EPOXONIC®

EX3130 Rapid

Rapid curing formwork resin for sewer renovation

EPOXONIC® EX 3130 Rapid is a solvent-free 2-part formwork resin based on epoxy resin amine. It is slightly flexible and has a high internal toughness, which enables the material to compensate for minor mechanical stresses. It has been specially developed for fast processing using robot technology.

Key-features:

- Rapid cure
- Adhesion to wet concrete and stoneware
- Good workability for injection and filler
- Adhesion to PVC and pipe liners
- Good internal toughness, therefore suitable for sewer inlets in the presence of groundwater (pay attention to back milling!)
- Curing possible from +5 °C
- Curing under water
- Curing possible from +8 °C
- especially for robot applications
- Free of solvents and nonylphenol
- plasticiser-free
- Resistant to e.g. household waste water, oil and petro
- Hot water resistant
- Filling work on cracks, individual joints and small holes is possible
- Can be used very variably depending on the starting temperature after the mixing process

Recommended applications:

EPOXONIC® EX 3130 Rapid is particularly suitable for the rehabilitation of damaged sewer inlets in wastewater, combined and rainwater sewers in nominal sizes DN 150 to DN 800 using robot technology. The sewers can be made of vitrified clay, clinker brick, concrete, fibre cement, reinforced concrete or PVC.
EPOXONIC® EX 3130 Rapid can be used with formwork to achieve fast and complete filling when rehabilitating side inlets.
EPOXONIC® EX 3130 Rapid is particularly suitable when work on construction sites needs to be completed and the formwork removed with as little waiting time as possible. Thanks to the greatly reduced stripping times, the formwork can be removed on schedule in the evening. This means that assembly work on the same position the next day can be avoided.

Monitoring:

External monitoring of **EPOXONIC® EX 3130 Rapid** is carried out by **cbm Centrum Baustoffe und Materialprüfung - Technische Universi¬tät München**.

Recommended additional equipment:

- Climate cabinet
- Mixer with integrated timer and slowly rotating spiral helix according to manufacturer's specifications.
- Temperature measuring device (IR technology, non-contact measurement).

Table 1: Properties of uncured EPOXONIC® EX 3130 Rapid

Technical data	Part A	Part B	Mixture
Form	paste-like	paste-like	paste-like
Colour	Medium-blue	yellow-brown	medium-blue (minor differences in colour are due to technical reasons and do not affect the quality).
Mixing ratio (parts by weight)	100	28,2	

Processing:

In general, the device-specific specifications (manuals) of the respective sewer robot manufacturer must be observed during processing.

Preliminary work: Wastewater control

Depending on the damage arrangement, the user may have to carry out waste water control. It must be ensured that the milled and cleaned bonding surfaces are not contaminated by contaminated waste water before the application of the resin compounds has been completed.
If groundwater is present, formwork must generally be used for the repair work.
The renovation area must be kept free of waste water during the repair or renovation work.

Preparation of the surface

The substrate must be clean and free of loose particles, dirt, grease, oil, rust and dust. In the case of cementitious materials, the cement skin must be removed. Edge areas must be prepared by milling and cleaning.
We recommend using a mixer with a helical, spiral-shaped kneading tool and a low speed of

Preliminary work

In preparation for repair work in the old sewer, the damaged areas must be milled over a large area using a suitable milling tool in accordance with the specifications of the respective equipment manufacturer. If necessary, an existing liner in the old sewer must be milled open around the opening of the connecting sewer and the liner edge must be back-milled for optimised anchoring of the resin (e.g. in the presence of groundwater). The inlet area must then be cleaned with a suitable water jet technique to remove the grinding dust.

Mixing process

Recommendation: Cool both parts to approx. 20 °C, especially in summer.
Empty part B completely from the bag into the can containing part A and mix thoroughly using a suitable mixing device until the mixture appears uniformly blue in colour.

approx. 100 - 200 rpm. When mixing, particular care should be taken to ensure that no unmixed material remains on the base and walls of the can and that no air is stirred in. The mixing process should take at least 4 minutes and be completed within 6 minutes. The energy input during mixing increases the resin temperature. This temperature must be measured and documented after the mixing process. Using Table 2, the expected pot life and stripping time can be determined.

