GROUTS AND SEALANTS

for installing ceramic tiles and stone material
HIGH PERFORMANCE, DURABLE, HYGIENIC, DIRT- AND MOULD-PROOF GROUTS AND SEALANTS, FOR EASY-TO-CLEAN, SOUND FLOOR AND WALL COVERINGS. MAPEI GROUTS COME IN THE PERFECT COLOUR FOR EVERY SETTING
# GROUNTS AND SEALANTS
for installing ceramic tiles and stone material

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Mont Blanc SkyWay, Courmayeur, Italy
Elegant marble floors, porcelain with a design finish, refined mosaics: every type of covering is more complete with the right grouting. A technical detail that plays a key role in the **functionality and durability of surfaces** which, at the same time, offers us the **chance to be creative** and to create an ambience with its own unique character and personality.

Through its extensive **range of coloured grouts**, **Mapei** has found the way to meet the requirements of such a well-established market, the ceramics and natural stone market, which is **in constant evolution** with the development and introduction of new materials, new tile formats and increasingly higher expectations in terms of functionality and aesthetics.

From refined, elegant spaces in hotels and public spaces to damp surroundings such as bathrooms and swimming pools, from façades covered with large format stone and porcelain tiles to commercial and industrial settings used by intense levels of traffic and exposed to aggressive chemicals: **Mapei** has the capacity to propose the most appropriate solution for any situation and to guarantee **performance properties, durability and aesthetics while safeguarding the healthiness of the surroundings**, in line with the concept of a more sustainable building industry.
Classification of mortars for grouting ceramic and stone material according to EN 13888 standard

As with adhesive, a grouting product must be chosen so that it meets well defined requirements which vary according to where it is being installed, its final type of use and the type of covering material. Euronorm EN 13888 divides grouting mortars into cementitious grouts (CG) and epoxy grouts (RG). Cementitious grouts are divided into two main classes CG1 (normal) and CG2 (improved), which are followed by special classes A (high abrasion resistance) and W (low water absorption).

**Cementitious grouting mortars**

**Normal (CG1)**
They may be considered sufficient for installing ceramic or porcelain tiles not subject to excessive variations in temperature and humidity in residential and commercial environments.

**Improved (CG2)**
Specially developed to adapt to various site conditions, they have numerous advantages compared with class CG1 grouts:

- **Resistance to temperature variations**
  (installation on heating substrates or exterior substrates).
- **Good compatibility with deformable adhesives**
  (such as when installing large-format tiles).

In addition to traditional applications, they are therefore recommended for areas subject to high humidity and thermal shocks or intense traffic, conditions typically found in high-intensity commercial and industrial environments.

**Class A – High abrasion resistance**
It is required when the area is subject to intense foot or trolley traffic, such as in supermarkets.

**Class W – Low water absorption**
W-class products are recommended for installations subject to continuous immersion in water, such as tiling in fountains and swimming pools.

**Improved class**

Cementitious grouting mortars made by Mapei are all part of the improved class of grouts CG2WA and, as such, are guaranteed when used in particularly critical site conditions.
Epoxy grouting mortars

Two-component epoxy resin-based products.

Advantages
- High mechanical resistance.
- High resistance to aggressive chemicals.

Epoxy grouting mortars are normally used when particularly hygienic surfaces are required, or if there are particular strength or chemical resistance requirements. They are particularly suitable in industrial environments. In the residential sector they are used in bathrooms, kitchens and all those areas where total cleanability of the joints is important.

Beyond the regulation

All Mapei epoxy grouts meet all the requirements for the RG classification. The use of Mapei epoxy grouts allows floors, walls, worktops, etc. to comply with the HACCP system and the requirements of EC Regulation no. 852/2004 regarding the hygiene of foodstuffs.
Classification of mortars for grouting architectural stone paving according to UNI 11714-1 standard

As for installation, also the choice of grouting has to meet precise requirements, which vary according to surrounding conditions, stress related to the use and the type of stone material. The **UNI 11714-1 standard** requires design consistency between the characteristics of installation bed and the filling of joints: **compact bedding** shall feature compact fillings, while on **loose bedding** joints shall be filled with elastic-pervious products or systems. Therefore, regulations specify the types of grouting that are compatible with compact and loose bedding for the various environments and the relevant load class when in use.

**PEDESTRIAN USE ONLY**
Balconies, terraces, patios, courtyards, residential pathways and pavements.

**PEDESTRIAN USE ONLY**
Exterior terraces of restaurants/bars, pavements for pedestrian and cycle use only.

**PEDESTRIAN AND LIGHT VEHICLE USE**
Pavements suitable for parking, car parks or ramps/garage pathways, courtyards, adjacent lots and pathways for the connection between buildings and their parking lots.

**PEDESTRIAN AND LIGHT VEHICLE USE**
Squares used occasionally by slow-moving vehicles, including heavy vehicles (parvises, cemeteries, etc.), market squares, loading/offloading areas, and squares for events, town festivals, etc.

**PEDESTRIAN AND LIGHT VEHICLE USE**
Areas with a 30 km/h speed limit, streets or squares with limited access to vehicles, public carparks and public access ramps.

**HEAVY VEHICLE USE**
Streets, streets with lanes for public transport or prescribed lanes, high-traffic roads, roundabouts and speed bumps.

*Piazza Duca d’Aosta square, Milan, Italy*
Grouts for compact bedding paving: pre-blended mortars

Current standard provides for the use of pre-blended mortars for grouting paving with compact bedding in case of intense vehicle traffic (P9) and recommends them in any other case.

Advantages
• High mechanical strength.
• High resistance to freezing/thawing.
• High resistance to de-icing salts.
• High resistance to sea spray and aerosol.
• Reopening to vehicular traffic in short times.

Grouts for loose-filled paving: polyurethane resins

Current standard provides for the use of polyurethane resins for grouting outdoor loose-filled paving, elastic and pervious, on small blocks, cobblestones and setts, for any kind of traffic.

Advantages
• Highly pervious.
• High flexibility.
• High mechanical strength.
• High resistance to freezing/thawing.
• High resistance to de-icing salts.
• High sound-absorbing capacity.
• No need for expansion joints or distribution joints.
• Reopening to vehicular traffic in short times.
Reference guide for consumption calculation

Calculating the correct width for grouts

According to current standards, tiling should be installed with grouts at least 2 mm wide and their width must be increased according to the type of final use and the design loads and stresses when in service. For architectural stone paving, according to UNI 11714-1 standard, when installed in exterior surroundings, grouts must be at least 5 mm wide and their width must be increased according to the dimensional tolerances and morphology of the stone tiles or slabs, the type of final use and the design loads and stresses when in service.

Butting adjacent slabs or tiles or leaving no gap is not permitted.

Forming joints

According to current standards, apart from respecting the position of structural joints, control joints and expansion joints must also be included. When installing tiles or slabs on interior surfaces, perimeter deformation joints and control joints must be created every 24-25 m² for ceramics and every 20-25 m² for stone. When installing tiles or slabs on exterior surfaces, the surface must be divided into areas of maximum 9 m² for ceramics and 16 m² for stone. As a general guide, joints must be between 5 mm and 12 mm wide.

For architectural stone paving, according to UNI 11714-1 standard, when installing on a compact installation bed, apart from respecting the position of structural joints, control joints and expansion perimetal joints must also be included. In order to prevent the formation of uncontrolled cracks, joints must be installed in correspondence of slope variations, vertical corners and any other interruption on the horizontal surface. As a general guide, joints must be created at least every 25 m², and must be between at least 10 mm wide. The width of the joint must be calculated according to the amount of movement expected and the elastic deformability of the sealant product specified.
Grouts: the first step to ensure durability of flooring

Designing the installation with grouts of the correct dimensions is very important in order to obtain flooring which is even, strong, resistant and durable.

Ceramic or stone flooring, particularly large-format tiles or slabs installed on exterior surfaces

- **Tile joints reduce the modulus of elasticity** and, therefore, the stiffness of the tiling. The tiling installed by butting the tiles together is comparable to a stiff, seamless surface as if it were a single tile. When tiles are installed with “open” joints, each of the tiles has a certain degree of movement. This characteristic helps the tiling withstand the possible movement of the substrate (due to movements in the floor or dimensional instability in the substrate) and, therefore, provides protection against the risk of cracking, tiles lifting or becoming detached from the floor.

- **Any steps between tiles have less of an impact.** The maximum acceptable step between tiles is 1 mm for joints up to 6 mm wide for ceramics and 3 mm for stone material, and 2 mm for joints wider than 6 mm. As the width of the joint increases, the maximum acceptable step also increases.

- Installing tiles with large joints allows the amount of filler, or grout, in the joints to be calibrated correctly. This leads to advantages, such as the durability of the grout and its aesthetic, mechanical and functional characteristics.
Architectural stone paving

• Grouts are required to tie the stone elements to each other and to the installation bed, so they form a monolithic architectural paving (for compact bedding installations) or an elastic, pervious paving (for loose bedding installations).

• The width and depth of grouts determine the effectiveness of grouting products, which must fill them completely in order for them to reach the aesthetic, mechanical and functional properties required when in service.

• The width of grouts must be such that they allow both the aesthetic and functional requirements to be achieved.

• In the case of movements in tiling, or if access is required to plant equipment under the tiling, a large grout allows the grout to be removed and to preserve the condition of the flooring element. In fact, grouts may be filled quite easily with fresh grouting material without compromising the overall appearance of the flooring.

For these and many other reasons, installing tiles with a wide joint is a requirement of current standards.
Mapei has improved their range of grouting products by including cutting-edge technology which increases their performance properties, durability and uniformity of colour, thereby guaranteeing that grouts maintain their aesthetic qualities over the years.

