T_g3), 30-140 °C (T_g4).

Storage

Keep in a dry cool area. When stored at a maximum 25 °C (77 °F) and maximum relative humidity 60%, a shelf life of 12 months is obtained from the date of manufacture.

APPLICATION

Powder application

Application conditions depend on such factors as specification, plant capability and pipe characteristics.

Application conditions	Typical application temperature	Typical film thickness
As a stand-alone and dual layer FBE coating	232-250 °C (450-482 °F)	300-500 µm (12-20 mils)
As a primer in 3LPO	205-250 °C (400-482 °F)	150-500 µm (6-20 mils)

Higher thickness may be used for applications under concrete weight coating. Evaluations show that thicker films can enhance service capabilities.

Please refer to the relevant Application Guide for guidelines on the factory application of this product.

PERFORMANCE

Property	Standard	Result
Cathodic disbondment	CSA-Z245.20 (12.8) 24 hours, -3.5 V, 65 °C (149 °F) 28 days, -1.5 V, 20 °C (68 °F) 28 days, -1.5 V, 65 °C (149 °F) 28 days, -1.5 V, 95 °C (203 °F) ISO 21809-2 Clause A.10* 28 days, -1.5V, 105 ºC (221 ºF)	 Average 1.5 mm disbondment Average 2.6 mm disbondment Average 3.1 mm disbondment Average 1.5 mm disbondment Average 1.6 mm disbondment
Flexibility	CSA-Z245.20 (12.11) 3.0° PPD at -30 °C (-22 °F) ISO 21809-2 Clause A.13 2.0ºPPD at 0 ºC (32 ºF) 09-SAMSS-089 (App A 3.3) 5.5º PPD at 25ºC (77 ºF) 3.75º PPD at 10ºC (50 ºF) 3.0° PPD at 5°C (41 °F)	 Pass Pass Pass Pass Pass
Impact resistance	CSA-Z245.20 (12.12) at -30 °C (-22 °F) ISO 21809-2 Clause A.14 at -30 °C (-22 °F)	 > 1.5 J > 2 J
Strained polarization	CSA-Z245.20 (12.13) 2.5ºPPD, 28 days	 Pass / No cracking
Adhesion	CSA-Z245.20 (12.14) 24 hours, 75 °C (167 °F) 28 days, 75 °C (167 °F) 28 days, 95 °C (203 °F)	 Rating 1 Rating 1 Rating 1
Porosity	CSA-Z245.20 (12.10) Cross-section Interface	 Rating 1 Rating 2
Buchholz hardness	ISO 2815 at 105 ºC	 Average 86
Abrasion resistance	ASTM D4060 1000 cycles, weight 1 kg, abrasion wheel CS-17	Average 18 mg

Electrochemical impedance	09-SAMSS-089 (App 3.5, 3.10) at 0.01 Hz 25ºC 3% NaCl 25 ºC (77 ºF) 24h Distilled water 80 ºC (176 ºF) 30 days 5% NaCl 80 ºC (176 ºF) 30 days 5% NaOH 80 ºC (176 ºF) 30 days 3% Sea water 65 ºC (149 ºF), 90 days	 > 5*10⁹ ohm·cm² > 5*10⁹ ohm·cm² > 5*10⁹ ohm·cm² > 5*10⁹ ohm·cm² > 5*10⁹ ohm·cm²

The performance of the coating is based on 300-400 µm thick film applied as a stand-alone FBE on 6 mm steel plates which have not been chemically pretreated. For tests according to 09-SAMSS-089 the coating thickness is 350-525 µm. These are typical results and should not be viewed as a product specification.
** Back panel temperature 105 °C (221 °F), electrolyte temperature 90 °C (194 °F).*

Repair system

Jotapipe RC 490

Disclaimer

The information in this document is given to the best of Jotun's knowledge, based on laboratory testing and practical experience. Jotun's products are considered as semi-finished goods and as such, products are often used under conditions beyond Jotun's control. Jotun cannot guarantee anything but the quality of the product itself. Minor product variations may be implemented in order to comply with local requirements. Jotun reserves the right to change the given data without further notice.

Users should always consult Jotun for specific guidance on the general suitability of this product for their needs and specific application practices.

If there is any inconsistency between different language issues of this document, the English (United Kingdom) version will prevail.