Construction

# Sikafloor®-161

## 2-part Epoxy Primer, Levelling Mortar, Intermediate Layer and Mortar Screed

### Product Description

**Sikafloor®-161** is an economic, two part, low viscosity epoxy resin.

Suitable for use in hot and tropical climatic conditions.

### Uses

- For priming concrete substrates, cement screeds and epoxy mortars
- For low to medium absorbent substrates
- Primer for the Sikafloor®-263 SL and Sikafloor®-264 economic flooring systems
- Binder for levelling mortars and mortar screeds
- Intermediate layer underneath Sikafloor®-263 SL and Sikafloor®-264

### Characteristics / Advantages

- Low viscosity
- Good penetration
- Excellent bond strength even on water saturated concrete
- Easy application
- Short waiting times
- Multi-purpose

## Tests

### Approval / Standards

Proof statement to determine the compatability of coating and water saturated concrete Report-No. P 5688 Polymer Institute, Germany, May 2009.

"Total solid epoxy composition acc. to the test method Deutsche Bauchemie e.V. (German Association for construction chemicals)"

ISEGA Certificate of Conformity 31964 U 11

## Product Data

### Form

Liquid

### Appearance / Colours

| | |
|---|---|
| Resin - part A: | Brownish-transparent |
| Hardener - part B: | Transparent |

### Packaging

| | |
|---|---|
| Part A: | 23.7 kg |
| Part B: | 6.3 kg |
| Part A+B: | 30 kg ready to mix unit |
| Part A: | 220 kg drums |
| Part B: | 177 kg, 59kg drums |
| Part A+B: | 1 Drum Part A (220 kg) + 1 drum Part B (59 kg) = 279 kg<br>3 Drums Part A (220 kg) + 1 Drum Part B (177 kg) = 837 kg |

## Storage

| | |
|---|---|
| **Storage Conditions** | Store in dry covered conditions in original sealed packaging and at temperatures between +5°C and +30°C. Protect from direct sunlight and heat. |
| **Shelf Life** | Minimum 24 months from date of production if stored properly in original, unopened and undamaged sealed packaging. |

## Technical Data

| | |
|---|---|
| **Chemical Base** | Epoxy |
| **Density (at +23°C)** | Part A: ~ 1.6 kg/lt<br>Part B: ~ 1.0 kg/lt<br>Mixed Resin: ~ 1.4 kg/lt (DIN EN ISO 2811-1) |
| **Solid Content** | ~ 100% (by volume) / ~ 100% (by weight) |

## Mechanical / Physical Properties

| | |
|---|---|
| **Compressive Strength** | Mortar screed*: ~ 45 N/mm$^2$ (28 days / +23°C / 50% r.h.) (EN 13892-2)<br>*Mortar screed: SR-161 mixed 1:10 with filler |
| **Flexural Strength** | Mortar screed: ~ 15 N/mm$^2$ (28 days / +23°C / 50% r.h.) (EN 13892-2) |
| **Bond Strength** | > 1.5 N/mm$^2$ (failure in concrete) (ISO 4624) |
| **Shore D Hardness** | ~ 76 (7 days / +23°C) (DIN 53 505) |
| **Thermal Resistance** | |

| Exposure* | Dry heat |
|---|---|
| Permanent | +50°C |
| Short-term max. 7 days | +80°C |
| Short-term max. 12 hrs | +100°C |

Short-term moist/wet heat* up to +80°C where exposure is only occasional (steam cleaning etc.).

*No simultaneous chemical and mechanical exposure and only in combination with Sikafloor® systems as a broadcast system with approx. 3 - 4 mm thickness

| | |
|---|---|
| **USGBC LEED Rating** | **Sikafloor®-161** conforms to the requirements of LEED EQ Credit 4.2: Low-Emitting Materials: Paints & Coatings<br>SCAQMD Method 304-91 VOC Content < 100 g/lt |

## System Information

**System Structure**

*Primer:*
Low / medium porosity concrete: 1-2 x **Sikafloor®-161**

*Levelling mortar fine (surface roughness < 1 mm):*
Primer: 1-2 x **Sikafloor®-161**
Levelling mortar: 1 x **Sikafloor®-161** + quartz sand (0.1 - 0.3 mm) + Extender T

*Levelling mortar medium (surface roughness up to 2 mm):*
Primer: 1-2 x **Sikafloor®-161**
Levelling mortar: 1 x **Sikafloor®-161** + quartz sand (0.1 - 0.3 mm) + Extender T

*Intermediate layer (self-smoothing 1.5 to 3 mm):*
Primer: 1 x **Sikafloor®-161**
Levelling mortar: 1 x **Sikafloor®-161** + quartz sand (0.1 - 0.3 mm)

*Epoxy screed (15 - 20 mm layer thickness ) / repair mortar*
Primer: 1-2 x **Sikafloor®-161**
Bonding bridge: 1 x **Sikafloor®-161**
Screed: 1 x **Sikafloor®-161** + suitable sand mixture

In practice the following sand mixtures proved to be suitable (grain size distribution for layer thicknesses of 15 - 20 mm):

25 pbw quartz sand 0.1 - 0.5 mm
25 pbw quartz sand 0.4 - 0.7 mm
25 pbw quartz sand 0.7 - 1.2 mm
25 pbw quartz sand 2 - 4 mm

Note: The largest grain size should be a maximum 1/3 of the finished layer thickness. Dependent on the grain shape and application temperatures, the aggregates and the most suitable mix should be selected.

