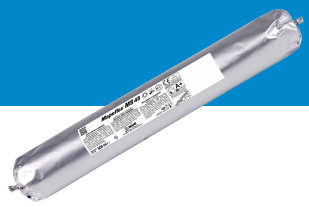
MAPEFLEX MS 45

One-component flexible, thixotropic, mould resistant, quick-hardening sililated polymer-based hybrid sealant and adhesive with a high modulus of elasticity. Also suitable for damp substrates



CE EN 15651-1 CE EN 15651-3 CE EN 15651-4 GEV-EMICODE EC 1 PLUS very low emission

BENEFITS AND FEATURES

- Ideal for flexible bonds and seals
- May be applied on floors and walls
- Compatible with damp substrates
- High flexibility
- Resistant to mould

WHERE TO USE

Mapeflex MS 45 has been specifically developed for sealing expansion, fillet and distribution joints on horizontal and vertical surfaces. It is also recommended to form internal and external flexible bonds between similar and dissimilar materials commonly used in the building industry and to replace or integrate mechanical fasteners.

Some application examples

Used as sealant:

Sealing expansion, fillet and distribution joints subject to movements of up to 20% of the average width of the joint.

It is most frequently used for the following applications:

- traditional façades;
- ventilated façades;
- civil and industrial floors, including those subject to heavy vehicular traffic;
- window and door fittings;
- cracks and splits;
- paintable joints;
- tin roofs and metalwork.

MAPEI

Used as flexible adhesive:

When applied at a thickness of 3 mm, it forms a flexible bond between most building materials, including many types of plastic.

Its high bond strength without primer and its rapid polymerisation make **Mapeflex MS 45** easy to use when installing building elements or bonding construction features, both internally and externally.

The product bonds on the following:

- cement and cement-based materials;
- bricks;
- skirting boards in steel, aluminum and expanded PVC;
- metals in general;
- painted surfaces in general;
- glass and mirrors;
- gypsum;
- wood and wood-based materials;
- ceramic and klinker;
- insulating materials in general;
- many types of plastic.

TECHNICAL CHARACTERISTICS

Mapeflex MS 45 is a thixotropic adhesive and sealant made from sililated polymers and thus completely free of silicone and isocyanates.

Mapeflex MS 45 is easy to extrude and smooth over (even when applied at low temperatures), has a wide application temperature range, does not blister even during particularly damp conditions, is compatible with damp substrates during application, is resistant to UV rays, hardens quickly, has a long shelf life.

Furthermore, **Mapeflex MS 45** forms a better bond on compact and absorbent substrates, efficiently reduces the amount of dirt which collects on the surface, offers good mechanical properties such as tensile and shear strength. Before painting over **Mapeflex MS 45** it must be fully polymerised and the paint used must be flexible, such as **Elastocolor Paint**, elastomeric, crack-bridging, permanently flexible, protective paint with high resistance to chemicals for interior and exterior surfaces.

We recommend carrying out preliminary tests to make sure the sealant and paint are compatible.

Mapeflex MS 45 complies with EN 15651-1 ("*Sealants for façade elements*") with performance rating F-EXT-INT CC, with EN 15651-3 ("*Sealants for sanitary joints*") with performance rating XS1 and EN 15651-4 ("*Sealants for pedestrian walkways*") with performance rating PW-EXT-INT-CC.

Mapeflex MS 45 contains no solvents, has a very low emission level of volatile organic compounds (EC1 Plus) and is characterised by high mechanical strength according to ISO 11600 (class F20 HM).

Mapeflex MS 45 can also be applied to substrates that are temporarily damp due to recent rain, high atmospheric humidity, etc.
The long-term adhesion of **Mapeflex MS 45** to the most common building substrates is very good even without the use of adhesion promoters. However, the use of specific primers always improves the product's long-term adhesion, particularly in cases of permanent capillary moisture rise, permanent or frequent immersion, or high mechanical stress on the joint.

Mapeflex MS 45 hardens by reacting with humidity in the surrounding air without giving significant levels of liquids or gases potentially hazardous for the user or the environment, which is why no safety warnings need to be applied on the packaging.

The product is ready to use and can be used with traditional extrusion guns for cartridges and sausages.

RECOMMENDATIONS

- Do not apply on dusty or crumbling surfaces.
- Do not apply on surfaces with traces of oil, grease and stripping compound otherwise the bond may be compromised.
- Do not apply on bituminous surfaces where there may be traces of bleeding oil.
- Do not apply **Mapeflex MS 45** if the temperature is below +5°C.
- Before painting over the sealant make sure it is compatible with the type of paint used.
- Use **Mapeflex MS Crystal** for transparent sealing.
- When applied to damp surfaces or used continuously in an immersed environment, the product's mechanical performance and adhesion may be significantly lower than when used in a dry environment.

APPLICATION PROCEDURE

Preparation of the surface for bonding or sealing

Surfaces to be bonded or sealed must be clean, dry, sound and free of dust, loose parts, oil, grease, wax and old paintwork. When used for sealing, **Mapeflex MS 45** must only bond to the sides of the joint and not to the bottom. Therefore, for joints subject to movement, insert **Mapefoam** compressible, closed-cell, polyethylene cord with a suitable diameter for the width of the joint to regulate the depth of the sealant 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

Mapeflex MS 45 withstands movement when in service of up to 20% of the average width of the sealed joint. If movement is higher than 20% when in service, use **Mapeflex MS40** hybrid sealant or **Mapesil LM** neutral silicone sealant, both with a low modulus of elasticity or, alternatively, use **Ultracare Smooth Silicone**, specific product for smoothing.

