Keralastic and Keralastic T

Two-component, high performance, polyurethane adhesives for ceramic tiles and stone material

CLASSIFICATION IN COMPLIANCE WITH EN 12004

Keralastic is an improved (2) reaction resin adhesive (R) as class R2.

Keralastic T is an improved (2) reaction resin adhesive (R) and slip resistant (T) as class R2T.

Keralastic + Keralastic T are CE approved, as marked in ITT certificates n° 25040320/Gi (TUM) and n° 25040471/Gi (TUM) respectively, issued by the Technische Universität München laboratory (Germany).

WHERE TO USE

Indoor and outdoor, wall and floor bonding of ceramic tiles, stone material and mosaics of all types on:

• screeds, renders, concrete, asphalt, wood, metal, PVC, reinforced polyester, asbestos-cement, gypsum, gypsum board, gypsum panels, etc.

Some application examples

• Bonding ceramic tiles, stone material and all types of mosaics in showers and on sheets used for prefabricated bathrooms.

• Bonding ceramic tiles and mosaics on wooden work surfaces or kitchens in order to achieve a waterproof substrate.

• Bonding ceramic tiles, stone material and mosaics on balconies, external terraces, flat roofs subject to foot traffic or domes.

• Bonding natural stones and reconstructed stone (marble of every type, slate, etc.) also subject to movement and size variation due to the absorption of water (class C of size stability according to MAPEI standards).

• Bonding ceramic tiles and stone material on surfaces subject to vibrations and deflections.

TECHNICAL CHARACTERISTICS

Keralastic and Keralastic T are two-component solvent and water free adhesives which are flexible and waterproof. They are made up of a polyurethane base (Part A) and a special hardener (Part B).

On mixing the two parts together, the result is a paste with the following properties:

• easy workability;

• excellent durability and resistant to ageing;

• perfect adhesion on all surfaces used in building;

• hardens by chemical reaction without shrinkage (until it becomes highly resistant);

• high deformability;

• in the case of Keralastic T, highly thixotropic: it can be applied vertically without slump and without letting even heavy or large tiles slip. The slipping strength is in compliance with EN 1308.

RECOMMENDATIONS

• Do not use on very damp surfaces or where there is a risk of rising damp.

• The packs are pre-measured, therefore mixing errors are impossible. Do not use partial quantities. A wrong mixing ratio could cause damage during the curing process.
• Use the products in temperatures between +10°C and +30°C.

• In case of use on surfaces subject to continuous immersion in water, consult the Mapei technical services beforehand.

APPLICATION PROCEDURE
Preparing the substrates
The substrates must be cured, mechanically strong, free of loose particles, grease, oil, paint, wax and be sufficiently dry.

Cement substrates must not be subject to shrinkage after the installation of the tiles. During spring and summer renders must be cured for at least one week for every centimetre of thickness and cementitious screeds must be cured for at least 28 days, unless they have been made with MAPEI special binders for screeds such as Mapecem, Mapecem Pronto, Topcem or Topcem Pronto. Where this is not observed, the adhesion of Keralastic and Keralastic T to the substrate will be greatly compromised.

Rust on iron surfaces must be removed by sandblasting. It is recommended to reinforce gypsum, gypsum board and anhydrite substrates with a coat of Primer EP or Primer MF.

Preparing the mix
The two components of Keralastic and Keralastic T are supplied in ready-to-mix cans:

• Part A: grey or white, 94 parts by weight;
• Part B: transparent straw, 6 parts by weight.

The ratio of the resin (part A) and the hardener (part B) is fixed and any modification could cause incorrect hardening of the product.

Pour the hardener (part B) into part A and mix well until a uniform grey or white paste is obtained. It is advisable to use a low speed electric stirrer to ensure perfect mixing and avoid overheating the mix, which would reduce the working time. Use the mix within 30-40 minutes of mixing.

Applying the mix
Apply on the substrate a uniform layer of Keralastic or Keralastic T with a notched trowel. Choose a trowel that will give a coverage to the back of the tiles of at least 65-70% (see “Consumption”).

For exterior installations, the tile backs must be completely covered with the adhesive. When both waterproofing and bonding are required, for example on wooden kitchen working benches, one of two procedures may be followed:

• spread Keralastic on the substrate with a flat trowel to a thickness of at least 2 mm; then rework the surface with a notched trowel so as to line it all over, but without reducing the thickness to less than 1 mm. This thickness must be maintained even after the tiles have been installed, especially when the tile backs have high lugs or ribs;

• spread Keralastic with a flat trowel to a uniform thickness of 1 mm for waterproofing and, after hardening (in any case within 24 hours), apply a second layer of Keralastic with a notched trowel.

Installing the tiles
Tiles must be absolutely dry. Place firm pressure to the tiles to ensure good contact and covering of the back. If the layer of fresh Keralastic or Keralastic T is also to act as a waterproofing membrane, make sure that any ribs and lugs do not go through the layer.

If Keralastic or Keralastic T is used for installing on particularly deformable substrates, all coverings larger than 5x5 cm must be installed with wide joints.

The open time of Keralastic and Keralastic T under normal temperature and moisture conditions is approximately 30 minutes.

Any adjustment must be carried out within 90 minutes of installation.

The setting time is strictly tied to the ambient temperature (see table below).

Setting time of Keralastic and Keralastic T in relation to the temperature:

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>30</th>
<th>25</th>
<th>20</th>
<th>15</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time (hours)</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>20</td>
</tr>
</tbody>
</table>

GROUTING AND SEALING
Joints between the tiles can be grouted after 12 hours with the appropriate MAPEI cementitious or epoxy grouts, available in different colours.

