

# MAPEFLEX MS

## 55

Quick hardening, hybrid adhesive and sealant with high initial tack and high modulus of elasticity, also suitable for damp substrates



## WHERE TO USE

**Mapeflex MS 55** is a multi-purpose adhesive and sealant, for flexible bonding of industrial and building construction elements and for sealing of expansion and fillet joints.

If used as flexible adhesive, thanks to its high initial grab, its compatibility with various substrates and high final strength, **Mapeflex MS 55** is particularly suitable for bondings in the building and industrial sector.

If used as sealant for joints, thanks to its quick hardening, the total absence of plasticiser migration and its high surface hardness, **Mapeflex MS 55** can be used for sealing both vertical and horizontal joints, on absorbent and non-absorbent substrates, even when subjected to frequent mechanical stress.

The special formulation of **Mapeflex MS 55** allows its application even on absorbent substrates and strongly reduces the risk of staining for adjacent surfaces, also allowing contact with drinking water.

After complete polymerisation, **Mapeflex MS 55** can be painted over with MAPEI elastomeric paints.

### Some application examples

- Bonding of mirrors
- Bonding of construction elements both in interior and exterior
- Bonding and sealing of ventilation system elements subject to vibration
- Bonding precast building components, even heavy ones
- Sealing joints in traditional façades and rainscreens
- Sealing floor joints
- Sealing joints in floors and windows
- Sealing joints in containers and isothermal vehicles
- Sealing and bonding of tin roofs and metalwork.

## ADVANTAGES

- Multi-purpose: suitable for every type of bonding and sealing
- Polyvalent: suitable for use on damp and wet substrates
- Practical: easy to extrude, may be applied with traditional gun (cartridge) or manually (tube)
- Polyvalent: adheres on multiple substrates, even without primer
- Nontoxic: suitable for contact with drinking water
- Odourless: may be used also in interior

- Practical: may be painted over after hardening
- Isocyanate, solvent and silicone free: low environmental impact, easy disposal
- Easy to remove (when not polymerised)
- Polymerises with no bubbles or swelling: excellent aesthetic result
- Surface dirt pick-up strongly reduced after polymerisation: excellent aesthetic result
- Does not stain porous substrates
- Good UV resistance

## TECHNICAL CHARACTERISTICS

**Mapeflex MS 55** is a one-component, silylated polymer-based thixotropic adhesive and sealant, free from silicone and isocyanates and with high modulus of elasticity developed in MAPEI R&D Laboratories. It complies with EN 15651-1 ("Sealants for façade elements") with performance rating F-EXT-INT-CC, EN15651-3 ("Sealants for bathroom fixtures") with XS2 performance rating and EN 15651-4 ("Sealants for pedestrian areas") with performance rating PW-EXT-INT-CC.

**Mapeflex MS 55** hardens by reacting with humidity in the surrounding air without releasing solvents and with very low emission of Volatile Organic Compounds.

The product is ready to use and is available both in plastic cartridges to use in combination with the specific extrusion guns from **Mapei Gun** range and in tubes for hand extrusion in case of limited or sporadic applications.

**Mapeflex MS 55** is suitable for sealing joints subject to movements of up to 20% of their average width.

**Mapeflex MS 55** may be applied also on temporarily damp substrates when application conditions are not ideal (recent rain, condensation etc.). In case of constantly moist substrates due to capillary rising damp, apply **Primer FD** beforehand. If applied on damp substrates or on substrates continuously immersed when in service, the mechanical performance and the adhesion of the product could be significantly lower compared to use in dry conditions.

**Mapeflex MS 55** grants good resistance to UV and industrial environments.

**Mapeflex MS 55** adheres on absorbent or non absorbent substrates (such as cement, bricks, stone, gypsum, wood, ceramics, steel, tin, copper, painted surfaces, glass and mirrors, insulating materials and many types of plastic), even without the application of a primer. For application in difficult conditions, use **Primer FD**. Always carry out preliminary tests to verify adhesion with and without the use of a primer.

**Mapeflex MS 55** does not release plasticisers and this drastically reduces the risk of migration on absorbent substrates and staining of the edge of joints.

After complete polymerisation, **Mapeflex MS 55** can come into contact with drinking water.

If painted over, **Mapeflex MS 55** must be completely polymerised and the paint must be of elastomeric type (such as **Elastocolor Paint** by MAPEI).

Always carry out preliminary tests to make sure the sealant and paint are compatible.