**DropEffect®**

**Easy-to-clean non-absorbent grouts**

The quality of grouts is essential for the cleanability and maintenance of surfaces. Mapei grouts with DropEffect® technology absorb less dirt and are easy to clean and their colour remains stable over the years. In fact, thanks to this special technology, they are less absorbent to liquids and are water-repellent. Liquids deposited on the surface are not absorbed but remain on the surface in the form of droplets, so joints are much easier to clean before stains are formed.

**BioBlock®**

**Put a stop to mould for more hygienic and healthier surfaces**

The proliferation of bacteria on the surface of grouts, especially in damp environments such as bathrooms and spas, may lead to the formation of moulds and fungi. In addition to causing an unsightly finish, these can be harmful for the health of final users. This is why the Mapei Research and Development has developed BioBlock® technology: molecules of special organic material distributed throughout the microstructures of the grout that impede the formation and proliferation of the microorganisms that cause mould, keeping tiled surfaces healthier and more hygienic and maintaining their appearance and finish over the years.
Stable and uniform colour

Guaranteed over time

In order to meet the aesthetic requirements of end users, the colour of grouts is undoubtedly one of the main features. Mapei grouts are available in a wide variety of 58 colours, if we consider the various cementitious and epoxy products. The durability and uniformity in colour of Mapei grouts are guaranteed by their special formulation and the use of pigments which remain stable if subjected to UV rays or weathering.

All our products undergo accelerated ageing tests using a weatherometer, a device used to assess the reaction of products exposed to sunlight, rain and temperature variations.

All Mapei grouts are also subjected to rigorous quality control tests in compliance with the ISO 9001 system. A spectrophotometer is used to check the colour of cementitious and epoxy grouts before they are put on sale to make sure they comply with Mapei quality standards and that every production batch is the same.

Anti-efflorescence

Stop to unaesthetic white stains

Efflorescence, the typical white streaks that can form on the joints’ surface, is one of the most common and unsightly defects on ceramic tiling. The presence of calcium carbonate through the joints is typical of formulas that contain Portland cement. The binder in Ultracolor Plus does not contain Portland cement, which makes the product immune from the formation of efflorescence, ensuring maximum colour stability.
Every year Mapei dedicates part of its resources into research and development. It actively promotes sustainability by adhering to international programmes and organisations, including the LEED protocol – Leadership in Energy and Environmental Design – developed by the US Green Building Council to provide guidance on the design of eco-sustainable buildings.

Mapei products help earn important LEED credits thanks to their EPDs (Environmental Product Declaration) and their Emicode certification for materials with a very low emission level of volatile organic compounds.

Thanks to EPD’s, in Italy, Mapei products comply with the requirements of CAM (Criteri Ambientali Minimi - Minimum Environmental Criteria for design services and the construction and renovation of public buildings) aimed at identifying sustainable design solutions by evaluating the entire life-cycle of the products used.
Mapletree Business City 2, Singapore

Construction of a new, ultramodern and sustainable business district.

Mapei played a leading role in this innovative project with many products for the preparation of substrates and the installation of both interior and exterior tiling. Granite tiles in several areas such as walkways, car parks and courtyards, were installed using Keraflex Maxi S1 and grouted with Keracolor GG. Mapei products used in some exterior works: Topcem Pronto, Kerapoxy, Keraflex Maxi S1, Keracolor GG, Mapeflex PU50 SL, Primer PU 60.
## Grouts for ceramics and stone material chart

### Selection charts

<table>
<thead>
<tr>
<th></th>
<th>Cementitious grouts</th>
<th>Epoxy grouts</th>
<th>Polymer grouts</th>
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<tr>
<td><strong>ULTRACOLOR PLUS</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>KERACOLOR FF</strong></td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>KERACOLOR GG</strong></td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td><strong>KERACOLOR SF</strong></td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>KERAPoxy</strong></td>
<td>1</td>
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<td>2</td>
</tr>
<tr>
<td><strong>KERAPoxy EASY DESIGN</strong></td>
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<td>1</td>
<td>2</td>
</tr>
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<td><strong>KERAPoxy CQ</strong></td>
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<td>1</td>
<td>2</td>
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<tr>
<td><strong>KERAPoxy IEC</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
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<tr>
<td><strong>FLEXCOLOR</strong></td>
<td>1</td>
<td>1</td>
<td>2</td>
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<table>
<thead>
<tr>
<th><strong>Joint width in mm</strong></th>
<th>up to 20</th>
<th>up to 6</th>
<th>from 4 to 15</th>
<th>up to 4</th>
<th>min.1</th>
<th>from 1 to 15</th>
<th>min.1</th>
<th>min.3</th>
<th>from 2 to 10</th>
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### Exterior Use

- **Balconies and terraces**
- **Façades**
- **Swimming pools**

### Interior Use

- **Heated floor**
- **Residential environments**
- **Public buildings**
- **Commercial environments**
- **Foodstuffs industries**
- **Areas subject to intense traffic**
- **Kitchens**
- **Damp environments**

1. **Choose the product**
2. **Identify the area of use**
Grouts for architectural stone paving chart

1. Identify the area of use

2. Choose the product

<table>
<thead>
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<th>Joint width in mm</th>
<th>≥ 5</th>
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| Stone element type | | | | | | |
|--------------------| | | | | | |
| Small blocks        | | | | | | |
| Cobblestones        | | | | | | |
| Setts              | | | | | | |
| Tiles/slabs with a regular cut shape | | | | | | |
| Tiles/slabs with an irregular section | | | | | | |
| Blocks              | | | | | | |

| Surrounding conditions | | | | | | |
|-------------------------| | | | | | |
| Freezing/thawing        | | | | | | |
| De-icing salts          | | | | | | |
| Sea spray               | | | | | | |
| Large day/night temperature variations | | | | | | |

| Classes of use | | | | | | |
|----------------| | | | | | |
| P4 - Exterior paving for pedestrian, residential use only | | | | | | |
| P5 - Public/commercial exterior paving for pedestrian and cycle use | | | | | | |
| P6 - Public/residential paving for pedestrian and light vehicle use | | | | | | |
| P7 - Paving of pedestrian areas, square markets occasionally used for emergency deliveries | | | | | | |
| P8 - Paving of pedestrian areas often used by heavy vehicles | | | | | | |
| P9 - Paving of streets and lanes | | | | | | |
## Sealants chart

1. **Identify the area of use**
2. **Choose the product**

<table>
<thead>
<tr>
<th>Exterior Use</th>
<th>MAPESIL AC</th>
<th>MAPESIL LM</th>
<th>MAPEFLEX PU 45 FT</th>
<th>MAPEFLEX MS 45</th>
<th>MAPEFLEX E-PU21 SL</th>
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<tbody>
<tr>
<td>Balconies and terraces</td>
<td></td>
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<td>Façades</td>
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<td>Swimming pools</td>
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<td>Exterior courtyards</td>
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<td>Cracks</td>
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<td>Joints between different materials</td>
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<tr>
<td>Fitting/glass joints</td>
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<tr>
<td>Fitting/wall joints</td>
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<table>
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<td>Joints for industrial floors</td>
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<td>Joints for civil floors</td>
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<td>Joints with kitchen tops</td>
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<td>Joints for stone flooring</td>
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<td>Tile joints</td>
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<td>Sanitary joints for bathrooms</td>
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<td>Fitting/glass joints</td>
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<tr>
<td>Fitting/wall joints</td>
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<tr>
<td>Bonding of skirtings and doorsteps</td>
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</table>

### Architectural paving – Classes of use

| P4 | Exterior paving for pedestrian, residential use only | | | | |
| P5 | Public/commercial exterior paving for pedestrian and cycle use | | | | |
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| P7 | Paving of pedestrian areas, square markets occasionally used for emergency deliveries | | | | |
| P8 | Paving of pedestrian areas often used by heavy vehicles | | | | |
| P9 | Paving of streets and lanes | | | | |

### Sealant deformability

- Joint movement ≤ 10% of width
- Joint movement > 10% ≤ 20% of width
- Joint movement ≤ 25% of width

### Type of sealant

- High-flowing
- Thixotropic
Due to the printing processes involved, the colours should be taken as merely indicative of the shades of the actual products.
National Mosque, Masjid Negara,
Kuala Lumpur, Malaysia
With Mapei Coloured Grouts collection it is possible to find the ideal solution for every project. A wide variety of colours is available. Choose the best solution for your needs from among **cementitious**, **epoxy** and **paste grouts**.

**Mortars for cementitious grouts**

A complete range of grouts for all types of ceramic, stone and glass mosaic coverings. They are ideal for **residential and commercial use**.

- Ultracolor Plus
- Keracolor FF
- Keracolor GG
- Keracolor SF

**Mortars for epoxy grouts**

They are particularly suitable when particular requirements for **hygiene** and **resistance to aggressive chemicals** are required. They are ideal in **industrial environments**, where very high resistance to chemicals and high strength is required.

- Kerapoxy
- Kerapoxy Easy Design
- Kerapoxy CQ
- Kerapoxy IEG

**Mortars for polymer grouts**

Ready- and easy-to-use.

- Flexcolor
Mont Blanc SkyWay, Courmayeur, Italy
Mortars for cementitious grouts

A complete range of grouts for all types of ceramic, stone and glass mosaic floors and walls. For interior and exterior use. The ideal choice for residential use (bathrooms, kitchens, swimming pools, exterior façades, balconies and terraces) and for commercial environments (supermarkets, restaurants, airports and public buildings). They are also suitable for grouting floors in industrial environments.
Ultracolor Plus

**DESCRIPTION**

**Mapei safe, mould-resistant and water-repellent coloured grout**

High-performance, **anti-efflorescence**, quick-setting and drying polymer-modified mortar with **water-repellent DropEffect®** and **mould-resistant BioBlock®** technologies for **grouting joints up to 20 mm wide**.

