

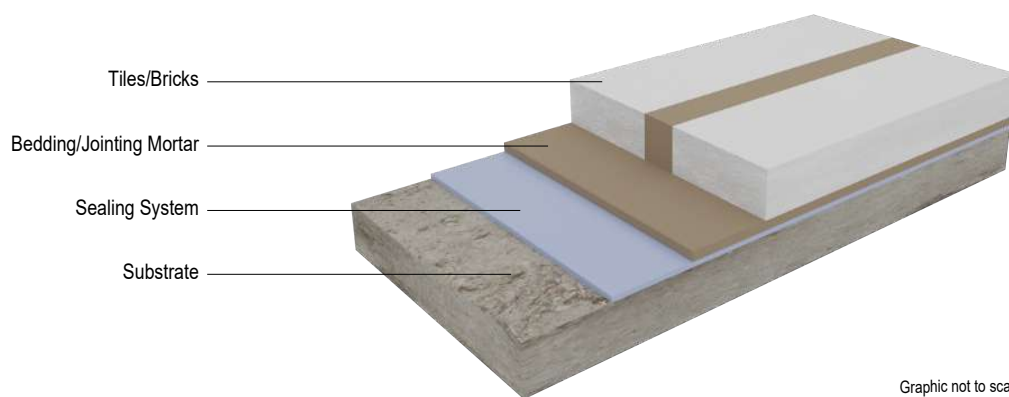
TI 317A

Technical Information Surface Protection Linings
Issue 10.02.2025

OXYDUR VEQ

4-component synthetic resin based on epoxy-novolac-vinyl ester resin for bedding and jointing acid resistant tile linings, bricks and moulded parts under high chemical loads especially of oxidising substances

System Design



Graphic not to scale

Description and Use

4-component synthetic resin mortar based on vinyl ester resin for bedding and jointing, bricks and moulded parts under high chemical stress, especially oxidising substances.

The mortar is used for tile linings in chemical industries and production areas requiring very broad and universal chemical resistance.

When exposed to hydrofluoric acid, alkalis or solvents, OXYDUR VEC mortar, which is based on the same binder, should be used due to its more resistant or electrically conductive filler.

Properties

- Temperature resistant up to 120 °C
- Very good mechanical properties and outstanding chemical resistance
- Curing at normal temperatures without post heat treatment
- Can be applied with jointing injector

Physical Data

| Physical Property | Testing Standard | Value | Unit |
|---|--------------------|------------------------|-------------------|
| Density | DIN EN ISO 1183-1 | 2.4 | g/cm ³ |
| Flexural strength | ASTM C 580 | 40 ^[1] | MPa |
| Flexural modulus of elasticity | ASTM C 580 | 13,000 ^[1] | MPa |
| Tensile strength | ASTM C 307 | 17 ^[1] | MPa |
| Compressive strength | ASTM C 579 | 140 ^[1] | MPa |
| The thermal coefficient of linear expansion | DIN 51045 | 8.0 x 10 ⁻⁵ | 1/K |
| Temperature resistance | | 120 | °C |
| Thermal conductivity | DIN EN ISO 22007-2 | 1.0 | W/mK |

Data are mean values

Chemical Resistance

Resistant to higher concentrated acids and alkalis, oxidising substances as well as fats, oils and solvents.

For detailed information on chemical resistance, please refer to the Technical Information TI 300.

Please contact our Application Technology Department for approval of the project-specific possible application.

Substrate

Uneven spots should be levelled in the substrate already. Do not apply the mortar directly to the substrate! If the substrate is not provided with a surface protection system, apply with a suitable primer and sprinkle if necessary. Please contact our Application Technology Department for possible solutions.

Usually the mortar is applied onto STEULER-KCH-range coating systems.

Requirements

| | |
|---------------------------------------|------------|
| Application temperature approx. | 10 - 30 °C |
| Dew point distance | > 3 K |
| Dew point distance from 70 % humidity | > 5 K |

Optimal temperature is 20 °C. Higher and lower temperatures influence the pot life and consistency of the mixtures.

Avoid draughts and solar radiation.

During application, the substrate must be kept dry. No moisture (condensate, mist, etc.) must get onto the material.

Concrete / Screed

Refer to DIN EN 14879-1 as well as to STEULER-KCH-Formsheet 010.

To achieve sufficient adhesive tensile strength, the substrate must generally be pre-treated in such a way that it is free of cement slurry, cement skin, loose and friable parts, structural defects and separating substances.

The residual moisture of cementitious substrates must not exceed 4 %.

The condition of the substrate must be documented by STEULER-KCH-Test-Record 006 (Concrete) resp. STEULER-KCH-Test-Record 007 (Screed).

Steel

Refer to DIN EN14879-1 as well as to STEULER-KCH-Formsheet 020 and 030.

The steel surface is blasted to near white blast cleaning. The degree of preparation Sa 2½ according to DIN EN ISO 12944-4 and the roughness grade "Medium (G)" according to DIN EN ISO 8503-1 must be achieved; minimum roughness depth R_z = 70 µm. After blasting, the formation of new rust must be prevented by suitable measures, such as priming directly.

The condition of the substrate is documented using STEULER-KCH-Test-Record 003 (Steel) or STEULER-KCH-Test-Record 004 (Inspection of Grit Blasting Works).

