



# Mapeflex PU45

**One component,  
rapid-hardening,  
paintable, thixotropic  
polyurethane sealant  
and adhesive with a high  
modulus of elasticity**



## WHERE TO USE

**Mapeflex PU45** has been specially developed for sealing expansion and distribution joints in horizontal and vertical surfaces, including those which are subject to occasional chemical attack provoked by hydrocarbons. It is also recommended for flexible bonds between similar and different materials most commonly used in the building industry for both internal and external applications and as a replacement or to integrate mechanical fasteners.

### Some application examples

Used as a sealant:

- Sealing expansion and distribution joints subject to movements up to 20% of the average width of the joint in:
  - industrial floors subject to vehicular traffic, including heavy vehicles;
  - concrete floors for internal and external car-parks, supermarkets, shopping centres and warehouses;
  - ceramic flooring and coatings, including in areas subject to intense traffic such as supermarkets and industrial environments where fork-lifts are in use;
  - concrete walls and general internal and external vertical structures where the use of a thixotropic product is required;
  - old concrete floors which are to be covered with a **Mapefloor System**.
- Sealing cracks.
- Sealing pipe-work systems for air-conditioning and electric cables.
- Sealing sheet-steel sections, such as flashing and guttering.
- Sealing general fillet joints.

Used as an adhesive at thicknesses up to 3 mm:

The high bonding characteristics and rapid-hardening properties of **Mapeflex PU45** make it suitable for joining various materials and for bonding on a wide range of substrate materials.

**Mapeflex PU45** may be used to bond most building materials, for example cement and cement-based products, cellular concrete, bricks, steel, copper, aluminium, general pre-painted surfaces, glass, mirrors, gypsum, wood and wood-based materials, ceramics, clinker, insulating material, plastics such as PVC, acrylic glass and fibreglass.

If **Mapeflex PU45** is used to form flexible bonds, it is a multi-purpose product for constructing and finishing building works such as:

- tinwork and flashing;
- skirting boards, cable beads, beading rods and corner guards;
- pre-formed decorative elements;
- bathroom fittings;
- window sills;
- roofing tiles, concave roofing tiles, covering panels and insulation panels.

## TECHNICAL CHARACTERISTICS

**Mapeflex PU45** is a one component, thixotropic, easy-to-apply polyurethane-based sealant and adhesive with a high modulus of elasticity, made according to a formula developed in MAPEI's own R&D laboratories and meets the requirements of ISO 11600 class F20 HM. Solvent-free, odourless with a low impact on the environment, **Mapeflex PU45** is certified as EC1 R as a product with very low emission of volatile organic compounds.

# Mapecflex PU45



Flexible bonding of elements



Flexible sealing of joints

**Mapecflex PU45** complies with Euronorm EN 15651-1 (“*Sealants for façade elements*”) with performance rating F-EXT-INT CC and EN 15651-4 (“*Sealants for pedestrian walkways*”) with performance rating PW-EXT-INT-CC.

**Mapecflex PU45** hardens following its reaction with atmospheric humidity and its special characteristics offers a guarantee of long service life. It may be used on both horizontal and vertical surfaces. The product is ready to use and is available in both metal cartridges and soft cartridges equipped with a special extrusion gun, which makes the product particularly easy to use. The consistency of the product is ideal for quick application and its rapid-hardening characteristics (approx. 3 mm every 24 hours) allows the surface to be put into service quickly with resulting economic advantages. We recommend using elastomeric paint such as **Elastocolor Paint** after treating the surface of the sealant with **Colorite Performance**. Always carry out preliminary tests to make sure the sealant and paint are compatible.

## RECOMMENDATIONS

- Do not use on dusty or flaky surfaces.
- Do not use on damp surfaces.
- Do not use to seal joints in stone and marble: use **Mapesil LM**.
- Do not use on surfaces which are dirty with oil, grease or mould-stripping compounds, as the bonding could be compromised.
- Do not use on bituminous surfaces where the bleeding of oil may be present.
- Do not apply **Mapecflex PU45** if the temperature is below +5°C.
- Do not contaminate the surface of the product with alcohol while still wet to prevent affecting its correct polymerisation.

