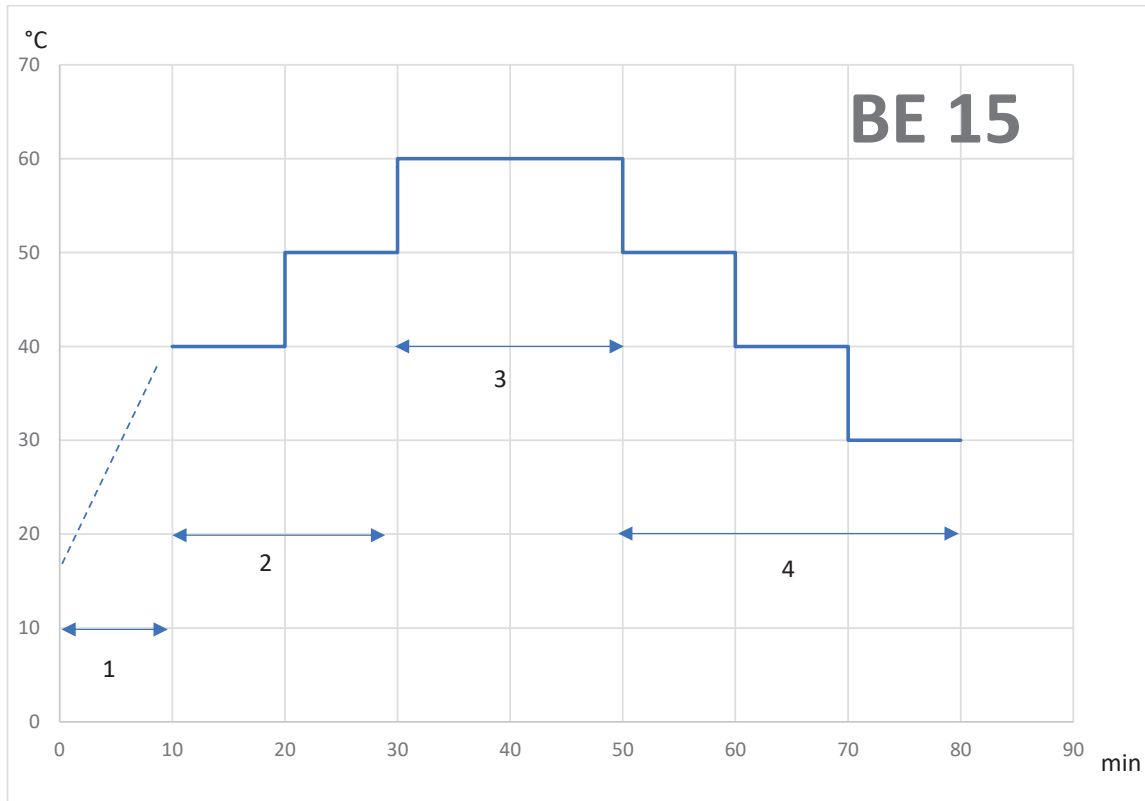


CURING CURVE THROUGH STEAM



| Warming-curing-cooling process | | | |
|--------------------------------|-------------|---------------|---|
| | Temperature | Time | Instructions |
| First phase | 40°C | | Slowly reach 40°C. |
| Second phase | 40°C | 10 min | Maintain the indicated temperature for 10 minutes. |
| | 50°C | 10 min | Maintain the indicated temperature for 10 minutes. |
| Third phase | 60°C | 20 min | Maintain the indicated temperature for 20 minutes. |
| Fourth phase (cooling) | 50°C | 10 min | Decrease the temperature of 10°C and keeps it for 10 min. |
| | 40°C | 10 min | Decrease the temperature of 10°C and keeps it for 10 min. |
| | 30°C | 10 min | Decrease the temperature of 10°C and keeps it for 10 min. |

Technical data sheet

Resin
RP 2100 DE Blu

Hardener
IPE 15/28B

| | | |
|------------|-----------------------------------|-----------|
| 100 | Mixing ratio by weight | 28 |
|------------|-----------------------------------|-----------|

Applications

Repairing of structural capacity of pipelines without extensive excavation, through the use of main liners.