To prevent the sealant from seeping out of the joint and to get a more attractive finish, we recommend applying masking tape along the edges of the joint which should then be removed immediately after smoothing over the surface of the sealant.

Mapeflex MS 45 adheres well to most absorbent or compact building substrates, provided they are sound, free from dust, loose particles and release agents.
The use of **Mapei Primerseal A** is recommended on absorbent substrates (e.g. plaster, concrete, brick, gypsum, etc.) when
- surfaces are permanently damp during continuous use (e.g. rising damp, heavy rain, etc.)

- the surfaces are not perfectly solid and compact
- the joints are subject to high mechanical stress or frequent and prolonged contact with liquids

For applications on non-absorbent surfaces (e.g. iron, steel, aluminium, copper, galvanised sheet metal, ceramic, clinker, glass and painted sheet metal), the adhesion of **Mapeflex MS 45** is improved by using **Mapei Actiprimer M** degreaser followed by **Mapei Primerseal M** primer.
Mapei Primerseal M may be used on its own, provided that the surfaces have been thoroughly degreased beforehand.

If applied on plastic, we recommend using **Primer P** after roughening the surface. Because there is a very wide range of plastics available, we recommend carrying out a preliminary test or contacting MAPEI Technical Services Department beforehand.

Application of the primer

Apply the most suitable primer, according to the type of substrate, along the edges of the joints with a brush and wait until it completely dries before extruding **Mapeflex MS 45**.

Preparation and application of Mapeflex MS 45 when used for sealing

Insert the cartridge in an extrusion gun, cut the tip of the cartridge, screw on the extrusion nozzle, cut the nozzle at an angle of +45°C and according to the extruded width required and squeeze out the product in a continuous flow into the joint to avoid entrapping air in the process.

The surface finishing of **Mapeflex MS 45** must be carried out using a tool (e.g., **Mapei Perfect Seal**) moistened with **UltraCare Smooth Silicone** by Mapei, before the surface film forms. Read the corresponding technical data sheet before use. Alternatively, dry smoothing can be performed after protecting the joint edges with specific adhesive paper masking tapes.

Preparation and application of Mapeflex MS 45 when used for flexible bonds

When bonding elements with a small surface area, extrude single drops of the product on the back of the element and press it well down onto the substrate to spread the adhesive uniformly. When bonding elements with a large surface area, extrude a series of vertical, parallel beads around 10-15 cm apart and press on well to spread the adhesive uniformly.

The bonded element may be adjusted within 20 minutes of laying at a temperature of +23°C.

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

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

Bonding plastic profiles on a surface outside

CONSUMPTION

For sealing:

According to the size of the joint. See consumption table below.

CONSUMPTION TABLE	
Size of joint in mm	Linear metres of product per 300 ml cartridge
5 x 5	12
10 x 10	3
15 x 10	2
20 x 10	1.5
25 x 12.5	0.9
30 x 15	0.6

For bonding:

According to the bonding technique used (spot bonding or with beads).

CLEANING

Mapeflex MS 45 may be removed from surfaces, tools, clothing etc. with toluol or alcohol before it hardens. Once hardened, it must be removed mechanically or with **Pulicol 2000**.

PACKAGING

300 ml cartridges (boxes of 12 units) and 600 ml sausages (boxes of 20 units).

COLOURS AVAILABLE

Mapeflex MS 45 is available in white, grey 111, grey 113, brown and black.

STORAGE

Mapeflex MS 45 may be stored for up to 15 months (300 ml cartridges) and 12 months (600 ml sausages) in its original packaging in a dry, cool place.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Instructions for the safe use of our products can be found on the latest version of the Safety Data Sheet, available from our website www.mapei.com.

PRODUCT FOR PROFESSIONAL USE.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY	
Classification according to EN 15651-1:	F-EXT-INT-CC, class 20 HM
Classification according to EN 15651-3:	XS1
Classification according to EN 15651-4:	PW-EXT-INT-CC, class 20 HM
Appearance:	thixotropic paste
Colour:	white, grey 111, grey 113, brown and black
Density:	1.50 g/cm³
Dry solids content:	100%
Brookfield viscosity at +23°C:	1,900.000 mPa·s ± 200,000 (rotor F - 5 revs)
EMICODE:	EC1 Plus - very low emission

APPLICATION DATA (at +23°C and 50% R.H.)	
Application temperature range:	from +5°C to +35°C
Dust dry:	35 minutes
Complete hardening:	3 mm/24 hours - 4 mm/48 hours - 7.5 mm/7 days
Set to light foot traffic:	according to the depth of the joint

FINAL PERFORMANCE	
Shore A hardness (DIN 53505):	43
Tensile strength (ISO 37 type 3): **– after 28 days at +23°C:**	1.50 N/mm²
Elongation at failure (ISO 37 type 3): **– after 28 days at +23°C:**	500%
Resistance to UV rays (ASTM C793):	excellent

In-service temperature range:	from -40°C to +90°C
Elongation in service (continuous service):	20%
Modulus of elasticity at +23°C (ISO 8339):	0.75 N/mm²
Springback:	90%

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

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in force at the time of the MAPEI product installation.

The most up-to-date TDS can be downloaded from our website www.mapei.com.

ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

Mapei S.p.A.

Via Cafiero, 22, 20158, Milano

+39-02-376731 www.mapei.com mapei@mapei.it

428-7-2026 en (IT)

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