

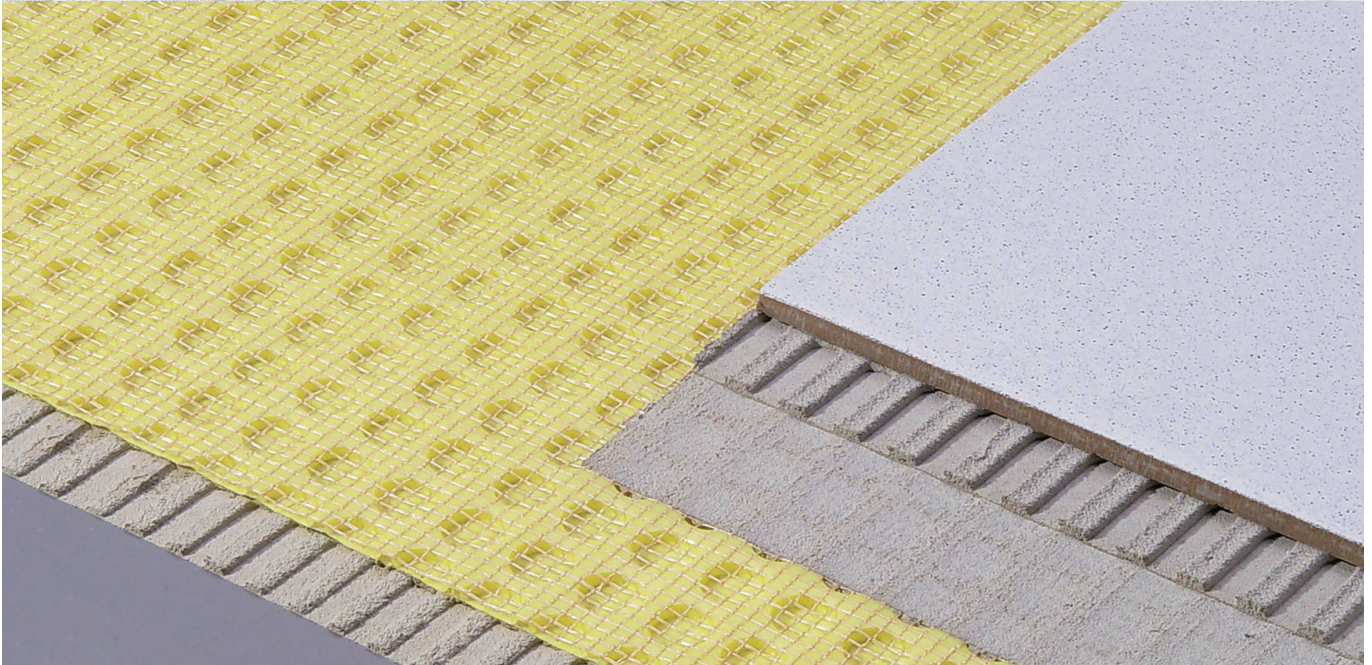
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# DURABASE CI

1/5

## Underlay mats for decoupling and sealing tiled flooring

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### THE PROBLEMS:

#### 1. Cracks in foundations

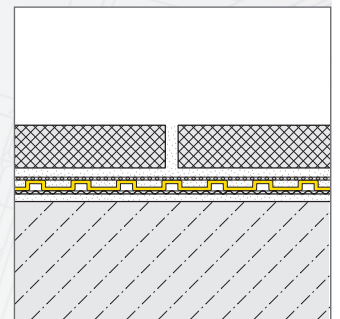
When renovating older surfaces, cracks can be present in the foundations, making it impossible to install a safely watertight new tiled surface.

#### 2. Stresses in foundations

In the foundation beneath the flooring it is possible for tensions to appear in materials, depending on the design and the kind of materials they are. These can then be transferred to the tiling and cause cracks to appear in it. For instance, with concrete, even after six months or after many years of expansion and contraction, deformation can occur. Cement and hot screed surfaces can also change after tiles have been laid. Chipboard or plywood too can deform considerably due to absorption of moisture.

#### 3. Damp from below

When laying on top of anhydrite screed, residual moisture from the screed itself can collect under the tiles and damage the adhesive layer.



### APPLICATIONS AND FUNCTION

DURABASE CI matting in conjunction with tiles serves to decouple the tiles and bridge any cracks. It also allows water vapour pressure to be compensated for if there is residual moisture.

DURABASE CI decouples the flooring from the foundations. Any cracks can also be bridged so that they do not affect the tiling. This makes it ideal for renovation work.

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## Underlay mats for decoupling and sealing tiled flooring

At abutting junctions we recommend the use of WPF sealing tape.

Due to the structure of the matting (nodules) channels are created, which can act to equalise water vapour pressures.

