

TI 222F

Technical Information Surface Protection Linings  
Issue 12.01.2023

## OXYDUR iVE M

Monostyrene-free, chemically highly resistant, quartz-filled 4-component synthetic resin mortar based on vinyl ester resin

### Base

Epoxy Novolac Vinyl ester resin, solvent-free

### Material Group

Mortars, Jointing Materials

### Description and use

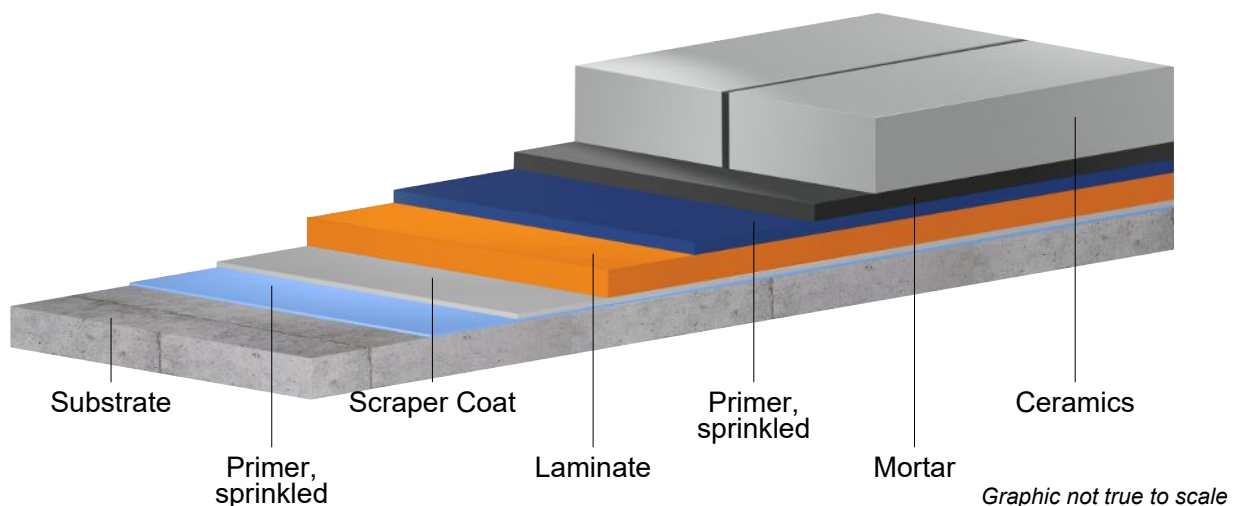
**Monostyrene-free**, chemically highly resistant, quartz-filled synthetic resin mortar for bedding and jointing acid-resistant tiles and bricks.

### Properties

- „Total solid“ (complies with the test method of Deutsche Bauchemie)
- Very good mechanical properties and outstanding chemical resistance
- Curing at normal temperatures without post heat treatment
- Can be applied with jointing injector
- Fit for vehicles with pneumatic, solid rubber, Vulkollan or polyamide tyres

### System Design

- *If necessary:* Alkadur HR Primer (on concrete and steel), sprinkled
- *Alternative:* Oxydur iVE Primer (on existing Oxydur iVE Laminate), sprinkled
- Oxydur iVE M Bedding mortar
- Oxydur iVE M Jointing mortar



## Physical Data

Property [unit], Test method	Value
Density [g/cm <sup>3</sup> ], DIN EN ISO 1183-1, ASTM D 792 (Bedding mortar)	2.05
Compressive strength [MPa], DIN EN ISO 604, ASTM C 579	80
Modulus of elasticity [MPa], DIN EN ISO 178, ASTM C 580	3400
Flexural strength [MPa], DIN EN ISO 178, ASTM C 580	25
Tensile strength [MPa], DIN EN ISO 527, ASTM C 307	12
Temperature resistance [°C]	100
Data are mean values.	

## Chemical Resistance

+ = resistant at 20 °C

(+) = short time resistant

- = not resistant

### Media

Acetic acid conc.	+	Chromic acid 40 %	+	Nitric acid 65 %	+
Acetone	+	Conc. hydrochloric acid	+	Petrol	+
Alcohols (Methanole)	+	Ester / Ketones	+	Phosphoric acid. conc.	+
Aldehyde	+	Formic acid 100 %	+	Plant / animal oils and fats	+
Alkaline solutions 50 %	(+)	Hydrofluoric acid 40 %	+	Sulfuric acid 80 %	+
Ammonia 25 %	+	Hydrogen peroxide 50 %	+	Trichlorethylene	+
Benzene / Toluene / Xylene	+	Lactic acid	+		
Chlorine bleaching 13 % active chlorine	+	Mineral oils	+		

## 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's coating systems or rubber linings.

## Requirements

Application temperature	approx. 10–30 °C
Dew point distance	> 3 K
Dew point distance from 70% air 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.