## APPLICATION PROCEDURE

### Preparation of surfaces to be sealed or bonded

All the surfaces to be sealed or bonded must be dry, sound and free of dust, crumbling parts, oil, grease, wax and old paint. When used for sealing, **Mapecflex PU45** must only bond perfectly to the sides and not to the bottom. Therefore, in expansion and contraction joints, place a suitable diameter of **Mapecfoam** compressible, closed-cell expanded polyethylene cord at the bottom of the joint to leave a depth in the joint according to the table below:

| WIDTH OF JOINT   | DEPTH OF SEALANT   |
|------------------|--------------------|
| Up to 10 mm      | Same as width      |
| From 11 to 20 mm | 10 mm in all cases |
| More than 20 mm  | Half the width     |

**Mapecflex PU45** withstands movements when in service up to 20% of the average width of the sealed joint. If movements are greater than 20% when in service, use **Mapecflex PU40** polyurethane sealant with a low modulus of elasticity.

To avoid the sealant spreading out of the joint, and to leave an attractive finish, we recommend using masking tape along the edges of the joints, which must be removed immediately after smoothing off the sealant. **Mapecflex PU45** bonds well even without the use of a primer on substrates which are solid, free of dust and perfectly clean and dry. We recommend applying **Primer M** if the absorbent surfaces are not solid enough, if they have a slightly powdery surface or if the joints are subject to high mechanical stress or frequent, prolonged contact with liquids. We also recommend applying **Primer M** on cementitious surfaces which are still fresh. When applied on non-absorbent surfaces such as iron, steel, aluminium, copper, ceramic, glinker, glass and zinc-plated sheet, **Mapecflex MS45** forms a good bond if the surface is cleaned with a suitable degreasing product. Applying **Primer M** on the surface will improve adhesion over the years. When applying on plastics, it may help to roughen the surface by using fine sandpaper and then to apply a coat of **Primer P** one-component primer in solvent.

### Application of Primer M

Using a brush, apply a thin, uniform layer of **Primer M**, single component, solvent-free polyurethane primer for non-absorbent surfaces around the edges of the joint. The successive sealant must only be applied once the primer is no longer sticky (after approximately 40 minutes at +23°C and 50% R.H).

### Application of Primer P

Roughen the surface of the substrate, remove all loose and uneven areas and apply an even layer of **Primer P**. Leave to dry (approximately 20 minutes at +23°C) before extruding the sealant.

### Preparation and application of Mapecflex PU45 when used as a sealant

600 ml soft cartridge; place the cartridge in the special extrusion gun, cut off the tip of the cartridge, cut the extrusion nozzle at an angle of 45° and dependent on the width required. Squeeze out the product in a continuous flow into the joint. Take care to avoid entrapping air in the joint.

300 ml cartridge; place the cartridge in the special extrusion gun, make a hole in the tip of the cartridge, screw on the extrusion nozzle, cut the nozzle at an angle of 45° and dependent on the width required. Squeeze out the product in a continuous flow into the joint. Take care to avoid entrapping air in the joint. Immediately after extruding the product, smooth over the surface with a tool with a suitable size and shape while keeping it continuously wet with soap and water.

## TECHNICAL DATA (typical values)

### PRODUCT IDENTITY

|  |  |
|--|--|
| <b>Classification according to EN 15651-1:</b> | F-EXT-INT-CC, class 20 HM  |
| <b>Classification according to EN 15651-4:</b> | PW-EXT-INT-CC, class 20 HM   |
| <b>Consistency:</b>                            | thixotropic paste  |
| <b>Colour:</b>                                 | 111 grey, 113 grey, black (600 ml);<br>white, 111 grey, 113 grey, black (300 ml) |
| <b>Density (g/cm<sup>3</sup>):</b>             | 1.42 ± 0.07  |
| <b>Dry solids content (%):</b>                 | 100  |
| <b>Brookfield viscosity at +23°C (mPa·s):</b>  | 1,200,000 ± 200,000<br>(rotor F - 5 revs)  |
| <b>EMICODE:</b>                                | EC1 R - very low emission  |