With DURABASE CI the distribution of weight is handled by the texturing, which is filled in by thin-bed mortar. This means that loads can be spread out over the floor so that the tiles can withstand more stress if their thickness is sufficient. In very busy and highly stressed areas, the thickness of the tiles and their resistance to pressure needs to be selected appropriately for the location (at least 13 mm thick or more depending on the application, for Germany see the ZDB data sheet "Ceramic flooring subject to severe mechanical stresses").

### Material properties and uses on various types of foundation

DURABASE CI mats are made of yellow polythene with a grid of texturing nodules and a supporting polypropylene fleece layer on the back. This combination means the matting is resistant to most chemicals (e.g. salts, acids, alkalis, solvents and oils, although when the locations are seriously at risk from chemicals, it is recommended that a professional assessment be made for the use of the mats).

For specific peculiarities depending on the situations, it is recommended that a professional assessment be made for the use of the mats with regard to the expected concentrations, temperatures and durations of exposure.

Decoupled flooring layers can sound different when walking on them with hard soles or heels.

According to DIN-EN 12004C2, the thin-bed mortar being used for the flooring material must be suitable for the required usage. Outdoors, specific attention should also be paid to whether the material is resistant to heat and frost. Furthermore, it may be necessary to use special protection when laying flooring outdoors.

DURABASE CI needs to be divided into areas with expansion joints in accordance with the valid stipulations. The expansion joints in the tiling need to match those already existing. We recommend using junction profiles from the DURAFLEX range for this. Expansion joints should also be laid in decoupled floors as area perimeters, edging and junctions.

On floating screed expansion joints are required at all door thresholds, in areas in excess of 60 m<sup>2</sup> in size or where a side of the area exceeds 8 m in length, wherever there is serious cracking in the floor surface, above existing building expansion joints and so on. For calcium sulphate screed, the stipulations of the respective screed manufacturer should be observed. Otherwise the relevant data sheets provided by the "tiling and natural stone" trade association should apply.

When the mats have just been laid, it is recommended that boards be laid over them if they need to be walked on. This should prevent damage.

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### SUITABLE FOUNDATIONS

#### Cement screed

Cement screed must be at least 28 days old before the laying of tiles in accordance with the applicable regulations and the residual moisture should be no greater than 2%. Hot screed and floating screed, though, both tend to deform and crack at a later date. DURABASE CI allows tiles to be laid on top of screed as soon as it is possible to walk on it (when the residual moisture is about 4 %).

#### Calcium sulphate screed (anhydrite screed)

Calcium sulphate screed may only have a maximum of 0.5% residual moisture according to the applicable regulations. DURABASE CI makes it possible to lay tiles over calcium sulphate screed as soon as it has a residual moisture content of less than 2%. The surface of the screed needs to be prepared prior to the laying of tiles (smoothing, priming, etc.) and both professional regulations and the manufacturers' stipulations need to be observed. To adhere the DURABASE CI mats to the ground, water-based thin-bed mortar is recommended. Since calcium sulphate screed is sensitive to damp, DURABASE CI protects the surface from any further entry of moisture.

#### Hot screed

DURABASE CI can also be used on hot screed if the aforementioned instructions are observed (for cement and calcium sulphate). The screed must be heated before DURABASE CI mats are laid. The air channels formed by the DURABASE CI mats provide for rapid and uniform distribution of heat under the tiling. DURABASE CI is also suitable for the installation of direct underfloor heating.

#### Melted asphalt screed

Before laying DURABASE CI mats on standardised melted asphalt screed, either indoors or outdoors, the surfaces need to be sanded down or of a surface texture that allows for sufficient adhesion for the thin bed mortar used to adhere the DURABASE CI underlay. The ZDB information sheet, "melted asphalt screed" should be observed. Trowelling to even up the surface should only be done using trowels of suitable dimensions with restrictions on the thickness of layers.

#### Concrete

Concrete undergoes protracted deformation due to shrinkage. Both normal and pre-stressed concrete can also undergo tension due to bending. DURABASE CI evens out the stresses between concrete and tiles due to shrinkage, meaning that tiles can be laid as soon as the concrete has become sufficiently hard, as long as the poured cement is of an adequately high quality classification.

#### Plastic flooring and laminates

The surfaces must be able to support weight and be sufficiently well bonded to the foundation. They also need to be of such surface texture that a suitable adhesive can bond to it and anchor to the fleece backing of the DURABASE CI underlay. Checks should be made in advance to ensure that the adhesive is compatible with the foundation and with the CI matting.

#### Plywood and chipboard

These materials are particularly subject to deformation due to the effects of moisture on them (including severe fluctuations in atmospheric humidity). The plywood or chipboard used should be treated against absorption of water. The boards should be chosen so that they are thick enough

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to retain their shape and resist loading to a sufficient extent in conjunction with the relevant flooring base. They should be secured by screwing them down at appropriate intervals. They should butt together with tongue and groove joints that need to be glued. Approximately 10 mm of space needs to be left between the edges and any adjoining walls or fittings. DURABASE CI evens out horizontal stresses and provides protection against damp.