Working time resp. pot life

The processing time and pot life can be found in Table 2. Processing is generally possible between +5 °C and +25 °C. If possible, the temperature of the substrate should not be below 5 °C.
Caution! At mixing temperatures above 25 °C, the processing time is considerably reduced! Due to the high curing speed and the associated inherent heat development, only a total quantity of max. 2.8 litres of the product may be applied to a damaged area. A slower resin (e.g. EPOXONIC® EX 1824 Rapid) must be used for injection areas > 2.8 litres.

Injection

EPOXONIC® EX 3130 Rapid can be processed using suitable formwork technology (e.g. formwork sleeve and formwork bladder). The grouting pressure should be adapted to the robot and material.
For applications (levelling process) on a wet surface, the material must be pressed on for ≥ 10 seconds to achieve initial adhesion.
EPOXONIC® EX 3130 Rapid can be pressed into the same side inlet into which EPOXONIC® EX 1824 Rapid was pressed shortly beforehand. It is important to ensure that the second container is pressed in before the pot life of the first container has expired.
The higher inherent heat development of EPOXONIC® EX 3130 Rapid can reduce the stripping time by approx. 20%.
The use of EPOXONIC® EX 3130 Rapid is particularly useful for short blocking times, at the end of a working section, etc., as the achievable curing speed at the same temperature is about twice as high as with conventional levelling compounds. In particular, it must be taken into account that the pot life is halved. Therefore: Never apply two containers of EPOXONIC® EX 3130 Rapid one after the other in the same side inlet!
After the resin has cured, remove the bubble and the formwork collar and rework the repaired area if necessary.

Cleaning the devices

Uncured EPOXONIC® EX 3130 Rapid can be removed with paper and then warm water, possibly with the addition of detergent. Hardened product residues can only be removed mechanically.

Table 2: Processing data for EPOXONIC® EX 3130 Rapid

Sewer temperature [°C]	Resin temperature after mixing [°C]	Pot life [min]	Demoulding times [hours]
10 – 12	10	50	8
10 – 12	20	25	4
10 – 12	25 (maximum permitted)	19	3

The values stated are approximate values.

Please note: Both the processing time and the time until stripping depend on the ambient temperature. Longer stripping times may be necessary in the case of groundwater flushing. Damaged areas may generally only be exposed to the HD flushing carriage after at least 10 days.

Table 3: Properties of cured EPOXONIC® EX 3130 Rapid

Technical data	Value	Norm
Shore-hardness[1] (21 - 25°C)	Shore D 83	DIN EN ISO 868
Density Raw density[2]	1.45 g/cm³ 1.40 g/cm	DIN EN ISO 1183-1 DIN EN ISO 1183-1
Adhesive tensile strength dry concrete[3] glazed stoneware [3] wet underground concrete[3]	 > 2 MPa > 4 MPa > 1.8 MPa	 DIN EN 1542 DIN EN 1542 DIN EN 1542
Compressive strength[2]	> 90 MPa	DIN EN 196-1
Flexural strength[3] E-modulus[3]	> 70 MPa > 3000 MPa	DIN EN ISO 178 DIN EN ISO 178

[1] Siebert+Knipschild, Report-No. 1662299 from 02-02-2016
[2] MFPA Leipzig, Research report PB 1.1/14-066-1
[3] SBKS, Research report No. 137301_0002+0003+0005 from 02-25-2016

Delivery form:

EPOXONIC® EX 3130 Rapid is supplied in part A and B as a set in the correct mixing ratio.

Part A	3-litre cans
Part B	welded aluminium/plastic bags
- big	2.84 kg part A + 0.80 kg part B
- small	1.72 kg part A + 0.49 kg part B

Storage

EPOXONIC® EX 3130 Rapid part A and part B can be stored for 12 months at 0 - 35 °C, ideally at ⩽ 25 °C in closed original containers in a dry place. Avoid direct sunlight. If possible, cool to ⩽ 20 °C before use.

Safety instructions

The safety precautions and personal protection measures to be observed when processing epoxy resins and hardeners apply; in particular, protective gloves must be used and skin and eye contact must be avoided. Do not eat, drink or smoke while working.
Further information can be found in our safety data sheets and the hazardous substance information system of the BAU trade association (Gisbau). Please pay particular attention to the technical data sheet and the "Practical guide for handling epoxy resins", available at (https://www.bgbau.de/fileadmin/Gisbau/676_Praxisleitfaden-Epoxidharze_2-2018.pdf) (German)

Important user information

The information in this data sheet is provided to the best of our knowledge, but to the exclusion of any liability. It is not intended as an authorisation for licence-free use, but merely as a working aid for the user, who should carry out his own tests to determine the suitability of the product for his specific requirements.