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

|   |   |
|---|---|
| <b>Recommended application temperature range:</b> | from +5°C to +35°C  |
| <b>Dust dry:</b>                                  | 90 mins.  |
| <b>Final setting after:</b>                       | 24 h (per 3 mm of thickness) - 48 h (per 4 mm of thickness) |
| <b>Set to light foot traffic:</b>                 | according to the depth of the joint                         |

### FINAL PERFORMANCES

|   |                     |
|---|---------------------|
| <b>Shore A hardness (DIN 53505):</b>  | 38                  |
| <b>Tensile strength (DIN 53504S3a) (N/mm<sup>2</sup>)<br/>– after 28 days at 23°C and 50% R.H.:</b> | 3.6                 |
| <b>Elongation at break (DIN 53504S3a) (%)<br/>– after 28 days at 23°C and 50% R.H.:</b>             | 800                 |
| <b>Resistance to UV rays:</b>   | excellent           |
| <b>In service temperature:</b>  | from -40°C to +70°C |
| <b>Elongation in service continuous use (%):</b>  | 20                  |
| <b>Modulus of elasticity at +23°C (ISO 8339) (N/mm<sup>2</sup>):</b>                                | 0.8                 |
| <b>Springback (%):</b>  | 90                  |

# Mapeflex PU45

## Preparation and application of Mapeflex PU45 when used as a flexible adhesive

When bonding sections with a restricted surface area, extrude single drops of the product on the back of the section and press it well down onto the substrate to spread the adhesive uniformly. When bonding sections with a large surface area, extract a series of vertical, parallel beads around 15 cm apart and press on well to spread the adhesive uniformly.

If required, the bonded element may be adjusted within 30 minutes of laying at a temperature of +23°C.

When bonding heavy loads or in critical laying conditions, extra support such as clamps or props may be necessary for the first 24 hours at +23°C.

Do not bond with layers of product more than 3 mm thick.

## CONSUMPTION

Used as a sealant:

According to the size of the joint. Consult the table below for consumption of the product:

| Size of the joint in mm | Linear metres     |                         |
|-------------------------|-------------------|-------------------------|
|                         | 300 ml cartridges | s600 ml soft cartridges |
| 5 x 5                   | 12                | 24                      |
| 10 x 10                 | 3                 | 6                       |
| 15 x 10                 | 2                 | 4                       |
| 20 x 10                 | 1,5               | 3                       |
| 25 x 12,5               | 0,9               | 1,9                     |
| 30 x 15                 | 0,6               | 1,3                     |

Used as an adhesive:

According to the bonding method used (formation of a bead or spot-application).

## Cleaning

Remove **Mapeflex PU45** from surfaces next to the sealed joint or from tools and clothing with toluene or alcohol before it hardens. Never contaminate the surface of fresh sealant with any type of solvent, otherwise it may not polymerise correctly. Once hardened, it may only be removed with **Pulicol 2000**.

## PACKAGING

Boxes of 20 units (600 ml soft cartridges).  
Boxes of 12 (300 ml cartridges).

## COLOURS AVAILABLE

**Mapeflex PU45** is available in 111 grey, 113 grey, black (600 ml soft cartridges) and

in white, 111 grey, 113 grey, black (300 ml cartridges).

## STORAGE

**Mapeflex PU45** may be stored for 12 months in a cool, dry place.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**Mapeflex PU45** is harmful and may cause sensitisation if inhaled and allergic reactions in those sensitive to isocyanates.

It is recommended to use protective gloves and goggles and to take the usual precautions for handling chemicals. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention. We also recommend working in well ventilated areas only. If there is insufficient ventilation wear a face mask with a filter.

For further and complete information about the safe use of our product please refer to the latest version of our Material Safety Data Sheet.

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 application; 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.*

Please refer to the current version of the **Technical Data Sheet**, available from our website [www.mapei.com](http://www.mapei.com)



This symbol is used to identify Mapei products which give off a low level of volatile organic compounds (VOC) as certified by GEV (Gesellschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V.), an international organisation for controlling the level of emissions from products used for floors.



**Our Commitment To The Environment**  
MAPEI products assist Project Designers and Contractors create innovative LEED (The Leadership in Energy and Environmental Design) certified projects, in compliance with the U.S. Green Building Council.

**All relevant references for the product are available upon request and from [www.mapei.com](http://www.mapei.com)**



BUILDING THE FUTURE