Processing

Manual or mechanical mixing of the two components, by avoiding any further friction that can lead to the warming of the mixture. Cast the system inside the liner and distribute it evenly through the calendaring process of rollers.

| | <i>Temperature</i> | <i>Time estimate</i> |
|--------------------|--------------------|----------------------|
| <i>Curing time</i> | Ambient | 2 – 3 hours |
| <i>Curing time</i> | 60°C | 15 – 20 minutes |

Product information

Two components unfilled epoxy system, medium viscosity, highly reactive even at room temperature, particularly suitable for cold places.

| <i>Products characteristics</i> | <i>Resin</i> | <i>Hardener</i> |
|------------------------------------|---------------|-----------------|
| <i>Colour</i> | Blue | Pale yellow |
| <i>Viscosity at 25°C (mPas)</i> | 1.800 – 2.600 | 20 – 60 |
| <i>Density at 25°C (g/ml)</i> | 1,08 – 1,12 | 0,98 – 1,02 |
| <i>Mixing ratio by volume (ml)</i> | 100 | 32 |

System typical characteristics

| | | |
|---------------------------------------|-----|-----------|
| Pot life (100 ml, 40 mm, 25°C) | min | 8 – 10 |
| Exothermal peak (100 ml, 40 mm, 25°C) | °C | 220 – 240 |

RT = room temperature (23±2°C)

Conversion units:

1 mPas = 1 cPs

1MN/m² = 10 kg/cm² = 1 MPa

CURED SYSTEM TYPICAL PROPERTIES

(24 h standard curing at room temperature + 15h 60 °C)

| | | | |
|--|------------|-------------------|---------------|
| Final Colour | | | Blue |
| Hardness Shore | | D/15 | 82 – 86 |
| Glass transition | | °C | 74 - 78 |
| Maximum Transition Glass (p.c. 2h 100°C) | | °C | 90 – 93 |
| Elastic bending modulus | ASTM D 790 | MN/m ² | 3.300 – 3.400 |
| Bending Strength | ASTM D 790 | MN/m ² | 130 – 135 |
| Tear Strength | ASTM D 790 | MN/m ² | 78 - 80 |
| Elongation at break | ASTM D 790 | % | 3,5 – 4,5 |
| Under compression Strength | ASTM D 790 | MN/m ² | 105 - 109 |

Instructions for a proper use

Verify and, if necessary, homogenize components before use.

Mix the two components (resin and hardener) in the proper mixing ratio avoiding air trapping until obtaining a homogeneous mixture, and then apply.

Post-curing

Post-curing is always suggested to stabilize the cured handwork to reach the best mechanical properties. Post-curing becomes necessary when the handwork works at elevated temperatures.

Post-cure the handwork increasing temperature avoiding thermal gradients over 10°C/hour. The thermal gradient and post curing time refer to standard specimens. Users should find the best conditions depending on the component size and shape. For big size components decrease the thermal gradient and increase the post-curing time; in the case of thin layer applications and composites post cure on the jig.

Storage and handling precautions

Epoxy resins and hardeners can be stored over two years in the original sealed package in a cool and dry place. Hardeners are moisture sensitive.

Refer to the product health and safety data sheet.

First emission date: **12th October 2018**

Information given in this publication is based on the present state of our technical knowledge. Buyers and users should make their own assessments of our products under their own applications conditions.

BE 15 EPOXY

MIXING RATIO BY WEIGHT

100:28

| READY MIX, Kg | PART A, Kg | PART B, Kg |
|---------------|------------|------------|
| 1 | 0,78 | 0,22 |
| 2 | 1,56 | 0,44 |
| 3 | 2,34 | 0,66 |
| 4 | 3,12 | 0,88 |
| 5 | 3,90 | 1,10 |
| 6 | 4,68 | 1,32 |
| 7 | 5,46 | 1,54 |
| 8 | 6,24 | 1,76 |
| 9 | 7,02 | 1,98 |
| 10 | 7,80 | 2,20 |
| 11 | 8,58 | 2,42 |
| 12 | 9,36 | 2,64 |
| 13 | 10,14 | 2,86 |
| 14 | 10,92 | 3,08 |
| 15 | 11,70 | 3,30 |
| 16 | 12,48 | 3,52 |
| 17 | 13,26 | 3,74 |
| 18 | 14,04 | 3,96 |
| 19 | 14,82 | 4,18 |
| 20 | 15,60 | 4,40 |