## 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 EN 14879-1 as well as to STEULER-KCH-Formsheet 020 and 030.

The steel surface is blasted to near white blast cleaning. A surface cleanliness of 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 surface roughness Rz = 70 µm. After blasting, the formation of new rust must be prevented by suitable measures, such as priming directly.

The condition of the substrate must be documented by STEULER-KCH-Test-Record 003 (Steel) resp. STEULER-KCH-Test-Record 004 (Inspection of Grit Blasting Works).

## Moisture

During application, the substrate must be kept dry. No moisture (condensate, mist) may enter in open joints, onto the bedding joint or the undersides and edges of tiles.

## 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
Alkadur-HR-Solution	5035197001	Hobbock	25 kg	24 Months
Alkadur-HR-Hardener	5035198001	Hobbock	25 kg	24 Months
Oxydur-iVE-Solution	5032186001	Hobbock	25 kg	24 Months
Oxydur-iVE-Mortar-Solution	5032220001	Hobbock	25 kg	24 Months
Oxydur-iVE-Accelerator 1	5032192023	Canister	2.5 kg	24 Months
Oxydur-iVE-Accelerator 2	5032193023	Canister	2.5 kg	24 Months
Oxydur-iVE-Hardener	5032189007	PE Bottle	1 kg	12 Months
Oxydur-iVE-Mortar-Powder	5011185001	Bag	25 kg	24 Months
PE-Fibre 940T	5119125007	Drum	1 kg	24 Months
SKC-Filler 16	5011203001	Bag	25 kg	24 Months
Hard wax solid	9300001146	Drum	10 kg	24 Months
Steuler-Diluent EN	5060005005	Canister	4 kg	24 Months

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

## Mixing Ratio / Consumption

### Premix for an easier application

To simplify the application mix Oxydur-iVE-Accelerator 1 and 2 in 25 kg of each of the various Oxydur-iVE-Solutions. The accelerator quantities are dependent on temperature. For further processing, remove parts of the pre-accelerated solution.

## Pre-accelerated Oxydur-iVE-Solutions depending on substrate temperature

Component	Mix	kg / mix
Oxydur-iVE-Solution <i>or</i> Oxydur-iVE-Mortar-Solution	pre-dosed package (25 kg)	25.00
<b>from 24 to 30 °C:</b>		
Oxydur-iVE-Accelerator 1	60 ml	0.06
<b>from 17 to 25 °C:</b>		
Oxydur-iVE-Accelerator 1	100 ml	0.10
<b>from 12 to 18 °C</b>		
Oxydur-iVE-Accelerator 1	180 ml	0.18
<b>from 8 to 13 °C:</b>		
Oxydur-iVE-Accelerator 1	250 ml	0.25
<b>Total</b>		<b>25.06–25.25</b>
<b>At low temperatures and for faster curing for all variants, especially for the application of roving:</b>		
Oxydur-iVE-Accelerator 1	150 ml	0.15
Oxydur-iVE-Accelerator 2	150 ml	0.15

The temperature of the components must be adapted to the substrate temperature, otherwise the reactivities in the mix and on the surface will differ. For substrate temperatures below 15 °C, the difference may not exceed 5 K. At temperatures above 30 °C, the material should be cooled.

**NOTE! The pre-accelerated solutions must be used within one day.**

### Alkadur HR Primer (on concrete/steel)

Component	l / mix	kg / mix	kg/m <sup>2</sup>
Alkadur-HR-Solution	1.6	1.80	0.161
Alkadur-HR-Hardener	1.0	1.00	0.089
<b>Total</b>		<b>2.80</b>	<b>0.250</b>
Sprinkling with SKC-Filler 16. Consumption approx. 2.0 kg/m <sup>2</sup>			
Total consumption (approx.):	0.25 kg/m <sup>2</sup>	Mix yields (approx.):	11.2 m <sup>2</sup>

### Alternative: Oxydur iVE Primer (on existing Oxydur iVE Laminate)

Component	Mix	kg / mix	kg/m <sup>2</sup>
pre-accelerated Oxydur-iVE-Solution	4.5 l	5.00	0.245
Oxydur-iVE-Hardener	85 ml	0.10	0.005
<b>Total</b>		<b>5.10</b>	<b>0.250</b>
Sprinkling with SKC-Filler 16. Consumption approx. 2.0 kg/m <sup>2</sup>			
Total consumption (approx.):	0.25 kg/m <sup>2</sup>	Application steps:	1
		Mix yields (approx.):	20.4 m <sup>2</sup>

