



Mapeflex PU45

Single component, thixotropic, rapid-hardening 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;
 - 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 the most building materials, for example cement and cement-based products, cellular concrete, natural stone, 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 polycarbonate and fibreglass.

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

- steel, aluminium and copper cladding;
- wooden and plastic baseboards, skirting boards, cable beads, beading rods and corner guards;
- pre-formed decorative elements;
- bathroom fittings;
- doorsteps and window sills in natural stone, such as marble and granite;
- roofing tiles, concave roofing tiles, covering panels and insulation panels.

Maeflex PU45



Flexible bonding of elements



Flexible sealing of joints

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Appearance:	thixotropic paste
Colour:	grey, black (600 ml); white, grey, black (300 ml)
Density (g/cm³):	1.40
Dry substances content (%):	100
Brookfield viscosity at 23°C (mPa·s):	1,400,000 ± 200,000 (rotor F - 5 revs)
Storage:	12 months in its original, unopened packaging
Hazard classification according to EC 1999/45:	harmful. Before using refer to the "Safety instructions for preparation and application" paragraph and the information on the packaging and Safety Data Sheet
Customs class:	3909 50 00

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

Recommended application temperature range:	from +5°C to +35°C
Dust dry:	1 h
Final setting after:	24 h (per 3 mm of thickness)
Set to light foot traffic:	according to the depth of the joint

FINAL PERFORMANCES

Shore A hardness (DIN 53505):	40
Tensile strength (DIN 53504S3a) (N/mm²) - after 7 days at +23°C:	1.2
Elongation at break (DIN 53504S3a) (%) - after 7 days at +23°C:	500
Resistance to UV rays:	excellent
In service temperature:	from -10°C to +70°C
Elongation in service continuous use (%):	20
Modulus of elasticity at 23°C (ISO 8339) (N/mm²):	0.8
Springback (%):	90

TECHNICAL CHARACTERISTICS

Mapeflex PU45 is a single 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 by the GEV Institute as a product with extremely low emission levels of volatile organic compounds.

Mapeflex 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 aluminium 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) allow the surface to be put into service quickly with resulting economic advantages.

Mapeflex PU45 can be over-painted once cured.

RECOMMENDATIONS

- Do not use on dusty or flaky surfaces.
- Do not use on surfaces which are very damp.
- 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 **Mapeflex PU45** if the temperature is below +5°C.

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, crumbly parts, oil, grease, wax and old paint. When used for sealing, **Mapeflex PU45** must only bond perfectly to the sides and not to the bottom. Therefore, in expansion and contraction joints, place a suitable diameter of **Mapefoam** 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/depth ratio		
Dimensions of the joint	Width	Depth
Up to 10 mm	1	1
From 10 to 30 mm	2	1

Mapeflex 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 **Mapeflex 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.

Mapeflex 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 AS** if concrete, mortar, wood, natural stone and terracotta 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 AS** on cementitious surfaces which are still fresh. If **Mapeflex PU45** is applied on surfaces which are not absorbent, such as iron, steel, aluminium, copper, ceramic, glass or zinc-plated or painted sheet, its bonding capacity is good. However, to further improve bonding, we recommend that, under certain conditions, the material is treated with **Primer M**.

For applications on plastic materials contact the Mapei Technical Assistance Department beforehand.

Application of Primer AS

Use a brush to apply **Primer AS**, single component, transparent solvent-based, epoxy-isocyanic primer for absorbent substrates, around the edges of the joint. According to the porosity of the substrate, two coats of **Primer AS** may be applied. The sealant must only be applied when the primer is no longer sticky (after approx. 60 minutes at +23°C and 50% R.H.).

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.).

Preparation and application of Mapeflex 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.

Mapeflex PU45

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.

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 10 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:

CONSUMPTION TABLE

Size of the joint in mm	Linear metres / 300 ml cartridges	Linear metres / 600 ml soft cartridges
5 x 5	12	24
10 x 10	3	6
15 x 7.5	2.5	5.3
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

Mapeflex PU45 may be removed from surfaces, tools, clothing etc. with toluol or alcohol before the hardening reaction takes place. After hardening, it may only be removed mechanically or with Pulicol.

PACKAGING

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

COLOURS AVAILABLE

Mapeflex PU45 is available in grey, black (600 ml soft cartridges) and in grey, white, 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 if inhaled, and may provoke a reaction in those allergic to isocyanates.

We recommend using protective gloves and goggles when handling the product, and to keep the working area well ventilated. Seek medical attention in the case of accidents or giddiness.

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

FOR PROFESSIONAL USERS.

WARNING

While the indications and guidelines contained in this data sheet correspond to the company's knowledge and wide experience, they must be considered, under all circumstances, merely as an indication and subject to confirmation only after long-term, practical applications. Therefore, anybody who undertakes to use this product, must ensure beforehand that it is suitable for the intended application and, in all cases, the user is to be held responsible for any consequences deriving from its use.

Please refer to the current version of the Technical Data Sheet, available from our web site 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
More than 150 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