<table>
<thead>
<tr>
<th>POT LIFE OF MIX</th>
<th>20-30 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAITING TIME FOR FINISHING</td>
<td>15-30 minutes</td>
</tr>
<tr>
<td>SET TO LIGHT FOOT TRAFFIC</td>
<td>3 hours</td>
</tr>
<tr>
<td>READY FOR USE (at +23°C and 50% R.H.)</td>
<td>After 24 hours (48 hours for swimming pools)</td>
</tr>
<tr>
<td>COLOURS</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMICODE</th>
<th>ECI Plus - very low emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>STORAGE</td>
<td>12 months (for 23 kg bags)</td>
</tr>
<tr>
<td></td>
<td>24 months (for 2 and 5 kg bags)</td>
</tr>
<tr>
<td>CONSUMPTION</td>
<td>According to the size of the grouts and tiles</td>
</tr>
<tr>
<td>PACKAGING</td>
<td>23 kg bags</td>
</tr>
<tr>
<td></td>
<td>4x5 kg or 8x2 kg Alupack boxes</td>
</tr>
</tbody>
</table>

**WHERE TO USE**

- All types of ceramics.
- Marble and stone material.
- Marble and glass mosaic.
- Interior and exterior use.
- Floors and walls.
- **Swimming pools, façades and balconies.**
- Floors and walls in areas subject to **intense traffic** (airports, shopping centres, restaurants, etc.).

**AREAS OF USE**

**CERTIFICATIONS & TECHNOLOGIES**

**MOULD-RESISTANT**

**BioBlock®** technology prevents the formation of the microorganisms that form mould at the root.

**WATER-REPELLENT**

Low dirt pick-up. The **DropEffect®** technology reduces water and liquid absorption making grouts easier to clean.

**ANTI-EFFLORESCENCE**

It does not form any efflorescence and guarantees that colours remain uniform without stains and remain stable over the years.

**QUICK-SETTING AND DRYING**

Set to light foot traffic after 3 hours, quickly ready for use.

**HIGH RESISTANCE**

Excellent resistance to abrasion and flexural stress even after freeze-thaw cycles.

**40 COLOURS**

Colours are resistant to UV rays and atmospheric agents.

**GOOD RESISTANCE TO ACIDS**
Dallara Academy, Varano De’ Melegari, Italy

*Exhibition area and education and training centre of Dallara Automobili.*

A building with a daring design, composed of a system of geometric figures, it was awarded as the Best Future Building at the 2017 ABB Leaf Awards in London. For tiling the three outdoor cones, special *three-dimensional ceramic tiles* (10x10 cm) were used. These tiles were installed with *Ultrabond Eco PU 2K* or *Kerabond+Isolastic* and grouted with *Ultracolor Plus*. Elastic joints were installed to control thermal expansions, using *Mapesil LM* silicone sealant.
The Star, Sydney, Australia

Luxury hotel and casino overlooking the Darling Harbour.

2000 m² of Cararra marble and Nero Marquina marble on the interior floors were installed using Keraflex Maxi S1. Large-format porcelain tiles were installed in the restrooms and in the water feature of the main foyer by using Granirapid adhesive.

All the wet substrates were waterproofed using Mapelastic Smart.

The tile and stone joints (except those in contact with water) were grouted with Ultracolor Plus. Joints in the water feature were grouted with Kerapoxy.
Keracolor FF

DESCRIPTION

Coloured, water-repellent cementitious mortar

Pre-blended, high-performance, polymer-modified cementitious mortar with water-repellent DropEffect® technology for grouting joints up to 6 mm. Mixed with the Fugolastic admixture, it reaches a level of strength which makes it suitable for severe in-service conditions (grouting of façades, swimming pools, bathrooms and floors subject to intense traffic).

| POT LIFE OF MIX | Approx. 2 hours |
| WAITING TIME FOR FINISHING | 10-20 minutes |
| SET TO LIGHT FOOT TRAFFIC | Approx. 24 hours |
| READY FOR USE (at +23°C and 50% R.H.) | 3 days (7 days for tanks and swimming pools) |
| COLOURS | 14 |

WATER-REPELLENT
Low dirt pick-up. The DropEffect® technology reduces water and liquid absorption, making grouts easier to clean.

DURABLE AND STRONG
Good resistance to abrasion, compression, flexural stress and to freeze-thaw cycles.

EASY TO CLEAN
Smooth and compact final surface, with low water absorption, easy to clean.

UNIFORM GROUTS, WITHOUT CRACKS
Keracolor FF mortar is characterised by a low shrinkage rate, which means it does not form cracks.

GOOD RESISTANCE TO ACIDS

GOOD PRICE-PERFORMANCE RATIO

WHERE TO USE

• All types of ceramics.
• Marble and stone material.
• Marble and glass mosaic.
• Interior and exterior use.
• Floors and walls.
• Swimming pools.
• Particularly smooth and glossy floor surfaces (polished porcelain, pre-polished marble, glazed tiles).
• Ceramic industrial flooring where resistance to chemicals is not required (garages, warehouses, etc.).

CERTIFICATIONS & TECHNOLOGIES

EMICODE
EC1 Plus - very low emission

STORAGE
12 months (for 25 kg bags)
24 months (for 5 kg bags)

CONSUMPTION
According to the size of the grouts and tiles

PACKAGING
25 kg bags, 4x5 kg Alupack boxes depending on the colour

AREAS OF USE

STORAGE
12 months (for 25 kg bags)
24 months (for 5 kg bags)

CONSUMPTION
According to the size of the grouts and tiles

PACKAGING
25 kg bags, 4x5 kg Alupack boxes depending on the colour
New Istanbul airport, Turkey

From Terminal 1 to the Control Tower: Mapei products in the world’s largest airport.

In the Terminal 1 building, the water-repellent, cementitious mortar Keracolor FF, ideal for grouts up to 6 mm, was used for grouting large format tiles (120x60 cm). Elastorapid, high-performance, two-component, highly deformable, cementitious adhesive, was used for bonding tiles in some areas.
Masjid Negara (National Mosque),
Kuala Lumpur, Malaysia

Renovation works: waterproofing and installation of covering on roofs, domes and pyramids.

After having primed the surfaces with Primer SN, they were waterproofed with Purtop 1000. The mosaic tiles on the dome and pyramids were bonded with Kerapoxy and grouted with Keracolor FF + Fugolastic.
Keracolor GG

**DESCRIPTION**

*Coloured cementitious mortar ideal for terracotta and exposed brickworks*

Pre-blended, high-performance polymer-modified cementitious mortar for grouting **joints from 4 to 15 mm**. Mixed with the **Fugolastic** admixture, it reaches a level of strength which makes it suitable for severe in-service conditions (grouting of façades, swimming pools, bathrooms and floors subject to intense traffic).

**WHERE TO USE**

- All types of ceramics.
- Suitable for **terracotta**.
- **Exposed brick**.
- Stone material.
- Interior and exterior use.
- Floors and walls.
- **Exterior façades**, balconies, terraces and swimming pools.
- Grouting **floors with a rustic finish**.
- Ceramic industrial flooring where resistance to chemicals is not required (garages, warehouses, etc.).

**DURABLE AND STRONG**

Good resistance to abrasion, compression, flexural stress and freeze-thaw cycles.

**UNIFORM GROUTS, WITHOUT CRACKS**

Keracolor GG mortar is characterised by a low shrinkage rate which means it does not form cracks.

**GOOD RESISTANCE TO ACIDS**

**GOOD PRICE-PERFORMANCE RATIO**

**POT LIFE OF MIX**

Approx. 2 hours

**WAITING TIME FOR FINISHING**

10-20 minutes

**SET TO LIGHT FOOT TRAFFIC**

Approx. 24 hours

**READY FOR USE (at +23°C and 50% R.H.)**

3 days (7 days for tanks and swimming pools)

**COLOURS**

13

**EMICODE**

EC1 Plus - very low emission

**STORAGE**

12 months (for 22-25 kg bags)
24 months (for 5 kg bags)

**CONSUMPTION**

According to the size of the grouts and tiles

**PACKAGING**

25 kg bags,
4x5 kg Alupack boxes depending on the colour

---

**AREAS OF USE**

- **Interior and exterior use**.
- **Floors and walls**.
- **Exterior façades**, balconies, terraces and swimming pools.
- Grouting **floors with a rustic finish**.
- Ceramic industrial flooring where resistance to chemicals is not required (garages, warehouses, etc.).

**CERTIFICATIONS & TECHNOLOGIES**

- **EC1**
- **C2NWA**
Mont Blanc SkyWay, Courmayeur, Italy

Mont Blanc New Cableways - complete reconstruction of the three ski lifts.

In the three stations of the cableway (Pontal d’Entrèves, Pavillon du Mont Fréty and Punta Helbronner, the arrival station with a panoramic terrace, at an altitude of 3,466 m) the coverings and the floor porcelain tiles of different format were bonded with Ultralite S1.

Floors and wall coverings were grouted with Keracolor GG.
Keracolor SF

**Description**

**Fine-grained mortar for smooth and glossy surfaces**

**Fine-grained**, high-performance, white cementitious mortar for grouting **joints up to 4 mm**.

Mixed with the **Fugolastic** admixture, it reaches a level of strength which makes it suitable for severe in-service conditions (grouting façades, swimming pools, bathrooms and floors subject to intense traffic). It may also be used for grouting joints in marble floors to be polished on site.