### Floorboards

As long as the floorboards are screwed down, level and sufficiently able to bear weight, tiles can be laid directly on top of them. A balanced moisture level of about 15% needs to be ensured before DURABASE CI underlay is laid. It is recommended that an additional layer of plywood or chipboard be added. Uneven places need to be smoothed out directly on the wooden foundation using a trowel of suitable dimensions.

### Balconies and terraces

The tensions occurring outdoors due to temperature changes can be compensated for by DURABASE CI. The foundations will be protected from moisture if installation is made in conjunction with DURABASE WP or WPFB tape. The gradient of the floor must be of sufficient magnitude (approx. 2%). If existing flooring is firm, sufficiently able to bear weight and possessed of a sufficient gradient, then it is possible to build directly on this surface. If this is not the case, loose material should be removed before adhering the DURABASE CI mats and broken patches or the lack of gradient need to be made good using suitable mortar.

For roof terraces the applicable rules for roofing work need to be observed as well. The installation thus needs to have a suitable damp course, heat insulation layer, sealing and floor covering planned and implemented.

## INSTALLATION

**1.** The floor making up the foundation must be free of any material that would impair adhesion. It must be level and able to bear weight. Any evening out to be done must be completed before DURABASE CI is laid.

The adhesive is chosen depending on the nature of the foundation. The adhesive must bond to the foundation and to the backing fleece of the DURABASE CI mats. For most surfaces a water-based thin-bed mortar can be used. The mortar is applied to the foundation using a serrated trowel (4 x 4 mm or 6 x 6 mm recommended).

**2.** Having been cut to size, the rolls must quickly be laid over the entire surface with the fleece backing on the adhesive. The rolls can be pushed into place using a roller or other suitable tool. Make sure this is done before the adhesive is dry. To avoid damage to the rolls being laid, it is recommended that they be protected from loading by laying boards on them. Other protective measures may be necessary, too, e.g. protection from direct sunlight or rain in outdoor locations. Any water collecting in the texturing must be removed before applying thin-bed mortar.

**3.** Always cover over junctions between mats with DURABASE WP or DURABASE WPFB tape.

## Underlay mats for decoupling and sealing tiled flooring



4. As soon as the DURABASE CI matting has been laid, tiles can be laid on top of it using a thin-bed technique and a thin-bed mortar appropriate to the flooring. Practically, it is advisable to apply mortar to the round depressions in one working step and then apply thin-bed mortar and roughen it in another. The work can also be done in such a way that the application of the top mortar layer only starts after the initial application has hardened. The tiles must be embedded in the mortar to cover the entire surface. The depth of the serrations on the trowel must be appropriate to the tile format. Make sure this is all done before the adhesive is dry. For flooring out of doors, the laying of tiles should only begin after the mortar for the CI underlay has properly hardened.

Where expansion joints are used to delineate areas, edges and junctions, professional regulations should be observed. Flooring outdoors or any flooring subject to heavy loading should be laid using a combined installation procedure.

### Note:

By reason of design DURABASE-CI mats are not suitable for laying under thin or large-format floor tiles („Slimline tiles“). There is a risk of them breaking.

DURABASE CI – when laying underlay mats on balconies or patios in high summer temperatures, the mats need to be protected by some means in order to prevent them becoming unglued or buckling while the adhesive is hardening. For better results when installing the mats, it is better to lay them in the cooler hours of the evening and then to lay tiles on top the following morning.

Data sheet downloads. The latest versions of the technical data sheets are available on the internet at [www.dural.de](http://www.dural.de). If need be, you can also order them in printed form, of course.

(Read our detailed installation instructions by downloading the PDF file)

### PRODUCT DATA:

<b>PRODUCT:</b>	CI decoupling mat
<b>MATERIAL:</b>	Textured foil = HDPE, Backing fleece = PP
<b>MATERIAL THICKNESS:</b>	0.5 mm approx.
<b>HEIGHT OF MATS:</b>	3 mm
<b>WIDTH OF ROLL:</b>	100 cm
<b>LENGTH OF ROLL:</b>	5 / 10 / 25 / 30 m
<b>COMPRESSIVE STRENGTH:</b>	350 kN/m <sup>2</sup> approx.
<b>TENSILE STRENGTH:</b>	610 N approx. (5 cm)
<b>TEMPERATURE RANGE:</b>	- 40 °C to + 80 °C
<b>COLOUR OF MATS:</b>	Textured foil = yellow, backing fleece = white
<b>MATERIAL PROPERTIES:</b>	Resistant to chemicals, decay, fungus und bacteria
<b>APPLICATIONS:</b>	Underlay matting for decoupling and compound sealing of tiled floors

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