^[1] After heat treatment

Packaging / Shelf Life

All components must be stored and transported dry. The minimum shelf life applies to a storage temperature of 20 °C, unless otherwise specified. Higher temperatures reduce, lower temperatures increase the minimum shelf life.

| Component | Item Number | Package | Content | Shelf Life |
|-----------------------------------|-------------|----------|---------|------------|
| Oxydur-VEQ-Solution | 5032036001 | Hobbock | 25 kg | 6 months |
| Oxydur-Accelerator D | 5032007023 | Canister | 2.5 kg | 24 months |
| Oxydur-Hardener C | 5032015007 | Bottle | 1 kg | 12 months |
| Oxydur-VEQ-Powder | 5011116001 | Bag | 25 kg | 24 months |
| Steuler-Separating-Varnish Primer | 5045014026 | Canister | 2 kg | 24 months |
| Steuler-Separating-Varnish A | 5045013006 | Drum | 10 kg | 24 months |
| Hard wax solid | 9300001146 | Drum | 10 kg | 24 months |
| SKC-Mortar-Smoothing-Agent | 5045002003 | Canister | 5 kg | 24 months |
| Steuler-Universal-Cleaner | 5040023005 | Canister | 4 kg | 24 months |

For handling, transport and storage observe the relevant safety data sheets.

Mixing Ratio / Consumption

Oxydur VEQ

| Component | Mix | Consumption kg/l |
|----------------------|-----------------|---------------------|
| Oxydur-VEQ-Solution | 2.00 kg | 0.350 |
| Oxydur-Accelerator D | 50 g | 0.009 |
| Oxydur-Hardener C | 50 g | 0.009 |
| Oxydur-VEQ-Powder | 11.60 kg | 2.032 |
| Total | 13.70 kg | 2.400 |
| Mix yields approx. | | 5.7 l |

A reserve of 10 % is to be added to the calculated project requirements for bedding and butt joints.

1 liter material spread over 1 m² is always 1 mm thick.

Mortar Requirement per m² Approx.

| | | |
|---|--------|---------|
| Split tiles 240 x 115 x 20 mm | 7.5 l | 18.0 kg |
| Split tiles 240 x 115 x 40 mm | 9.5 l | 22.8 kg |
| Bricks 240 x 115 x 65 mm | 11.5 l | 27.6 kg |
| Bricks 240 x 115 x 80 mm | 13.0 l | 31.2 kg |
| By filled-joint installation (bedding joints 5 mm / butt joints 7 mm) | | |

Joint Dimensions

| | |
|--|----------------|
| Bed joint thickness | 4 - 7 mm |
| Joint width | 4 - 8 mm |
| Depth of joints by hollow joint installation | at least 15 mm |

Pot Lives

The pot life at a material temperature of 20 °C approx. 30 - 60 minutes.

Higher temperatures reduce, lower temperatures extend the pot life.

Waiting and Curing Times

Waiting time until walkability depends on temperature.

| Temperature | Walkable After |
|-------------|----------------|
| 15 °C | 6 h |
| 20 °C | 4 h |
| 25 °C | 3 h |

The waiting time until full chemical and mechanical resistance is reached is 5 days at a temperature of 20 °C.

Testing

Visual Testing

The lining is checked for visible defects such as bubbles, inclusions, inequalities, cracks or mechanical damage.

Repair

Rejointing

When rejointing, the joint depth must be at least 5 mm. Press the mortar into the clean joints with a joint trowel and smooth.

Replacement of Hollow Tiles or Bricks

Cut with a separating disk straight through to the mortar bed into the joint and the bricks or tiles.

Where the lining consists of two brick layers chose the area to be removed big enough so that the bricks can be broken out from the upper brick layer down to the sealing layer in a stepped manner.

Cut carefully in the area of the mortar bed so that the sealing layer is not damaged. Remove the bricks using a caulking tool. Take care that the sealing layer is neither mechanically damaged nor detached from the substrate.

Reconstruction

After removal of the tiles or bricks the lining can be rebuilt (see "Application").

Safety and Disposal

The following points should be observed:

- Sufficient ventilation and venting (especially in pits and tanks)
- No smoking and no fire
- Safety Data Sheets
- Observe hazard warnings and safety instructions on labels
- Wear required personal protective equipment (avoid skin contact with materials)
- Clean and protect hands with skin protection soap (no solvents!) and skin protection cream
- Wear a dust mask when grinding (e.g. for repairs)
- Operating instructions as per § 14 of GefahrstoffV (Toxic Substances Act) and TRGS 507 (Technical regulations for Hazardous Substances - Germany)
- Accident prevention regulations by the Liability Insurance Association for the Chemical Industries (Germany)
- Avoid direct contact of the materials with the flame, especially during welding work (welding beads) on site

Preferably consume residual quantities. Do not pour into a spout or dustbin! Collect separately for disposal in durable, lockable and labelled containers.

GISCODE

| Product | GISCODE |
|------------|----------|
| Oxydur VEQ | SB-STY20 |

Cleaning of Equipment

Tools that are soiled with uncured materials can be cleaned with Steuler-Universal-Cleaner. Only clean in well ventilated areas.

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This issue replaces all previous versions.