<table>
<thead>
<tr>
<th>Where To Use</th>
<th>Areas of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All types of ceramics.</td>
<td>• Floors and walls.</td>
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<tr>
<td>• Stone material and pre-polished marble.</td>
<td>• Ideal for particularly smooth and glossy surfaces (polished porcelain, pre-polished marble, etc.).</td>
</tr>
<tr>
<td>• Glass and pre-finished marble mosaic.</td>
<td>• Ideal for grouting <strong>thin joints</strong>.</td>
</tr>
<tr>
<td>• Interior and exterior use.</td>
<td></td>
</tr>
</tbody>
</table>

| Fine-grained | Ideal for grouting thin joints and for smooth and glossy surfaces. |
| Durable and Strong | Good resistance to abrasion, compression, flexural stress and freeze-thaw cycles. |
| Easy to Clean | Smooth and compact final surface, with very smooth texture and low water absorption, easy to clean. |
| Uniform Grouts, Without Cracks | **Keracolor SF** mortar is characterised by a low shrinkage rate which means it does not form cracks. |
| Good Resistance to Acids |  |
| Good Price-Performance Ratio |  |

| Pot Life of Mix | Approx. 2 hours |
| Waiting Time for Finishing | 10-20 minutes |
| Set to Light Foot Traffic | Approx. 24 hours |
| Ready for Use (at +23°C and 50% R.H.) | 3 days (7 days for tanks and swimming pools) |
| Colours | White |

| Emicode | ECI Plus - very low emission |
| Storage | 12 months (for 22 kg bags) |
| | 24 months (for 5 kg bags) |
| Consumption | According to the size of the grouts and tiles |
| Packaging | 22 kg bags, 4x5 kg Alupack boxes |

**Certifications & Technologies**

<table>
<thead>
<tr>
<th>Pot Life of Mix</th>
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</tbody>
</table>
St. Regis Hotel, Kuala Lumpur, Malaysia

Construction of a luxury hotel.

Mapei adhesives and grouts were selected for installing refined floors and wall marble coverings of high quality in the 208 hotel rooms (22,000 m²). In particular, Keraflex, Keraflex Maxi S1 and the mortar Keracolor SF, ideal for grouting marble and smooth and shiny surfaces, were used.
Thanks to their technical characteristics, epoxy grouts are particularly suitable when demanding requirements for hygiene and resistance to chemicals are needed. They are used in residential and commercial environments to guarantee a highly attractive and decorative finish and no absorption along with good performance figures. They are suitable also in all industrial environments where very high chemical resistance and high mechanical strength are required, together with resistance to acids and hydrocarbons, such as for floors in the foodstuffs industries (cured meat factories, oil mills, etc.).

Mortars for epoxy grouts
**Kerapoxy**

**DESCRIPTION**

**Epoxy mortar suitable for kitchens and for the foodstuffs industry**

Two-component acid-resistant epoxy grout for joints of at least 1 mm. Can also be used as an adhesive.

---

**POT LIFE OF MIX**

45 minutes

**SET TO LIGHT FOOT TRAFFIC**

Approx. 24 hours

**READY FOR USE**

4 days (10 days for tanks and swimming pools). Surfaces can also be subjected to chemical attack after 10 days.

---

**AREAS OF USE**

- Ceramics.
- Stone material.
- Interior and exterior use.
- Floors and walls.
- Can also be used as an adhesive.
- Ideal for foodstuffs industries (dairies, abattoirs, breweries and wine-cellars...), kitchen worktops, laboratory benches, where a high level of hygiene is required.
- Ideal for grouting industrial floors where high mechanical resistance and resistance to acid attack is required.
- Swimming pools; including with salt or thermal water, and tanks containing chemically aggressive water (purification plants).

---

**EXCELLENT RESISTANCE TO ACIDS**

Suitable for industrial environments exposed to aggressive chemicals.

**HIGH MECHANICAL STRENGTH**

Particularly suitable for commercial and industrial environments subject to heavy traffic.

**WATERPROOF AND HYGIENIC GROUTS**

The surface of grouts is smooth, compact and waterproof and does not absorb any dirt, which means they are more hygienic and easier to clean.

**SUITABLE FOR KITCHENS AND FOODSTUFFS INDUSTRIES**

Allows grouting floors and worktops in compliance with the HACCP system and the requirements of EC Regulation no. 852/2004 regarding the hygiene of foodstuffs.

**UNIFORM COLOUR THAT REMAINS STABLE OVER THE YEARS**

17 colours resistant to UV rays and atmospheric agents.

---

**COLOURS**

17

**EMICODE**

EC1 Plus - very low emission

**STORAGE**

24 months

**CONSUMPTION**

According to the size of the grouts and tiles

**PACKAGING**

10-5 kg units and 12x2 kg boxes

---

**CERTIFICATIONS & TECHNOLOGIES**

- EC1
- RG
- CE
- RZTN
- ICQ
Orientierungsschule Riaz, Switzerland

Building of a new school.

Mapei contributed to the construction of the building by providing a wide range of products of different lines: admixtures for concrete, products for the installation of ceramic and wooden flooring, solutions for sports flooring. 150 m² of 10x10 tiles were installed in the school kitchen using Kerafix Plus LD. Kerapoxy, epoxy mortar with EC1 Plus certification, was used for grouting. It is particularly recommended for use in foodstuffs processing environments, where high hygiene requirements and strength are required.
Aquahouse Thermal & Beach, San Costantino and Elena, Bulgaria

Building of a spa facility by the sea.

Mapei products were used for waterproofing and installing floor and wall coverings in swimming-pools and interior areas. Specifically, Topcem, Mapelastic, Keraflex Maxi S1 and Kerapoxy epoxy mortar were used.
Kerapoxy Easy Design

**Epoxy mortar with improved workability and high visual impact**

Two-component, versatile, decorative, acid-resistant epoxy grout, with a bacteriostatic agent and **BioBlock®** technology, easy to apply and clean, ideal for grouting ceramic tiles, glass mosaics and stone materials, to be used also in combination with **MapeGlitter** and **Mapecolor Metallic**. For grouting joints from 1 to 15 mm wide. Can also be used as an adhesive.

**DESCRIPTION**

**AREAS OF USE**

- Ideal for glass mosaic.
- All types of ceramics.
- Stone material.
- Interior and exterior use.
- Ideal for showers, bathrooms, thermal facilities, Turkish baths.
- Swimming pools, especially recommended for salt or thermal water.
- Grouting decorative coverings in environments with a high aesthetic value.

**WIDE RANGE OF COLOURS**

Available in 41 colours. Mixed with **MapeGlitter** or **Mapecolor Metallic** allows for a wider range of colours and metallic grouts.

**EXCELLENT WORKABILITY**

It has a creamier consistency, which makes application easier and quicker and surfaces are easier to clean after grouting.

**NON-ABSORBENT AND EASY TO CLEAN**

**ANTIBACTERIAL AND MOULD-RESISTANT**

Certified as an anti-bacterial and anti-microbe product according to ISO 22196:2011 standard. Thanks to BioBlock®, it prevents the proliferation of micro-organisms and the formation of moulds, ensuring the highest hygiene.

**HIGH HYGIENE**

Allows grouting floors and worktops in compliance with the HACCP system and the requirements of EC Regulation no. 852/2004 regarding the hygiene of foodstuffs.

**STABLE AND UNIFORM COLOUR**

Resistant to UV rays and aggressive atmospheric agents: colours are highly stable to guarantee that grouts have an even colour that remains stable over the years.

**ACID RESISTANT**

Excellent chemical resistance and mechanical strength, the final surface of the grout is smooth and compact, with no absorption, and ensures a high level of hygiene.

**POT LIFE OF MIX**

45 minutes

**SET TO LIGHT FOOT TRAFFIC**

Approx. 24 hours

**READY FOR USE**

4 days (10 days for tanks and swimming pools). Surfaces can also be subjected to chemical attack after 10 days.

**COLOURS**

41

**EMICODE**

ECI Plus - very low emission

**STORAGE**

24 months

**CONSUMPTION**

According to the size of the grouts and tiles

**PACKAGING**

3 kg units

**WHERE TO USE**

- Ideal for glass mosaic.
- All types of ceramics.
- Stone material.
- Interior and exterior use.
- Ideal for showers, bathrooms, thermal facilities, Turkish baths.
- Swimming pools, especially recommended for salt or thermal water.
- Grouting decorative coverings in environments with a high aesthetic value.

**CERTIFICATIONS & TECHNOLOGIES**

- **EC**
- **R2T**
- **RG**
- **FSC**
- **ISO**
- **OE**

44
**Kerapoxy CQ**

**DESCRIPTION**

**Antibacterial and mould-resistant epoxy mortar**

Two-component acid-resistant epoxy mortar with bacteriostatic BioBlock® technology, ideal for grouting ceramic tiles and mosaics. Can also be used as an adhesive. Product certified by the University of Modena according to ISO 22196:2007 standard as a grouting mortar protected against the formation and proliferation of micro-organisms.

<table>
<thead>
<tr>
<th><strong>POT LIFE OF MIX</strong></th>
<th>45 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SET TO LIGHT FOOT TRAFFIC</strong></td>
<td>Approx. 24 hours</td>
</tr>
<tr>
<td><strong>READY FOR USE (at +23°C and 50% R.H.)</strong></td>
<td>4 days (10 days for tanks and swimming pools). Surfaces can also be subjected to chemical attack after 10 days.</td>
</tr>
<tr>
<td><strong>COLOURS</strong></td>
<td>17</td>
</tr>
</tbody>
</table>

**CERTIFICATIONS & TECHNOLOGIES**

**AREAS OF USE**

- Ceramics.
- Stone material.
- Glass mosaic.
- Interior and exterior use.
- Floors and walls.
- Swimming pools; including with salt or thermal water, Turkish baths.
- Ideal for foodstuffs industries (dairies, abattoirs, breweries and wine-cellars...), kitchen worktops, laboratory benches, where a high level of hygiene is required.

**WHERE TO USE**

**ANTIBACTERIAL AND MOULD-RESISTANT**

Certified as an anti-bacterial and anti-microbe product. Thanks to BioBlock®, it prevents the proliferation of micro-organisms and the formation of moulds, ensuring the highest hygiene.

**ACID PROOF**

Suitable for commercial and industrial environments subject to heavy traffic and exposed to aggressive chemicals: it is acid resistant and has high mechanical strength.

**SUITABLE FOR KITCHENS AND FOODSTUFFS INDUSTRIES**

Thanks to its anti-bacterial properties, it is suitable for the foodstuffs industry and for kitchens where a high level of hygiene is required.

