OQEMA labs

GUIDE FORMULATION - OQ-EH-0011 Y - Issue 1 - September 2025

Epoxy injection mortar (chemical anchor)

- **Fast curing system** - enables quick installation and early load application, minimizing downtime on site.
- **Thixotropic formulation** - stand-stable in vertical and overhead drill holes, ensuring reliable anchoring without run-out.
- **High mechanical strength** - excellent compressive and bond strength for secure fixing of anchor rods and rebars.
- **Bio-based epoxy resin** - the pure resin in Component A contains 28% bio-based carbon (excluding fillers), reducing fossil resource use while maintaining performance.
- **Easy mixing & application** - consistent two-component cartridge system with colour change for visual mixing control.

Formulation

Component A

Raw material	Function	Supplier	wt.%	Production
Epilox T 19-64/1000G	Epoxy resin binder	LEUNA-Harze	45.0	*Charge the binder first. Under continuous mixing at a circumferential speed of approx. 5 m/s, add the raw materials in order. Avoid excessive air entrainment. Keep batch temperature below 40 °C.*
LEVANOX black 303 LF	Pigment preparation	LANXESS	0.50	
AEROSIL R 805	Thixotropic agent	EVONIK	2.50	
MILLISIL W 6	Filler	Quarzwerke	16.0	
Omyacarb 10 GU	Filler	OMYA	36.0	

Component B

Raw material	Function	Supplier	wt.%	Production
Epilox-hardener M 1178	Epoxy hardener	LEUNA-Harze	36.0	*Charge the hardener first. Under continuous mixing at a circumferential speed of approx. 5 m/s, add the raw materials in order. Avoid excessive air entrainment. Keep batch temperature below 40 °C.*
Titanium dioxide - RC 823	Pigment	CINKARNA	0.80	
AEROSIL R 805	Thixotropic agent	EVONIK	2.00	
MILLISIL W 6	Filler	Quarzwerke	16.0	
Omyacarb 10 GU	Filler	OMYA	45.2	

Mixing ratio (Comp. A : Comp. B) **= 100 : 50** (by weight)

Technical Data

Property	Test method	Result
Density - Comp. A	DIN EN ISO 2811-1	1.49 g/cm³
Density - Comp. B	DIN EN ISO 2811-1	1.63 g/cm³
Non-volatile content (105 °C / 24 h)	DIN EN ISO 3251	98.5 %
Shore D hardness (16 h / 20 °C)	DIN EN ISO 7619-1	85
Shore D hardness (24 h / 20 °C)	DIN EN ISO 7619-1	87
Shore D hardness (7 d / 20 °C)	DIN EN ISO 7619-1	90
Open time / insertion time (20 °C)	Internal method	~ 25 min
Fixation time (20 °C)	Internal method	~ 2 h
Initial load-bearing (20 °C)	Internal method	~ 8 h
Full load-bearing (20 °C)	Internal method	~ 16 h

Application instructions for end users

Preparation of the substrate

- Drill the hole to the specified diameter and depth.
- Clean the borehole thoroughly using blow-out pump and borehole brush until it is free of dust and loose particles.
- Ensure the substrate is free of standing water, grease and release agents. Slightly damp concrete surfaces are acceptable.

Preparation of the mortar

- Mix resin (Component A) and hardener (Component B) thoroughly in the specified ratio until a **homogeneous, streak-free** mixture is obtained.
- The mixing can be carried out using suitable equipment such as a 2-component cartridge with integrated static mixer, hand tool, or mechanical stirrer, depending on the packaging system.
- The mixture must show a consistent light grey colour without streaks before it is applied.

Application

- Fill the borehole with mortar from the bottom up, avoiding air entrapment.
- Insert the threaded rod with a twisting motion immediately, within the specified **insertion time** at the latest.
- At the beginning, the rod will not be self-supporting and must therefore be **fixed in position** until the mortar has sufficiently gelled (fixation time).

- Ensure that excess mortar escapes at the surface to confirm complete encapsulation of the rod.
- Do not move or load the anchor until the fixation time has passed.

Curing and load application

- **Open / insertion time** (20 °C): ~ 25 min
- **Fixation time** (20 °C): ~ 2 h (time until anchor rod holds its own weight)
- **Initial load-bearing** (20 °C): ~ 8 h
- **Full load-bearing** (20 °C): ~ 16 h

*Note: The times given above refer to a **small drill hole with negligible reaction heat**. They are **approximate guide values** and strongly depend on temperature, drill hole diameter/volume, and thermal conditions of the substrate.*

Optional modifications for development

- *Adhesion promotion:* Addition of up to 1.0 % **Q-SIL GLYMO** (epoxy-functional silane from OQEMA) to **Comp. A** may improve adhesion strength to concrete and steel. Be aware that this generally reduces storage stability of the formulation.
- *Acceleration:* Addition of up to **15 wt.-% DMP-30** (CAS-Nr.: 90-72-2), based on **Comp. B**, can significantly shorten curing times. However, this also increases brittleness of the cured material.

Safety instructions

- Wear protective gloves, goggles and suitable clothing.
- Work in well-ventilated areas; avoid skin/eye contact and inhalation.
- When mixing larger quantities, note the risk of rapid exothermic heat build-up.
- Do not eat, drink or smoke during use.
- Dispose of residues and packaging according to local regulations.
- For detailed hazard information, see Safety Data Sheet (SDS).

Storage instructions

- Store in tightly closed original containers.
- Keep cool, dry and protected from frost and direct sunlight.
- Recommended storage temperature: +5 °C to +30 °C.
- Shelf life (unopened): typically 12 months – check product label.

Disclaimer: