

Two-component epoxy flooring

Description

DUROFLOOR 11 is a two-component, solvent-free, colored epoxy system, offering high strength and abrasion resistance. It is resistant to organic and inorganic acids, alkalis, petroleum products, wastes, water, sea water and a large number of solvents. It is resistant to temperatures from -30°C to $+100^{\circ}\text{C}$ in dry loading and up to $+60^{\circ}\text{C}$ in wet loading.

It is classified as SR-B2,0-AR0,5-IR4 according to EN13813.

Fields of application

DUROFLOOR-11 is used, with the addition of quartz sand with a particle size of 0,1-0,4 mm as a self-leveling epoxy flooring on cement-based floors that require extremely high mechanical or chemical resistance. It can also be used, without the addition of quartz sand, as a brushable coating on cement-based substrates, as well as for steel or iron surfaces. It is suitable for industrial areas, warehouses, stores, car workshops, super markets, laboratories, hotels, garages, gas stations, areas with heavy traffic etc.

Technical data

Basis:	two-component epoxy resin
Color:	RAL 7032 (sand grey) RAL 7040 (grey) other colors by special order

As a self-leveling epoxy flooring (with the addition of quartz sand (0.1-0.4 mm particle size) at a proportion of 1:1 by weight

Viscosity:	approx. 10.000 mPa·s at $+23^{\circ}\text{C}$
Density:	1.70 kg/l

Pot life:	approx. 40 min at $+20^{\circ}\text{C}$
Water absorption: (ASTM D 570)	0.25% w/w after 24 h
Reaction to fire (EN 13501-1):	E_{fl}
Minimum hardening temperature:	$+8^{\circ}\text{C}$
Hardness according to SHORE D:	80
Walkability:	after 24 h at $+23^{\circ}\text{C}$
Successive layer:	within 24 h at $+23^{\circ}\text{C}$
Final strength:	after 7 days at $+23^{\circ}\text{C}$
Abrasion resistance: (ASTM D 4060, TABER TEST, CS 10/1000/1000)	79.0 mg
Compressive strength: (ASTM D 695)	102.3 N/mm ²
Flexural strength: (DIN EN 196-1)	47 N/mm ²
Adhesive strength:	3 N/mm ² (breaking point of concrete)

As a brushable coating

Viscosity:	approx. 1.400 mPa·s at $+23^{\circ}\text{C}$
Density:	1.35 kg/l
Mixing ratio (A:B):	100:29 by weight
Pot life:	approx. 40 min at $+20^{\circ}\text{C}$
Water absorption: (ASTM D 570)	0.28% w/w after 24 h
Minimum hardening temperature:	$+8^{\circ}\text{C}$
Hardness according to SHORE D:	80
Walkability:	after 24 h at $+23^{\circ}\text{C}$

Successive layer:	within 24 h at +23°C
Final strength:	after 7 days at +23°C
Abrasion resistance: (ASTM D 4060, TABER TEST, CS 10/1000/1000)	77.0 mg
Compressive strength: (DIN EN 196-1)	53 N/mm ²
Flexural strength: (DIN EN 196-1)	33 N/mm ²
Adhesive strength:	3 N/mm ² (breaking point of concrete)

Cleaning of tools:
Tools should be cleaned with SM-12 solvent,
immediately after use.

Directions for use

1. Substrate preparation

The flooring surface should be:

- Dry and stable.
- Free of materials that prevent bonding, e.g. dust, loose particles, grease etc.
- Protected from underneath moisture attack.

Also, it should meet the following requirements:

a) Cementitious substrates:

Concrete quality:	at least C20/25
Cement screed quality:	cement content 350 kg/m ³
Age:	at least 28 days
Moisture content:	less than 4%

b) Iron or steel surfaces:

It should be free of rust or any corrosion that may prevent bonding.

Depending on the nature of the substrate, it should be prepared by brushing, grinding, sand blasting, water blasting, shot blasting, etc.

Then, the surface should be cleaned from dust with a high suction vacuum cleaner.

2. Priming

The surface is primed with DUROFLOOR-PSF or DUROPRIMER epoxy primers.
Consumption: 200-300 g/m².

After the primer has dried, any existing imperfections (cracks, holes) should be filled using DUROFLOOR 11 (A+B) mixed with quartz sand, with a particle size of 0.1-0.4 mm (or M32) at a proportion of 1:1.5 up to 1:2 by weight or using DUROFLOOR-PSF mixed with quartz sand, with a particle size of 0-0.4 mm (or Q35) at a proportion of 1:2 up to 1:3 by weight.

Metallic substrates should be primed with EPOXYCOAT-AC anti-corrosive epoxy coating.

DUROFLOOR 11 should be applied within 24 hours from priming.

In case DUROFLOOR 11 will be applied after the first 24 hours, quartz sand (0.4-0.8 mm particle size) should be spread on the surface, while the primer is still fresh, in order to ensure good bonding. After the primer has hardened, any loose grains should be removed with a high suction vacuum cleaner.

Wet substrate

In case the substrate contains humidity levels in excess of 4% or it is a fresh concrete substrate (3-28 days), it should be primed with the three-component, water-based primer DUROPRIMER-W.