**WATERPROOF HYGIENIC GROUTS**

The surface of grouts is smooth, compact and waterproof and does not absorb any dirt, which means it is more hygienic and easier to clean.

**UNIFORM COLOUR THAT REMAINS STABLE OVER THE YEARS**

17 colours resistant to UV rays and atmospheric agents.

**EMICODE**

ECI Plus - very low emission

**STORAGE**

24 months

**CONSUMPTION**

According to the size of the grouts and tiles

**PACKAGING**

3 kg or 10 kg units for the colours 113, 114, 132, 282 and 100

**IN COMPLIANCE WITH EUROPEAN STANDARDS**

- EN 13888
- EN 12004
- Tested according to ISO 22196 Determination of the Antibacterial Activity of a Painted surface

**POT LIFE OF MIX**

45 minutes

**SET TO LIGHT FOOT TRAFFIC**

Approx. 24 hours

**READY FOR USE**

(at +23°C and 50% R.H.) 4 days (10 days for tanks and swimming pools). Surfaces can also be subjected to chemical attack after 10 days.

**COLOURS**

17

**EMICODE**

ECI Plus - very low emission

**STORAGE**

24 months

**CONSUMPTION**

According to the size of the grouts and tiles

**PACKAGING**

3 kg or 10 kg units for the colours 113, 114, 132, 282 and 100
Baladin brewery, Piozzo, Italy

Building of the new production plant.

Porcelain tiles measuring 60x60 cm were installed in all the production and storage areas. For bonding tiles, the high-performance adhesive, specific for large format tiles Keraflex Maxi S1 zero was used. The product has very low emissions of volatile organic compounds (VOC) and residual greenhouse gas emissions offset, such features are in line with the ethical values of the brewery. The joints in the processing and storage areas were grouted with Kerapoxy CQ. Thanks to its acid-resistant and bacteriostatic properties, it is ideal for foodstuffs industries, where a high level of protection against the formation and proliferation of micro-organism is required. For the expansion joints, the product chosen was Mapeflex PU30, the ideal sealant for joints in ceramic floors subject to intense traffic.
Demjén Thermal Spa, Demjén, Hungary

760 m of caves and 1,500 m² of water surfaces this spa is the largest thermal cave system of Central Europe.

Baths and damp areas were levelled with Planitop Fast 330 and waterproofed with Mapelastic. Elastorapid was used for laying tiles in swimming pools, while Keraflex S1 and Keraflex Maxi S1 were employed in other areas.

Thanks to its high chemical resistance, Kerapoxy CQ was selected for grouting joint in baths, where water rich in sulphur, sodium, calcium and iron constantly flows at 68°C.
Kerapoxy IEG

**DESCRIPTION**

**Epoxy mortar with extremely high chemical resistance**

Two-component epoxy mortar with **extremely high chemical resistance** for joints at least 3 mm wide. For **acid-resistant** grouting of ceramic and stone material where **higher resistance to chemical products compared with that of conventional epoxy grouts** is required (in particular, to oleic acids and aromatic hydrocarbons).

<table>
<thead>
<tr>
<th>POT LIFE OF MIX</th>
<th>45 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET TO LIGHT FOOT TRAFFIC</td>
<td>Approx. 24 hours</td>
</tr>
<tr>
<td>READY FOR USE (at +23°C and 50% R.H.)</td>
<td>4 days Time varies depending on temperature</td>
</tr>
</tbody>
</table>

**WHERE TO USE**

- Ceramic and stone material.
- **Acid-resistance** grouting with extremely high chemical resistance:
  - **ham factories** (especially in the areas where boning and curing are carried out)
  - **sausage factories** (especially in cooking areas, exposed to oleic acid)
  - **oil mills**
  - **pickling factories**
- Grouting **floors and worktops in compliance with the HACCP system** and the requirements of EC Regulation no. 852/2004 regarding the hygiene of foodstuffs.

**DURABLE AND STRONG**

Highly compact grouts with excellent resistance to chemicals and excellent cleanability according to a formula developed in the **Mapei** research laboratories.

**VERY HIGH RESISTANCE TO CHEMICALS AND HIGH STRENGTH**

Extremely high mechanical properties and resistance to chemicals, higher than those of normal epoxy grouts.

**MORE HYGIENIC AND EASY TO CLEAN SURFACES**

Smooth and compact final surface, with no absorption and easy to clean, ensures a high level of hygiene.

**EXCELLENT WORKABILITY**

Easy to spread and finish off.

**HARD-WEARING**

Excellent resistance to heavy traffic.

**SOUND GROUTS, WITHOUT CRACKS**

No shrinkage and no cracks.

**COLOURS**

- 113 and 130

**EMICODE**

- ECI Plus - very low emission

**STORAGE**

- 24 months

**CONSUMPTION**

- According to the size of the grouts and tiles

**PACKAGING**

- 10 kg units

**AREAS OF USE**

**CERTIFICATIONS & TECHNOLOGIES**

- ECI
- RG
- LFS
Porcelain tiles of various sizes were laid on over 2000 m² of floors in galleries, corridors and in the restaurant of the museum, using the high-performance adhesive with extended open time Ultracontact.

Clinker floors in the kitchen were grouted with Kerapoxy IEG mortar, particularly recommended for application in industrial environments, in areas used for preparing and cooking food and wherever a high resistance to aggressive chemicals and dirt in general is required. This mortar is resistant to moulds and high temperatures and makes grouts’ cleaning and maintenance much easier.
Mapei has developed pasty grouts which, because of their nature, are particularly easy to use.
Flexcolor

**Ready-to-use polymer mortar, ideal for flexible substrates**

Ready-to-use, polymer filler paste for joints from 2 to 10 mm with water-repellent DropEffect® and mould-resistant BioBlock® technology, for grouting ceramic tiles and mosaics 2 to 10 mm wide.

**WHERE TO USE**
- All types of ceramic tiles.
- Interior floors and walls.
- Exterior walls only.
- For joints from 2 to 10 mm.
- Suitable for exterior façades and flexible substrates.

**COLOURS**
- 100 White
- 110 Manhattan 2000
- 111 Silver Grey
- 112 Medium Grey
- 132 Beige 2000

**STORAGE**
- 12 months

**CONSUMPTION**
- According to the size of the grouts and tiles

**PACKAGING**
- 5 kg buckets

<table>
<thead>
<tr>
<th>WAITING TIME FOR FINISHING</th>
<th>15 to 20 minutes depending on the surrounding conditions and absorption of the tiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET TO LIGHT FOOT TRAFFIC</td>
<td>48 hours</td>
</tr>
<tr>
<td>READY FOR USE</td>
<td>7 days</td>
</tr>
</tbody>
</table>

**DESCRIPTION**

**READY TO USE AND EASY TO APPLY**

**IDEAL FOR FLEXIBLE SUBSTRATES**
Resistant to vibrations and deformations in substrates. Therefore, it is particularly suitable for grouting exterior façades and flexible substrates.

**EASY TO CLEAN**
Once applied, it is easy to clean from the surface of tiles.

**RESISTANT TO WATER**
Drop-effect water-repellent: DropEffect® technology significantly reduces absorption of surface water which means grouts also absorb less dirt and are easier to clean.

**MOULD-RESISTANT**
BioBlock® technology prevents the formation of the microorganisms that may form mould on the grout surface at the root.

**UNIFORM COLOUR**
Colour resistant at atmospheric agents.

**AREAS OF USE**

- **WAITING TIME FOR FINISHING**
- **COLOURS**
- **STORAGE**
- **CONSUMPTION**
- **PACKAGING**
- **WHERE TO USE**
- **CERTIFICATIONS & TECHNOLOGIES**
UNIFIMM Tower, Bologna, Italy

This triangular-base office tower, with its 26 floors and 125 metres in height, is a model of environmental sustainability.

Mapei provided material for laying about 8400 m² of large-format ceramic tiles and 600 m² of Pietra Serena. In the gap between exterior glass walls, where a laying system able to absorb stresses generated by temperature variations and flexibility of the substrate was required, slabs were installed on anti-fracture Mapetex membrane with the highly elastic two-component adhesive Elastorapid and then sealed with Mapesil LM.

On interior walls, one-component lightweight deformable adhesive Ultralite S1 was chosen to lay large format tiles on plasterboard primed with Primer G. For the joints, the ready-to-use grouting mortar Flexcolor was used to grant good deformability and an attractive finish.
Complementary products

Accessory items

Fugolastic
Polymer liquid admix for Keracolor FF, Keracolor GG and Keracolor SF

**USE** Mixed with the cement-based grouts of the Keracolor range as a substitute for mixing water, it improves the grout adhesion and mechanical strength and reduces water absorption. It is recommended for exterior grouts on façades, balconies and swimming pools and for floors subject to heavy traffic.

MapeGlitter
Polyester, aluminium and epoxy resin metal-effect coloured glitter to be mixed with Kerapoxy Easy Design

**USE** Mixed with Kerapoxy Easy Design epoxy grout, allows for a wider range of colours and sparkly, metallic finish, with distinctive decorative effects. It is particularly recommended for metal and glass tiles and mosaics.

Mapecolor Metallic
Powder pigments based on very high-quality pearlescent mica, to be mixed with Kerapoxy Easy Design

**USE** Mixed with Kerapoxy Easy Design epoxy grout allows for a wider range of colours and metallic grouts. It is particularly recommended for metal tiles, ceramic tiles with a metallic effect, glass and ceramic mosaic and glass tiles.
Products for cleaning, maintaining and protecting surfaces

**UltraCare range**

Professional products for taking care of floor and wall coverings, keeping them durable over time.

**Use**

Products suitable for cleaning, maintaining and protecting surfaces

**Renewing grouts**

**UltraCare Fuga Fresca**

Paint to bring back the colour of grouts

**Use**

Acrylic resin paint in water dispersion to bring back the colour of joints in ceramic tiling.
Available in all colours from the Keracolor and Ultracolor Plus range.
Stone in its various shapes and types has been used to create the most beautiful road surfaces in historical town centres and is also used to create pedestrian zones, cycle lanes and roads exposed to intense traffic. It is also used in residential buildings for exterior surfaces, stairs and landings.