## Application Details

**Consumption / Dosage**

| Coating System | Product | Consumption |
|---|---|---|
| Priming | 1- 2 x **Sikafloor®-161** | 1-2 x 0.35 - 0.55 kg/m$^2$ |
| Levelling mortar fine (surface roughness < 1 mm) | 1 pbw **Sikafloor®-161** + 0.5 pbw quartz sand (0.1 - 0.3 mm) + 0.015 pbw Extender T | 1.7 kg/m$^2$/mm |
| Levelling mortar medium (surface roughness up to 2 mm) | 1 pbw **Sikafloor®-161** + 1 pbw quartz sand (0.1 - 0.3 mm) + 0.015 pbw Extender T | 1.9 kg/m$^2$/mm |
| Intermediate layer (self-smoothing 1.5 to 3 mm) | 1 pbw **Sikafloor®-161** + 1 pbw quartz sand (0.1 - 0.3 mm)<br>+ optional broadcast quartz sand 0.4 – 0.7 mm | 1.9 kg/m$^2$/mm<br>~ 4.0 kg/m$^2$ |
| Bonding bridge | 1- 2 x **Sikafloor®-161** | 1- 2 x 0.3 - 0.5 kg/m$^2$ |
| Epoxy screed (15 - 20 mm layer thickness ) / Repair Mortar | 1 pbw **Sikafloor-161** + 8 pbw quartz sand | 2.2 kg/m$^2$/mm |

Note: These figures are theoretical and do not allow for any additional material required due to surface porosity, surface profile, variations in level or wastage etc.

| | |
|---|---|
| **Substrate Quality** | Concrete substrates must be sound and of sufficient compressive strength (minimum 25 N/mm$^2$) with a minimum pull off strength of 1.5 N/mm$^2$.<br>The substrate must be clean, dry and free of all contaminants such as dirt, oil, grease, coatings and surface treatments, etc.<br>On critical substrates, e.g a strong absorbent cementitious surface, the application of a trial area is highly recommended, in order to ensure a porefree surface, after priming. |
| **Substrate Preparation** | Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface.<br>Weak concrete must be removed and surface defects such as blowholes and voids must be fully exposed.<br>Repairs to the substrate, filling of blowholes/voids and surface levelling must be carried out using appropriate products from the Sikafloor®, SikaDur® and SikaGard® range of materials.<br>The concrete or screed substrate has to be primed or levelled in order to achieve an even surface.<br>High spots must be removed by e.g. grinding.<br>All dust, loose and friable material must be completely removed from all surfaces before application of the product, preferably by brush and/or vacuum. |

## Application Conditions / Limitations

| | |
|---|---|
| **Substrate Temperature** | +10°C min. / +35°C max. |
| **Ambient Temperature** | +10°C min. / +35°C max. |
| **Substrate Moisture Content** | < 6% pbw moisture content using the Sika® - Tramex meter (at the time of application).<br>Please note that the moisture content must be < 4 % pbw when using the CM-measurement or Oven-dry-method.<br>Test method: Sika®-Tramex meter, CM - measurement or Oven-dry-method.<br>No rising moisture according to ASTM (Polyethylene-sheet). |
| **Relative Air Humidity** | 80% r.h. max. |
| **Dew Point** | Beware of condensation!<br>The substrate and uncured floor must be at least 3°C above dew point to reduce the risk of condensation or blooming on the floor finish.<br>Note: Low temperatures and high humidity conditions increase the probability of blooming. |

## Application Instructions

| | |
|---|---|
| **Mixing** | Part A : part B = 79 : 21 (by weight) |
| **Mixing Time** | Prior to mixing, stir part A mechanically. When all of part B has been added to part A, mix continuously for 3 minutes until a uniform mix has been achieved.<br>When parts A and B have been mixed, add the quartz sand and if required the Extender T and mix for a further 2 minutes until a uniform mix has been achieved.<br>To ensure thorough mixing pour materials into another container and mix again to achieve a consistent mix.<br>Over mixing must be avoided to minimise air entrainment. |
| **Mixing Tools** | **Sikafloor®-161** must be thoroughly mixed using a low speed electric stirrer (300 - 400 rpm) or other suitable equipment.<br>For the preparation of mortars use a forced action mixer of rotating pan, paddle or trough type. Free fall mixers should not be used. |

**Application Method / Tools**

Prior to application, confirm substrate moisture content, relative humidity and dew point.