### Oxydur iVE M Bedding mortar

Component	Mix	kg / mix	kg/l
pre-accelerated Oxydur-iVE-Mortar-Solution	1.8 l	2.00	0.508
Oxydur-iVE-Hardener	34 ml	0.04	0.010
PE-Fibre 940T	0.6 l	0.03	0.008
Oxydur-iVE-Mortar-Powder	6.0 l	6.00	1.524
<b>Total</b>		<b>8.07</b>	<b>2.050</b>
Consumption per mm thickness (approx.):	2.05 kg/m <sup>2</sup>	Mix yields (approx.):	3.9 l

## Oxydur iVE M Jointing mortar

Component	Mix	kg / mix	kg/l
pre-accelerated Oxydur-iVE-Mortar-Solution	1.8 l	2.00	0.455
Oxydur-iVE-Hardener	34 ml	0.04	0.009
Oxydur-iVE-Mortar-Powder	7.2 l	7.20	1.636
<b>Total</b>		<b>9.24</b>	<b>2.100</b>

Consumption per mm thickness (approx.): 2.10 kg/m<sup>2</sup>      Mix yields (approx.): 4.4 l

### Joint dimensions

Bed joint thickness	4 – 7 mm
Joint width	4 – 8 mm
Depth of joints by hollow joint installation	min. 15 mm

1 liter material spread over 1 m<sup>2</sup> is always 1 mm thick.

### Mortar requirement per m<sup>2</sup> (approx.)

Split tiles 240 x 115 x 20 mm	7.5 l	15.4 kg
Split tiles 240 x 115 x 40 mm	9.5 l	19.5 kg
Bricks 240 x 115 x 65 mm	11.5 l	23.6 kg
Bricks 240 x 115 x 80 mm	13 l	26.7 kg
By filled-joint installation (bedding joints 5 mm / butt joints 7 mm)		
A reserve of 10 % is to be added to the calculated project requirements for bedding and butt joints.		

## Pot Life

Pot life depends on temperature. The waiting time until further processing of the Oxydur-iVE-Components is included in the pot life.

### Alkadur HR Primer

Temperature	Pot life
20 °C	approx. 40 minutes

### Oxydur iVE Primer

Temperature	Pot life
10 °C (Accelerator 1 + 2, Hardener)	approx. 50 minutes (including 15 minutes waiting time)
10 °C (Accelerator 1, Hardener)	approx. 120 minutes (including 25 minutes waiting time)
15 °C (Accelerator 1, Hardener)	approx. 90 minutes (including 15 minutes waiting time)
20 °C (Accelerator 1, Hardener)	approx. 70 minutes (including 10 minutes waiting time)
25 °C (Accelerator 1, Hardener)	approx. 60 minutes (including 5 minutes waiting time)
30 °C (Accelerator 1, Hardener)	approx. 35 minutes (including 2 minutes waiting time)

### Oxydur iVE M

Temperature	Pot life
10 °C (Accelerator 1 + 2, Hardener)	approx. 55 minutes (including 15 minutes waiting time)
10 °C (Accelerator 1, Hardener)	approx. 75 minutes (including 25 minutes waiting time)
15 °C (Accelerator 1, Hardener)	approx. 75 minutes (including 15 minutes waiting time)
20 °C (Accelerator 1, Hardener)	approx. 90 minutes (including 10 minutes waiting time)

## Waiting and curing times

### Primer

The minimum waiting time until further processing and the maximum waiting time between application steps are as follows (approx.):

Temperature	Walkable after	Maximum waiting time
10 °C	24 h	96 h
15 °C	17 h	96 h
20 °C	12 h	72 h
25 °C	8 h	72 h
30 °C	5 h	48 h

### Mortar

Waiting time until walkability depends on temperature:

Temperature	Walkable after
10 °C	24 h
15 °C	17 h
20 °C	12 h
25 °C	8 h

The minimum waiting time until further processing and the maximum waiting time between application steps are as follows (approx.):

	Minimum waiting time	Maximum waiting time
Until the jointing is carried out	2 h	4 h
Until the ceramic is cleaned	8 h	24 h

The finished coating is fully mechanically and chemically resistant at 20 °C after 5 days.

## 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
Alkadur HR Primer	RE90

## Cleaning of Equipment

Tools soiled with uncured materials can be cleaned with STEULER UNIVERSAL CLEANER (Technical Information TI 190). Only clean in well ventilated areas.

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This issue replaces all previous versions.