Mapei has developed a range of specific products for architectural stone paving which are ideal for use under various service conditions, including when it has to withstand heavy loads and intense traffic.
Market Square
Spoleto, Italy
Grouts for architectural stone paving on compact bedding
Pre-blended mortar for grouting joints in architectural stone paving

High-performance mortar in exposure class XF4 and XS3, with high mechanical strength and good resistance to de-icing salts, freeze-thaw cycles and seawater for grouting architectural stone paving in class P4, P5, P6, P7, P8, P9 according to standard UNI 11714-1:2018.

**POT LIFE OF THE MIX**  
Approx. 20 minutes, at +20°C

**WAITING TIME BEFORE CLEANING**  
20-30 minutes, at +20°C

**SET TO LIGHT FOOT TRAFFIC**  
Approx. 24 hours, at +20°C

**READY FOR USE**  
7 days, at +20°C

**COLOURS**  
Neutral, dark grey and white

**STORAGE**  
12 months (for 25 kg bags)

**CONSUMPTION**  
According to the width of grouts and the size of stone elements

**PACKAGING**  
25 kg bags

**AREAS OF USE**

- Small blocks
- Smaller bricks
- Slabs

**UNIFORM GROUTS, WITHOUT CRACKS**
Thanks to its low water/cement ratio Mapestone PFS 2 is characterised by a low shrinkage rate, which means it does not form cracks.

**HIGH COMPRESSIVE STRENGTH**

**RESISTANT TO FREEZE/THAW CYCLES**

**RESISTANT TO DE-ICING SALTS**

**RESISTANT TO SEAWATER**

**MAXIMUM PRACTICALITY**
Pre-blended, ready-to-use product. Just add water and mix with a power mixer for 3 minutes.

**QUICK SETTING AND QUICKLY READY FOR USE**

**WHERE TO USE**

- Suitable for surfaces with vehicle access (combined with suitable bedding).
- Complete system with Mapestone TFB 60 bedding.

**DURABLE AND STRONG**
Trieste Seafront, Lignano Sabbiadoro, Italy
Redevelopment and refurbishment of Trieste Seafront.

Giallo d’Istria marble stone with bush-hammered finishing and Pietra Piasentina with flame or bush-hammered finishing were chosen for the new waterfront of Lignano Sabbiadoro. The paving was installed on a compact bedding made with Mapestone TFB Cube, pre-blended mortar specific for highly resistant and durable bedding. Joints were grouted with Mapestone PFS 2, pre-blended mortar ideal for environments subject to severe weather conditions and high levels of sea salt thanks to its high resistance to freeze/thaw cycles, de-icing salts and seawater.
Mapestone PFS 2 Visco

### Mortar for grouting architectural slab and block-paving

Low viscosity, pre-blended mortar with exceptional physical-chemical characteristics suitable for areas exposed to dry/damp cycles (exposure class XF4). Resistant to compression, de-icing salts, freeze-thaw cycles and seawater, it is suitable for grouting architectural stone paving in class P4, P5, P6, P7, P8, P9 according to standard UNI 11714-1:2018.

| POT LIFE OF THE MIX | Approx. 40 minutes, at +20°C |
| WAITING TIME BEFORE CLEANING | 20-30 minutes, at +20°C |
| SET TO LIGHT FOOT TRAFFIC | Approx. 24 hours, at +20°C |

| READY FOR USE | 7 days, at +20°C |
| COLOURS | Neutral, dark grey and white |
| STORAGE | 12 months (for 25 kg bags) |
| CONSUMPTION | According to the width of grouts and the size of stone elements |
| PACKAGING | 25 kg bags |

### Areas of Use

- **DURABLE AND STRONG**
- **UNIFORM GROUTS, WITHOUT CRACKS**
  Thanks to its low water/cement ratio, Mapestone PFS 2 Visco is characterised by a low shrinkage rate, which means it does not form cracks.
- **HIGH COMPRESSIVE STRENGTH**
- **LOW VISCOSITY OF THE MIX**
  Ideal for grouting road surfaces made from irregular shaped elements. Thanks to its low viscosity it is very effective in filling air pockets around cobblestones and between cobblestones and the installation bed.
- **RESISTANT TO FREEZE/THAW CYCLES**
- **RESISTANT TO DE-ICING SALTS**
- **RESISTANT TO SEAWATER**
- **MAXIMUM PRACTICALITY**
  Pre-blended, ready-to-use product. Just add water and mix with a power mixer for 3 minutes.

### WHERE TO USE
- Slabs
- Blocks

**QUICK SETTING AND QUICKLY READY FOR USE**

**SUITABLE FOR SURFACES WITH VEHICLE ACCESS**
(combined with suitable installation mortar).

**COMPLETE SYSTEM**
With installation of Mapestone TBF 60.
Piazza d’Azeglio, Florence, Italy

Redevelopment of Piazza d’Azeglio square and via della Colonna.

For the construction of the driveway of the square and of via della Colonna, the Municipality decided to install the ancient paving. Each single element is hand-made, featuring the typical, trapezoid section with irregular base. Considering the characteristics of the stone material and the need for a vehicular passage, the paving was installed on a compact bedding made with Mapestone TFB 60, pre-blended mortar specific for highly resistant and durable installation beds. For grouting, Mapestone PFS 2 Visco pre-blended, low viscosity mortar, ideal for effectively filling the air pockets around the irregular slabs and in the interface with the installation bed, was chosen.
Mapestone PFS PCC 2

**Pre-blended polymer-modified mortar for grouting joints in architectural stone paving**

Mortar with a low modulus of elasticity, exceptional physical-chemical characteristics suitable for areas exposed to dry/damp cycles specified by exposure class XF4. Highly resistant to compression, de-icing salts, freeze-thaw cycles and seawater, it is suitable for grouting architectural stone paving in class P4, P5, P6, P7, P8, P9 according to standard UNI 11714-1:2018.

<table>
<thead>
<tr>
<th>POT LIFE OF THE MIX</th>
<th>WAITING TIME BEFORE CLEANING</th>
<th>SET TO LIGHT FOOT TRAFFIC</th>
<th>READY FOR USE</th>
<th>COLOURS</th>
<th>STORAGE</th>
<th>CONSUMPTION</th>
<th>PACKAGING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 20 minutes, at +20°C</td>
<td>20-30 minutes, at +20°C</td>
<td>Approx. 24 hours, at +20°C</td>
<td>7 days, at +20°C</td>
<td>Neutral</td>
<td>12 months</td>
<td>According to the width of grouts and the size of stone elements</td>
<td>25 kg bags</td>
</tr>
</tbody>
</table>

**AREAS OF USE**

- **DURABLE AND STRONG**
- **IDEAL FOR AREAS SUBJECTED TO LARGE DAY/NIGHT TEMPERATURE VARIATIONS AND LITHOTYPES WITH HIGH COEFFICIENT OF THERMAL EXPANSION**
- **UNIFORM GROUTS, WITHOUT CRACKS**
  - Thanks to its low water/cement ratio Mapestone PFS PCC 2 is characterised by its low shrinkage rate, which means it does not form cracks.
- **HIGH COMPRRESSIVE STRENGTH**
- **RESISTANT TO FREEZE/THAW CYCLES**
- **RESISTANT TO DE-ICING SALTS**
- **RESISTANT TO SEAWATER**
- **MAXIMUM PRACTICALITY**
  - Ready-mixed, ready-to-use product. Just add water and mix with a power mixer for 3 minutes.
- **QUICK SETTING AND QUICKLY READY FOR USE**
- **SUITEABLE FOR SURFACES WITH VEHICLE ACCESS** (combined with suitable installation mortar).
- **COMPLETE SISTEM**
  - With installation of Mapestone TFB 60

**WHERE TO USE**

- Climatic zones with large day/night temperature variations
- Lithotypes with high coefficient of thermal expansion
- Small blocks
- Smolleri bricks
- Cobblestones
- Slabs
- Blocks
Piazza Duca d’Aosta, Milan, Italy

Redevelopment of the square in front of the Milan Central Railway Station.

The square paving was refurbished using granite slabs and river cobblestones. The paving was installed on Mapestone TFB 60, pre-blended mortar specific for highly resistant and durable installation beds. Mapestone PFS PCC 2, pre-blended mortar with a low modulus of elasticity, ideal for extreme temperature variations and high expansion coefficient large format stones was chosen.
Mapestone PFS 2 Flex

Pre-blended, polymer-modified mortar with low modulus of elasticity (25 GPa) and high pull-off strength for grouting architectural stone paving

Mortar with a low modulus of elasticity, high pull-off strength and exceptional physical-chemical characteristics suitable for areas exposed to dry/damp cycles specified by exposure class XF4. Highly resistant to compression, de-icing salts, freeze-thaw cycles and seawater, it is suitable for grouting architectural stone paving in class P4, P5, P6, P7, P8, P9 according to standard UNI 11714-1:2018.

| POT LIFE OF THE MIX | Approx. 20 minutes, at +20°C |
| WAITING TIME BEFORE CLEANING | 20-30 minutes, at +20°C |
| SET TO LIGHT FOOT TRAFFIC | Approx. 24 hours, at +20°C |
| READY FOR USE | 7 days, at +20°C |
| COLOURS | Neutral, white and dark grey |
| STORAGE | 12 months |
| CONSUMPTION | According to the width of grouts and the size of stone elements |
| PACKAGING | 25 kg bags |

WHERE TO USE
- Climatic zones with large day/night temperature variations
- Lithotypes with high coefficient of thermal expansion
- Small blocks
- Smaller bricks
- Cobblestones
- Slabs
- Blocks

QUICK SETTING AND QUICKLY READY FOR USE

SUITABLE FOR SURFACES WITH VEHICLE ACCESS
(combined with suitable installation mortar).