If > 4% pbw moisture content, Sikafloor® EpoCem® may be applied as a T.M.B. (temporary moisture barrier) system.

*Primer:*
Make sure that a continuous, pore free coat covers the substrate. If necessary, apply two priming coats. Apply **Sikafloor®-161** by brush, roller or squeegee. Preferred application is by using a squeegee and then backrolling crosswise.

*Levelling mortar:*
Rough surfaces need to be levelled first. Apply the levelling mortar by squeegee/trowel to the required thickness.

*Intermediate layer:*
**Sikafloor®-161** is poured then spread evenly by means of a serrated trowel. Roll immediately in two directions with spiked roller to ensure even thickness and if required broadcast with quartz sand, after about 15 minutes (at +20°C) but before 30 minutes (at+20°C), at first lightly and then to excess.

*Bonding bridge:*
Apply **Sikafloor®-161** by brush, roller or squeegee.
Preferred application is by using a squeegee and then backrolling crosswise.

*Epoxy screed / repair mortar:*
Apply the **Sikafloor®-161** mortar screed evenly on the still "tacky" bonding bridge, using levelling battens and screed rails as necessary. After a short waiting time compact and smoothen the mortar with a trowel or Teflon coated powerfloat (usually 20 - 90 rpm).

**Cleaning of Tools**

Clean all tools and application equipment with Sika® Thinner C immediately after use. Hardened and/or cured material can only be removed mechanically.

**Potlife**

| Temperature | Time |
|---|---|
| +10°C | ~ 50 minutes |
| +20°C | ~ 25 minutes |
| +30°C | ~ 15 minutes |

**Waiting Time / Overcoating**

Before applying solvent free products on **Sikafloor®-161** allow:

| Substrate temperature | Minimum | Maximum |
|---|---|---|
| +10°C | 24 hours | 4 days |
| +20°C | 12 hours | 2 days |
| +30°C | 8 hours | 24 hours |

Before applying solvent containing products on **Sikafloor®-161** allow:

| Substrate temperature | Minimum | Maximum |
|---|---|---|
| +10°C | 36 hours | 6 days |
| +20°C | 24 hours | 4 days |
| +30°C | 16 hours | 2 days |

Times are approximate and will be affected by changing ambient conditions particularly temperature and relative humidity.

**Notes on Application / Limitations**

Do not apply **Sikafloor®-161** on substrates with rising moisture.

Freshly applied **Sikafloor®-161** should be protected from damp, condensation and water for at least 24 hours.

**Sikafloor®-161** mortar screed is not suitable for frequent or permanent contact with water unless sealed.

Practical trials should be carried out for mortar mixes to assess suitable aggregate grain size distribution.

For external applications, apply on a falling temperature. If applied during rising temperatures “pin holing” may occur from rising air.

These pinholes can be closed after a soft grinding by applying a scratch coat of **Sikafloor®-161** mixed with approx. 3 % of Extender T.

Construction joints require pre-treatment. Treat as follows:
- Static Cracks: prefill and level with SikaDur® or Sikafloor® epoxy resin
- Dynamic cracks: to be assessed and if necessary apply a stripe coat of elastomeric material or design as a movement joint

The incorrect assessment and treatment of cracks may lead to a reduced service life and reflective cracking.

Under certain conditions, underfloor heating or high ambient temperatures combined with high point loading, may lead to imprints in the resin.

If heating is required do not use gas, oil, paraffin or other fossil fuel heaters, these produce large quantities of both $CO_2$ and $H_2O$ water vapour, which may adversely affect the finish. For heating use only electric powered warm air blower systems.

## Curing Details

**Applied Product ready for use**

| Temperature | Foot traffic | Light traffic | Full cure |
|---|---|---|---|
| +10°C | ~ 24 hours | ~ 6 days | ~ 10 days |
| +20°C | ~ 12 hours | ~ 4 days | ~ 7 days |
| +30°C | ~ 8 hours | ~ 2 days | ~ 5 days |

Note: Times are approximate and will be effected by changing ambient conditions.

Construction

| | |
|---|---|
| **Value Base** | All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control. |
| **Local Restrictions** | Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields. |
| **Health and Safety Information** | For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data. |
| **Legal Notes** | The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request. |

All products are manufactured under a management system certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and OHSAS 18001.


Sika UAE L.L.C
P.O. Box 126212
Dubai,
United Arab Emirates
Phone: +971 4 4398200
info@ae.sika.com
http://gcc.sika.com

Sika Gulf B.S.C (c)
P.O. Box 15776
Adliya,
Kingdom of Bahrain
Phone: +973 17738 188
sika.gulf@bh.sika.com
http://gcc.sika.com

Sika Saudi Arabia Co. Ltd
P.O. Box 112356,
Jeddah 21371,
Saudi Arabia
Phone: +966 2 692 7079
jeddah@sa.sika.com
http://gcc.sika.com