3. Mixing of the components

Components A (resin) and B (hardener) are packed in two separate containers, having the correct predetermined mixing proportion by weight. At first, component A must be stirred well and poured into a clean container. Then, the whole quantity of component B is added into component A under continuous stirring. The two components should be mixed for about 5 minutes with a low speed mixer (300 rpm). It is important to stir the mixture thoroughly near the sides and bottom of the container, to achieve uniform dispersion of the hardener. In case of using DUROFLOOR 11 as a self-leveling epoxy flooring, quartz sand with 0.1-0.4 mm particle size (or M32) is gradually added into the mixture under continuous stirring, at a proportion of 1:1 by weight [epoxy resin (A+B):sand], until a uniform epoxy mortar is formed.

4. Application - Consumption

Depending on the required type of the epoxy floor and the form of the final surface, there are four cases of application:

a) Self-leveling flooring - Smooth final surface

The epoxy mortar is poured on the floor and spread (dragged) in a thickness of 2-3 mm, using a notched trowel.

Consumption of DUROFLOOR 11 (A+B):

0.85 kg/m²/mm.

Consumption of quartz sand: 0.85 kg/m²/mm.

The self-leveling layer should be rolled with a special spiked roller, to help entrapped air to escape, and thus avoid bubbles.

b) Self-leveling flooring - Slip-resistant final surface

At first, the epoxy mortar is applied in the same way as in the smooth surface case.

While the layer is still fresh, quartz sand is broadcast (0.1-0.4 mm or 0.4-0.8 mm particle size, depending on the required anti-slipping effect.)

Consumption of quartz sand: approx. 3 kg/m². After DUROFLOOR 11 has hardened, any loose grains should be removed with a high suction vacuum cleaner.

Finally, a finishing sealing layer of DUROFLOOR-11 (A+B) is applied by roller. Consumption: 400-600 g/m².

c) Brushable coating - Smooth final surface

DUROFLOOR 11 (A+B) is applied by roller in two layers. The second layer is applied after the first one has dried, but within 24 hours.

Consumption: Approx. 250-300 g/m²/layer.

d) Brushable coating - Slip-resistant final surface

DUROFLOOR 11 (A+B) is applied by roller in one layer.

Consumption: approx. 250-300 g/m².

While the layer is still fresh, quartz sand is broadcast (0.1-0.4 mm or 0.4-0.8 mm particle-size, depending on the desired anti-slip effect).

Consumption of quartz sand: approx. 3 kg/m². After DUROFLOOR 11 has hardened, any loose grains should be removed with a vacuum cleaner.

Finally, a finishing layer of DUROFLOOR-11 (A+B) is brushed.

Consumption: 400-600 g/m².

Packaging

DUROFLOOR 11 is supplied in packages (A+B) of 16 kg, with components A and B having a fixed pre-determined proportion by weight.

M32 quartz sand is supplied in bags of 25 kg.

Shelf-life - Storage

12 months from production date, if stored in original sealed packaging, in areas protected from humidity and direct sun exposure. Recommended storage temperature between +5°C and +35°C.

DUROFLOOR 11



Remarks

- The workability of epoxy materials is affected by temperature. The ideal temperature of application is between +15°C and +25°C, for which the product obtains optimal workability and curing time. Room temperature below +15°C will expand the curing time, while temperatures above +30°C will reduce it. It is recommended to mildly preheat the product in the winter, and store the product in a cool room before application in the summer.
- Bonding between successive layers may be severely affected by the intervention of moisture or dirt.
- Epoxy layers should be protected from moisture for 4-6 hours after application. Moisture may whiten the surface or/and make it sticky. It may also disturb hardening. Faded or sticky layers in parts of the surface should be removed by grinding or milling and laid again.
- In case the time between the application of successive layers is longer than predicted or in case old floors are going to be overlaid again, the surface should be thoroughly cleaned and ground before application of the new layer.
- After hardening, DUROFLOOR-11 is totally safe for health.
- Before application, consult the directions for safe use and precautions written on the package.

Volatile Organic Compounds (VOCs)

According to the Directive 2004/42/CE (Annex II, table A), the maximum allowed VOC content for the product subcategory j, type SB is 500 g/l (2010) for the ready-to-use product. The ready-to-use product DUROFLOOR-11 contains a maximum of 500 g/l VOC.



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08

EN 13813 SR-B2,0-AR0,5-IR4

Synthetic Resin screed material for use internally
in buildings

DoP No.: DUROFLOOR-11/1827-01

Reaction to fire: E_{fl}

Release of corrosive substances: SR

Water permeability : NPD

Wear resistance: AR0,5

Adhesion: B2,0

Impact resistance: IR4

Sound insulation: NPD

Sound absorption: NPD

Thermal resistance: NPD

Chemical resistance: NPD



DUROFLOOR 11



2032

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18

2032-CPR-10.11D

DoP No.: DUROFLOOR 11 / 1861-01

EN 1504-2

Surface protection products

Coating

Permeability to CO₂: Sd > 50m

Water vapor permeability: Class I (permeable)

Capillary absorption: $w < 0.1 \text{ kg/m}^2 \cdot \text{h}^{0.5}$

Adhesion: $\geq 0.8 \text{ N/mm}^2$

Reaction to fire: Euroclass F

Dangerous substances comply with 5.3

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