COMPLETE SYSTEM
With installation of Mapestone TFB 60

DESCRIPTION
DURABLE AND STRONG
IDEAL FOR AREAS SUBJECTED TO LARGE DAY/ NIGHT TEMPERATURE VARIATIONS AND LITHOTYPES WITH HIGH COEFFICIENT OF THERMAL EXPANSION
UNIFORM GROUTS, WITHOUT CRACKS
Thanks to its low water/cement ratio Mapestone PFS2 Flex is characterised by its low shrinkage rate, which means it does not form of cracks.
HIGH COMPRRESSIVE STRENGTH
RESISTANT TO FREEZE/ THAW CYCLES
RESISTANT TO DE-ICING SALTS
RESISTANT TO SEAWATER
MAXIMUM PRACTICALITY
Ready-mixed, ready-to-use product. Just add water and mix with a power mixer for 3 minutes.
**Piazza dell’Isolotto, Florence, Italy**  
**Redevelopment of the Piazza dell’Isolotto square.**

The Square paving was refurbished using irregular and fettled-edge Pietra Serena slabs. The paving was installed on a compact bedding made of **Mapestone TFB 60**, pre-blended mortar specifically developed for highly resistant and durable bedding. Joints were grouted with **Mapestone PFS2 Flex**, pre-blended mortar with a low modulus of elasticity and high pull-off strength, ideal for large temperature swings and when installing large-format, even irregular, stones with high expansion coefficient.
Joints for architectural stone paving on loose bedding
**Mapestone Joint**

**DESCRIPTION**

Binder for creating elastic and pervious architectural stone paving

One-component, solvent-free, polyurethane binder with a characteristic odour for sealing joints in elastic and pervious architectural stone paving. Two application methods:

1. **Mapestone Joint Cube** for small blocks, cobblestones and setts in class P4, P5, P6, P7, P8, P9 according to standard UNI 11714-1:2018.

2. **Mapestone Joint Slab** for slabs and blocks in class P4, P5, P6.

**TIME TO FORM SKIN**  
Approx. 3 hours and 30 minutes

**SET TO LIGHT**  
Approx. 24 hours, at +20°C

**FOOT TRAFFIC**  
Approx. 24 hours, at +20°C

**READY FOR USE**  
48-72 hours, at +20°C

**COLOURS**  
Amber

**STORAGE**  
12 months

**CONSUMPTION**  
According to the width of grouts and the size of stone elements

**PACKAGING**  
25 kg cans, 200 litre drums and 1000 litre tanks

**AREAS OF USE MAPESTONE JOINT SLAB**

- Pervious
- Durable and strong
- High compressive strength
- Resistant to cyclical freeze/thaw
- Resistant to de-icing salts
- Resistant to seawater
- Noise reducing
- Quick setting and quickly ready for use
- Suitable for surfaces with vehicle access (combined with suitable bedding)

**WHERE TO USE MAPESTONE JOINT CUBE**

- Small blocks
- Setts
- Cobblestones

**WHERE TO USE MAPESTONE JOINT SLAB**

- Slabs
- Blocks
Private residence, Albiano, Italy

Installation of new residential paving.

The paving around the residence was made using split porphyry stones with opus incertum laying technique on a gravel pervious bed, bonded with Mapestone Joint, which was used also for sealing.
San Michele, Appiano, Italy

Redevelopment of Piazza del Municipio square in San Michele centre.

The centre of San Michele was redeveloped using an elastic and pervious paving on loose bedding of porphyry small blocks. **Mapestone Joint** was used for sealing joints. The designers of the paving wanted to represent the grapes, excellence product of the Appiano area, creating a circular installation pattern and selecting 3 different types of porphyry colours. Paving created using **Mapestone Joint** is elastic and does not require joint positioning. The design is therefore unaltered and perfectly reproduced in the installation pattern.
A complete range of coloured products for every requirements, for sealing ceramic, natural stone and glass mosaic floor and wall coverings.

Certified according to the most stringent international standards and with very low emission level of volatile organic compounds.

Mapei sealants are the results of constant research with the aim of introducing high quality products on the market to make application easy, quick and safe.

This document presents only some of the products of the sealant line, which are specifically used in ceramic, natural stone, glass mosaic covering as well as in architectural stone paving.
**Mapesil AC**

**DESCRIPTION**

**Pure acetic silicone sealant, highly elastic and resistant to mould**

Pure acetic silicone sealant, solvent-free and mould-resistant with BioBlock® technology, for compression and traction movements up to 25% of the width of joint. Available in all colours of Mapei grouts.

<table>
<thead>
<tr>
<th>MOVEMENT ALLOWED</th>
<th>25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODULUS OF ELASTICITY AT 100% ELONGATION</td>
<td>0.35 N/mm²</td>
</tr>
<tr>
<td>SHORE A HARDNESS</td>
<td>20</td>
</tr>
</tbody>
</table>

**WORKABILITY**

10 minutes

**COLOURS**

40 colours and transparent

**EMICODE**

EC1 Plus - very low emission

**CONSUMPTION**

3.1 meters per 310 ml cartridge (10x10 mm section)

**PACKAGING**

310 ml cartridges

**WHERE TO USE**

- Glass.
- Ceramics.
- Anodised aluminium.
- Sealing joints in ceramic and cement wall and floor coverings.
- Sealing joints between sanitary ware and ceramic tiles in kitchens, bathrooms and showers.
- Sealing expansion joints in swimming pools.
- Sealing glazing of door and window frames.

**CERTIFICATIONS & TECHNOLOGIES**

European certification for use on façades, glazing, in healthcare settings and for pedestrian paving; CE marking mould- and chlorinated water-resistant.

**PERFECT BOND**

**HIGH FLEXIBILITY**

Low modulus of elasticity, ideal for sealing joints subjected to large deformations.

**HIGH THERMAL AND CHEMICAL RESISTANCE**

Withstands in continual use to temperatures from -40°C to +180°C.

**MOULD-RESISTANT (BIOBLOCK®)**

Excellent resistance to water. Mould-resistant.

**SOLVENT-FREE**

Pure acetic silicone sealant, solvent-free.

**EXCELLENT DURABILITY**

Remains elastic and highly adhesive, does not shrink, does not yellow and does not change colour.

**WIDE RANGE OF COLOURS**

40 colours coordinated with Mapei grouts and transparent.
Avalon Park, Miskolctapolca, Hungary

Construction of a wide touristic and multifunctional complex with the use of six Mapei product lines.

Mapei adhesives for the installation of floor and wall coverings were used in the whole complex. These included Ultralite S2 for thin, large-format porcelain tiles, Keraflex Maxi S1 for natural stone on walls, floors and on the building’s façades, and Elastorapid for the installation of mosaic in the swimming pools. Kerapoxy CQ, acid-resistant, bacteriostatic with BioBlock® technology, was used to grout the joints in the swimming pools and in the kitchen, while the two-component decorative grout Kerapoxy Design mixed with golden MapeGlitter were used for grouting the three-dimensional installations in the wellness area. The expansion joints were sealed with Mapesil LM in the areas where natural stone was installed and with Mapesil AC on surfaces covered with tiles.
Sportzentrum Gstaad, Switzerland

Extension and renovation of the Gstaad sports centre, a building of the Seventies that is recognised as a historical monument.

Mapei was chosen for the substrate preparation and the installation of 3,000 m² of porcelain tiles and glass mosaics in swimming pools, showers, changing rooms and Turkish baths. All the areas exposed to water were waterproofed with Mapelastic. Elastorapid, highly deformable adhesive, was chosen for installing ceramics and mosaics in damp environments. For the grouts in environments subjected to washing with aggressive detergents, the epoxy grout Kerapoxy CQ was used in view of its antibacterial and acid-resistant properties. The joints were sealed with the pure acetic silicone Mapesil AC in view of its excellent resistance to water and to the formation of moulds thanks to Mapei BioBlock® technology.
## Mapesil LM

### Description

Neutral pure silicone sealant, highly flexible and mould-resistant for natural stones

Neutral pure silicone sealant, mould-resistant and solvent-free with BioBlock® technology for stones, for compression and traction movements up to 25% of the width of joint.

### Movement Allowed

<table>
<thead>
<tr>
<th>Movement Allowed</th>
<th>25%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulus of Elasticity at 100% Elongation</td>
<td>0.35 N/mm²</td>
</tr>
<tr>
<td>Shore A Hardness</td>
<td>21</td>
</tr>
</tbody>
</table>

### Workability

<table>
<thead>
<tr>
<th>Workability</th>
<th>15 minutes</th>
</tr>
</thead>
</table>

### Colours

<table>
<thead>
<tr>
<th>Colours</th>
<th>9 colours and transparent</th>
</tr>
</thead>
</table>

### Consumption

<table>
<thead>
<tr>
<th>Consumption</th>
<th>3.1 meters per 310 ml cartridge (10x10 mm section)</th>
</tr>
</thead>
</table>

### Packaging

<table>
<thead>
<tr>
<th>Packaging</th>
<th>310 ml cartridges</th>
</tr>
</thead>
</table>

### Areas of Use

- Does not stain, ideal for sealing stone
- No volatile plasticisers; particularly recommended for stones, marble, stone material and all materials sensitive to acids.
- Suitable for exterior façades
- Thanks to its low modulus of elasticity, it prevents the formation of stains and absorbs high rates of deformation in joints.
- Mould-resistant
- BioBlock® technology impedes the formation of mould on the surface of joints.
- Stable seal over the years
- Excellent resistance to atmospheric agents and ageing, including when exposed to bad weather conditions, industrial surroundings, temperature changes and water.
- Solvent-free, odourless
- Neutral silicone, totally solvent-free, odourless.
- Wide range of certifications
- Suitable for stones and marble; European certification for use on façades, glazing, in healthcare centres and on pedestrian paving.
- Highly adhesive
- Bonds perfectly, including without primer, to most types of building material.
- Range of colours
- In 9 colours coordinated with the Mapei coloured grouts collection and transparent.