Expansion joints must be sealed with the special MAPEI sealants.

SET TO LIGHT FOOT TRAFFIC
Floors are set to light foot traffic after 12 hours.

READY FOR USE
Surfaces are ready for use after 7 days.

Cleaning
Tools, buckets and clothes can be easily cleaned with alcohol before hardening sets in. Hardened Keralastic can be cleaned mechanically or with Pulicol.

CONSUMPTION
Bonding of ceramics and stone material:
– Mosaics and small size tiles (trowel No. 4): 2.5 kg/m²
– Normal size tiles (trowel No. 5): 3.5 kg/m²
– Large size tiles, marble, stones (back buttering): 5 kg/m²

PACKAGING
Keralastic and Keralastic T are available in double metal drums of:
10 kg (9.4 kg/m² Part A + 0.6 kg/m² Part B);
5 kg (4.7 kg/m² Part A + 0.3 kg/m² Part B).

STORAGE
Keralastic and Keralastic T are stable for at least 24 months when stored in sealed drums. Part B (hardener) must be stored in warm place to avoid crystallisation during cold weather (at least at +10°C). Should crystallisation occur, re-dissolve by warming before use. Stir the product before use.
### TECHNICAL DATA (typical values)

In compliance with:
- European EN 12004 as R2, R2T
- ISO 13007-1 as R2, R2T
- American ANSI A 118.5 – 1999
- Canadian 71 GP 29 M

### PRODUCT IDENTITY

<table>
<thead>
<tr>
<th></th>
<th>part A</th>
<th>part B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency:</td>
<td>thick paste</td>
<td>fluid liquid</td>
</tr>
<tr>
<td>Colour:</td>
<td>Keralastic white - grey</td>
<td>Keralastic T straw transp.</td>
</tr>
<tr>
<td>Density (g/cm³):</td>
<td>Keralastic 1.50</td>
<td>Keralastic T 1.56</td>
</tr>
<tr>
<td></td>
<td>Keralastic 0.93</td>
<td>Keralastic T 0.93</td>
</tr>
<tr>
<td>Dry solid content (%):</td>
<td>97</td>
<td>100</td>
</tr>
<tr>
<td>Brookfield viscosity (mPa·s):</td>
<td>Keralastic 800000 (# F- rpm 2.5)</td>
<td>Keralastic T 1800000 (# F- rpm 2.5)</td>
</tr>
<tr>
<td></td>
<td>(# 1- rpm 50)</td>
<td>(# 1- rpm 50)</td>
</tr>
<tr>
<td>Storage:</td>
<td>24 months in a dry place in original packaging. Store part A at least at +10°C to avoid crystallisation of the product, which is anyway reversible.</td>
<td></td>
</tr>
<tr>
<td>Hazard classification according to EC 1999/45:</td>
<td>irritant</td>
<td>corrosive</td>
</tr>
<tr>
<td>Customs class:</td>
<td>3506 91 00</td>
<td></td>
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</tbody>
</table>

### APPLICATION DATA at +23°C and 50% R.H.

- **Mix ratio by weight:** part A : part B = 94 : 6
- **Consistency of mix:** very viscous
- **Density of mix (kg/m³):**
  - Keralastic 1450
  - Keralastic T 1520
- **Brookfield Viscosity (mPa·s):**
  - Keralastic 400000 (# F- rpm 2.5)
  - Keralastic T 800000 (# F- rpm 2.5)
- **Pot life:** 30-40 minutes
- **Application temperature range:** from +10°C to +30°C
- **Open time (according to EN 1346):** 50 minutes
- **Adjustability time:** 90 minutes
- **Setting time:**
  - initial: 6 hours
  - final: 8 hours
- **Set to light foot traffic:** 12 hours
- **Ready for use:** 7 days

### FINAL PERFORMANCES

- **Shear adhesion strength according to EN 12003 (N/mm²):**
  - initial shear adhesion strength: 2.6
  - shear adhesion strength after water immersion: 2.0
  - shear adhesion strength after thermal shock: 2.4
- **Resistance to ageing:** high
- **Resistance to solvents and oils:** good
- **Resistance to acids and alkalis:** good
- **Resistance to temperature:** from −40°C to +100°C
- **Deformability:** highly deformable
SAFETY INSTRUCTIONS FOR PREPARATION AND INSTALLATION

Keralastic and Keralastic T part A is irritating in direct contact with eyes and skin.

Keralastic and Keralastic T part B is a strongly caustic and harmful substance in direct contact with the skin and if swallowed. Both components of Keralastic and Keralastic T can cause sensitisation to those predisposed. Avoid any type of contact with the skin by always wearing protective gloves when using the product. When adding part B and during mixing wear protective gloves and goggles. In case of contact with the skin, wash with plenty of water and soap and if there should be any sensitivity of the skin, consult a doctor. In case of contact with the eyes, wash with plenty of water and consult a doctor.

Keralastic and Keralastic T are dangerous for aquatic organisms: do not release into the environment.

PRODUCT FOR PROFESSIONAL USE.

WARNING

Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical applications: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product.

All relevant references for the product are available upon request and from www.mapei.com

VOLATILE ORGANIC COMPOUND (VOC) LEVEL

Type of Regulated Adhesives under the Air Pollution Control (Volatile Organic Compounds) Regulation of Hong Kong: [Ceramic tile adhesives]

Keralastic
VOC content (ready to use) = 38 g/litre

Keralastic T
VOC content (ready to use) = 40 g/litre