## RECOMMENDATIONS

- Do not use on dusty and crumbling surfaces.
- Do not use on surfaces which are dirty with oil, grease or stripping compounds, the bonding could be compromised.
- Do not use on bituminous surfaces where the bleeding of oil may be present.
- Do not apply **Mapeflex MS 55** if the temperature is lower than +5°C.
- In case of application on absorbent substrates, due to the wide variety of materials present on the market, always verify any possible staining through preliminary tests.
- If the product is to be painted over, always verify the compatibility between paint and sealant beforehand.
- If transparent sealing is needed, use **Mapeflex MS Crystal**.

### Preparation of the surface 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 detaching paint. When used as sealant, **Mapeflex MS 55** must only bond to the side walls of the joint and not to the bottom. Therefore, insert **Mapefoam** compressible closed-cell expanded polyethylene cord with a suitable diameter in 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
11 to 20 mm	10 mm in all cases
More than 20 mm	Half the width

**Mapeflex MS 55** 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 MS 40** hybrid sealant or **Mapesil LM** neutral silicone sealant, both with a low modulus of elasticity.

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 or, alternatively, to apply **UltraCare Smooth Silicone** before finishing off the fresh sealant.

**Mapeflex MS 55** bonds well to most absorbent or compact substrates used in the building industry, as long as they are free of traces of dust and stripping compounds. We recommend applying **Primer FD** if absorbent surfaces are not sufficiently solid or compact, or when the joints are subjected to high mechanical stress or frequent, prolonged immersion in water.

If applied on plastic, we recommend using **Primer P** after roughening the surface.

Due to the very wide range of plastics available on the market, we recommend carrying out a preliminary test or contacting MAPEI Technical Services Department beforehand.

### Application of Primer FD or Primer P

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 55**.

### Preparation and application of Mapeflex MS 55 used as sealant

Insert the cartridge in the 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.

Immediately after extruding the product, smooth over the surface with a tool with a suitable size and shape while keeping it continuously wet with **UltraCare Smooth Silicone** by MAPEI.

### Preparation and application of Mapeflex MS 55 used as flexible sealant

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.

## CONSUMPTION

### Used as sealant:

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

CONSUMPTION TABLE	
Size of joint in mm	Linear metres per 290 ml cartridge
5 x 5	11.6
10 x 10	2.9
15 x 10	1.9
20 x 10	1.4
25 x 12,5	0.6
30 x 15	0.4

#### Used as adhesive:

According to the type of bonding (kerbs or beads).

## CLEANING

Mapeflex MS 55 can be removed from surfaces, tools, clothing, etc. with toluene or alcohol before the hardening reaction takes place. After hardening, it may only be removed mechanically or with **Pulicol 2000**.

## PACKAGING

290 ml cartridges (12 pcs boxes) and 100 ml tubes (20 pcs boxes).

## COLOURS

Mapeflex MS 55 is available in white and 113 grey.

## STORAGE

Mapeflex MS 55 may be stored up to 15 months (290 ml cartridge) or 18 months (120 ml tube), in a dry and cool environment.

## 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](http://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:	XS 2
Classification according to EN 15651-4:	PW-EXT-INT-CC, class 20 HM
Consistency:	thixotropic paste
Colour:	white, 113 grey
Density:	1.40 g/cm <sup>3</sup>
Dry substances content:	100%
Brookfield Viscosity at +23°C:	7,000,000 ± 200,000 mPa·s (spindle F - 1 revs)
EMICODE:	EC1 Plus – very low emission
Certification for staining on absorbent substrates:	No staining according to ASTM C1248

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

Application temperature range:	from +5°C to +35°C
Dust dry:	20 mins.
Final hardening time:	3 mm/24 h 4.5 mm/48 h 8 mm/7 days
Set for traffic:	According to the depth of the joint

## FINAL PERFORMANCE

Shore A hardness (DIN 53505):	55 ± 5
Tensile strength (ISO 37 TYPE 3): - after 28 days at +23°C:	2.85 N/mm <sup>2</sup>
Elongation at failure (ISO 37 TYPE 3): - after 28 days at +23°C:	300%
Resistance to UV rays (ASTM C793):	excellent
Service temperature:	from -40°C to +90°C
Elongation in service (continuous service. using Primer FD):	20%
Modulus of elasticity after 28 days at +23°C (ISO 8339, using Primer FD):	1.2 N/mm <sup>2</sup>
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](http://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.

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