### Where to use

- Stone (marble, granite, sandstone and quartz).
- All materials sensitive to acids and plasticising agents.
- Bricks, cellular concrete and varnished or enamelled wood.
- Non-absorbent substrates (glass, ceramics, clinker, enamelled surfaces, water and solvent-based varnishes, metals, etc.).
- Absorbent mineral substrates (concrete, render and fibre-cement).
- Sealing joints between pre-fabricated panels; window/door fittings and walls, different coating materials.

### Certifications & Technologies

- EN 12004
- Movement allowed 25%
- Modulus of elasticity at 100% elongation 0.35 N/mm²
- Shore A hardness 21
- Workability 15 minutes
- Colours 9 colours and transparent
- Consumption 3.1 meters per 310 ml cartridge (10x10 mm section)
- Packaging 310 ml cartridges
- Areas of use
- Certification & technologies
University of Rome Tor Vergata, Italy

Construction of the new Rectorate and the new Faculty of Law.

The three new buildings with a trapezoid shape, were covered with travertine marble. Keraflex Maxi S1 and Ultracolor Plus were used for installing the marble tiles on the façade and on the square, the joints were sealed with Mapesil LM, neutral silicon ideal for sealing natural stone and façade elements.
**Mapex PU 45 FT**

**DESCRIPTION**

One-component polyurethane hybrid sealant with a high modulus of elasticity

Rapid-hardening, paintable polyurethane sealant and adhesive with a high modulus of elasticity for compression and traction movements up to 20% of the width of joint.

<table>
<thead>
<tr>
<th>MOVEMENT ALLOWED</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODULUS OF ELASTICITY AT 100% ELONGATION</td>
<td>0.80 N/mm²</td>
</tr>
<tr>
<td>SHORE A HARDNESS</td>
<td>38</td>
</tr>
<tr>
<td>WORKABILITY</td>
<td>35 minutes</td>
</tr>
</tbody>
</table>

**COLOURS**

White, 111 grey, 113 grey, brown, beige, black

**CONSUMPTION**

3 meters per 300 ml cartridge
6 meters per 600 ml sausage (10x10 mm section)

**PACKAGING**

300 ml cartridges, 600 ml sausages

**WHERE TO USE**

- Sealing expansion and distribution joints in **civil and industrial floors**.
  - Industrial floors subject to vehicular traffic, including heavy vehicles, or chemical attack by hydrocarbons.
  - Concrete floors for car-parks, supermarkets, shopping centres and warehouses.
  - Ceramic floors and walls, including in areas subject to intense traffic (supermarkets, industrial environments).
- Used as an adhesive for flexible bonding of construction features instead of using screws, nails and lightweight fittings.
- Compatible with all absorbent mineral substrates, metal surfaces, varnished surfaces, wood, stone, brickwork and glass.

**AREAS OF USE**

- ONE SINGLE PRODUCT FOR SEALING AND BONDING
- HIGH RESISTANCE TO TRAFFIC
- SUCKER EFFECT For bonding on vertical surfaces.
- PAINTABLE
- HIGHLY ADHESIVE EVEN WITHOUT PRIMER
- RAPID-HARDENING Quickly ready for use.
- CERTIFIED PRODUCT European certification for use on façades and on pedestrian paving.
Canalicchio Wine Cellar, Montalcino, Italy

Tuscan winery

The interior floors were laid using the pre-blended mortar for screeds Topcem Pronto, on which the large format tiles were installed using the high-performance, deformable cementitious adhesive with low environmental impact Keraflex Maxi S1 zero. Thanks to its antibacterial and mechanical properties and its resistance to acids, the epoxy mortar Kerapoxy CQ was chosen for grouts. The joints were sealed with Mapeflex PU 45 FT, the sealant ideal for industrial floors subject to heavy traffic and to aggressive chemicals.
Mapeflex MS45

**DESCRIPTION**

**One-component hybrid sealant with a high modulus of elasticity also for wet substrates**

Paintable hybrid sealant and adhesive with a high modulus of elasticity also for wet substrates, for compression and traction movements up to 20% of the width of joint.

<table>
<thead>
<tr>
<th>MOVEMENT ALLOWED</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODULUS OF ELASTICITY AT 100% ELONGATION</td>
<td>0.66 N/mm²</td>
</tr>
<tr>
<td>SHORE A HARDNESS</td>
<td>43</td>
</tr>
<tr>
<td>WORKABILITY</td>
<td>35 minutes (+23°C - 50% R.H.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREAS OF USE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ONE SINGLE PRODUCT FOR SEALING AND BONDING</strong></td>
</tr>
<tr>
<td><strong>ON DRY AND WET SURFACES</strong></td>
</tr>
<tr>
<td>Suitable also for damp substrates. Does not blister, including at high moisture levels.</td>
</tr>
<tr>
<td><strong>RAPID AND EASY TO APPLY</strong></td>
</tr>
<tr>
<td>Easy to extrude and smooth over, including at low temperatures. Rapid-hardening.</td>
</tr>
<tr>
<td><strong>VERSATILE</strong></td>
</tr>
<tr>
<td>Bonds to the most widely used materials.</td>
</tr>
<tr>
<td><strong>PAINTABLE</strong></td>
</tr>
<tr>
<td>Highly adhesive even without primer. Forms a strong bond, including on compact or absorbent substrates.</td>
</tr>
<tr>
<td><strong>HIGH RESISTANCE TO TRAFFIC</strong></td>
</tr>
<tr>
<td><strong>SAFE FOR INSTALLERS</strong></td>
</tr>
<tr>
<td>Solvent-free and with very low emission of volatile organic compounds.</td>
</tr>
<tr>
<td><strong>CERTIFIED PRODUCT</strong></td>
</tr>
<tr>
<td>European certification for use on façades on pedestrian paving; certified EC1 Plus – very low emission of VOC; CE marking.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHERE TO USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sealing expansion and distribution joints in traditional and ventilated façades, residential and industrial floors also subjected to intense vehicle traffic.</td>
</tr>
<tr>
<td>• Used as an adhesive for flexible bonding of construction features instead of using screws, nails and lightweight fittings.</td>
</tr>
<tr>
<td>• Compatible with a wide range of materials: cement, brickwork, steel, copper, aluminium, pre-painted surfaces, glass, gypsum, wood, ceramic and clinker, insulating materials and many types of plastic.</td>
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<tr>
<td>• Suitable also for wet substrates.</td>
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</tbody>
</table>

| COLOURS | White, 111 grey, 113 grey, brown, black |
| EMICODE | EC1 Plus - very low emission |
| CONSUMPTION | 3 meters per 300 ml cartridge 6 meters per 600 ml sausage (10x10 mm section) |
| PACKAGING | 300 ml cartridges, 600 ml sausages |
Prague Subway, Czech Republic

Construction of four new subways stations.

Mapei products were used for installing ceramic tiles in the new Prague subway. The extremely large format tiles 3x1 m were bonded with the highly deformable adhesive Ultraflex S2 Mono.

For 60x60 and 150x75 cm tiles, the cementitious adhesives Keraflex Extra S1, Keraflex Maxi S1 and Keraquick were used. All the joints were grouted with the cementitious mortar Keracolor FF, while the expansion joints between the large format tiles were sealed with hybrid sealant Mapeflex MS45.
**Mapeflex E-PU 21 SL**

**DESCRIPTION**

Two-component, high-strength, castable epoxy-polyurethane sealant with high modulus of elasticity

Two-component, **high-strength**, castable epoxy-polyurethane sealant with **high modulus of elasticity** for compression and traction movements up to 10% of the width of joint.

**MOBILITY Allowed**

- 10%

**Elongation at Break**

- 90%

**Shore A Hardness**

- 60

**Workability**

- 40 minutes

**COLOURS**

- 113 grey, colourless for custom colouring with Mapecolor Paste

**CONSUMPTION**

- 0.145 kg/metre (joint section 10 x 10 mm)

**PACKAGING**

- 5 kg bucket (A+B)

**AREAS OF USE**

- **HIGH MECHANICAL STRENGTH**
  Withstands high mechanical stress due to pedestrian and vehicular traffic.

- **HIGH THERMAL AND CHEMICAL RESISTANCE**
  Withstands weathering, temperature variation and chemicals. Withstands in continual use at temperatures between -30°C and +80°C.

- **EASY TO APPLY**
  Fluid consistency, castable within 40 minutes.

- **WITH HIGH MODULUS OF ELASTICITY**
  Suitable for sealing joints subject to small movements up to 10% of the width of joint.

- **BONDS PERFECTLY**

- **SOLVENT-FREE**
  Epoxy-polyurethane, solvent-free sealant.

- **EXCELLENT DURABILITY**
  Even after several years of exposure to exterior stress, it remains elastic and highly adhesive. It does not shrink or yellow and its colour remains unchanged.

- **CUSTOMISED RANGE OF COLOURS**
  Available also in the colourless version to be coloured according to the needs of the customer with the coloured pastes Mapecolor Paste.

**WHERE TO USE**

- Sealing horizontal joints, in exterior and interior also use subject to **high mechanical stress**.
- Abrasion resistant sealing of joints in **industrial floors and subject to heavy traffic**, both in interior and exterior.
- Sealing joints where a castable, resistant to mechanical stress and to chemicals, water and vapor proof product is required.
- Sealing expansion and contraction joints in commercial, residential and industrial floors and in **architectural paving**.
- Sealing joints in ceramic floors subject to heavy traffic, both pedestrian and vehicular, such as supermarkets, warehouses, production areas, sidewalks, walkways, arcades and squares.

**WORKABILITY**

40 minutes
For further information about the application of the products always refer to the relevant technical data sheets available on the website www.mapei.it. The MAPEI Technical Service Department is available to identify the most suitable solution for your specific application.
EVERYTHING’S OK WITH MAPEI