



# Primer MF EC Plus

**Epoxy moisture barrier  
for cementitious  
substrates with  
very low emissions  
of volatile organic  
compounds (VOC)**



## WHERE TO USE

Application on concrete slabs and screeds with high residual moisture content before the installation of flooring sensitive to humidity such as wood, rubber or vinyl. **Primer MF EC Plus** can be applied in the case of moisture content up to 6% MC (measured with a carbide hygrometer - UNI 10329) or up to 100% RH (measured with in situ probe test - ASTM F2170 - BS 8203).

Application to consolidate inconsistent and/or weak substrates.

## Some application examples

- Application prior the laying of flooring sensitive to moisture, to stop moisture related problems of concrete or cementitious screed.
- Consolidating weak cementitious substrates.
- Dustproof treatment for cementitious and anhydrite substrates with a crumbling surface.
- Binder to be mixed with quartz sand in the preparation of synthetic mortar for small smoothing and repair operations.

## TECHNICAL CHARACTERISTICS

**Primer MF EC Plus** is a two-component, solvent-free, neat epoxy resin-based product with very low emission of volatile organic compounds (GEV Emicode EC1 R Plus) and low viscosity, which makes it easy to penetrate into the pores in substrates.

**Primer MF EC Plus** is completely solvent-free, which means it is non-flammable, and has only a slight odour typical of resin-based products, which makes it suitable for use close to inhabited areas and buildings (such as apartments, schools, offices, etc.). Once the resin has hardened and cured, the permeability of substrate is strongly reduced and, in the meantime, it becomes sound, stronger and more resistant to abrasion.

## RECOMMENDATIONS

- Do not dilute **Primer MF EC Plus** with water or any solvent in general and when there is continuous rising damp.
- Do not apply on wet surfaces.
- Do not apply **Primer MF EC Plus** on self-levelling smoothing and levelling mortar.
- Do not use acid to clean the substrate on which the membrane is to be applied.
- The product is suitable for consolidating heated screeds and anhydrite substrates but cannot be used to reduce moisture content. Therefore, always make sure that these types of substrate are dry before applying the product. A cementitious substrate is normally considered dry for values of humidity up to 2.5 CM or up to 75% R.H.
- To ensure smoothing and levelling mortar and adhesive form a good anchor with substrates

treated with **Primer MF EC Plus**, sprinkle a layer of quartz or clean, dry sand of the right size on the product while it is still fresh. Any loose sand must be removed once the **Primer MF EC Plus** has set and before applying any other product. Parquet may be bonded directly to substrates treated with **Primer MF EC Plus** without a broadcasting of sand by using reactive epoxy-polyurethane adhesive or one-component polyurethane or silylated polymer-based adhesive.

- If **Primer MF EC Plus** has not been broadcast with sand, when it sets the surface will be shiny. Before the application of cementitious smoothing and leveling mortar when installing pre-finished multi-layered parquet with silylated adhesives, apply an adhesion promoter such as **Eco Prim Grip** or **Eco Prim T Plus**; before direct bonding with adhesive, the surface must be well-sanded.
- To prevent condensation forming on the surface of the product while it is setting, at the moment of application the temperature of the substrate must be at least 3°C above the dew-point temperature.

## APPLICATION PROCEDURE

### Substrate preparation

Substrates must be clean and compact and have no traces of oil, wax, dirt or any other substance that could affect its adhesion. The substrate must also be well cured and no hygrometric shrinkage should take place.

Concrete must have reached a minimum tensile strength of 1.05 MPa. Any cement laitance or anti-evaporation agents on the surface of the substrate must be removed with a thorough mechanical abrasion process. For direct application without mechanical profiling, the surface must be porous, concrete surface profile (CSP) of #2 to #3, and be in pristine conditions with no contamination present. If these conditions are not met, before the application of **Primer MF EC Plus** the surface must be roughened over using dustless, engineer-approved methods suitable equipment to create a sufficiently rough profile (concrete should be CSP [Concrete Surface Profile] grade #2 or #3). Cracks or crazing must be opened and filled with **Eporip** or **Eporip Turbo** before applying **Primer MF EC Plus** in order to eliminate any breaks in the surface. MAPEI cannot be held responsible for the formation of cracks or debonding caused by subsequent substrate movement of any kind.

The product can be applied as moisture barrier to cementitious substrates with no

standing water on the surface and with humidity up to 6% CM or 100 % RH. It is important to remember that particularly high levels of moisture and humidity (more than 6% MC or 98% RH) could be due to water seeping in from an external source caused, for example, by a poor design of the drainage or waterproofing system, leaks, a broken pipe, etc. Therefore, before treating substrates with **Primer MF EC Plus**, check the area to make sure there are none of these types of problem.

## Preparation of the product

The two components that make up **Primer MF EC Plus** are supplied in pre-dosed units:

- component A: 4 parts by weight;
- component B: 1 part by weight.

The two components must be carefully and thoroughly mixed together with a mixer at low-speed to form an even mix.

## Application of the product

- **To consolidate a substrate or reduce its moisture content**

Apply at least two coats of **Primer MF EC Plus** with a roller, brush or flat trowel; wait around three hours between each coat. Do not exceed 12-24 hours between each coat; the two coats may not form a perfect bond.

To form an effective moisture barrier, a seamless film with more or less the same thickness must be formed on the substrate. This may be achieved more easily if the first coat is applied with a flat trowel and the second coat with a roller. We recommend checking the surface immediately after application to make sure the substrate is evenly covered and that there are no untreated areas.

When used to consolidate substrates one coat of **Primer MF EC Plus** may be sufficient.

- **Repair work**

For small smoothing and levelling jobs or small repairs on screeds, use **Primer MF EC Plus** mixed with **Quartz 1.2** sand; the mixing ratio in this case is 7/10 kg of **Quartz 1.2** sand per litre of product. The mortar formed by this mix has good workability and, once hardened, forms a very solid repair suitable for bonding any type of parquet. Treat the substrate with **Primer MF EC Plus** and apply the mortar within 24 hours.

## Cleaning

Remove **Primer MF EC Plus** from tools and clothing with alcohol while it is still wet.

## CONSUMPTION

0.200-0.400 kg/m<sup>2</sup> per coat, depending on the evenness and absorption rate of the substrate (from 7.5 to 15 m<sup>2</sup> per 6 kg kit).

## TECHNICAL DATA (typical values)

### PRODUCT IDENTITY

	component A	component B
Colour:	transparent yellow	transparent yellow
Density (g/cm <sup>3</sup> ):	1.14	0.95
Brookfield Viscosity (mPa·s):	1100 (# 2 - rpm 50)	35 (# 2 - rpm 50)
Dry solids content (%):	100	100
EMICODE:	EC1 R Plus - very low emission	

### APPLICATION DATA

Mix ratio:	component A : component B = 4 : 1
Consistency of mix:	liquid
Colour:	transparent
Density (g/cm <sup>3</sup> ):	1.1
Brookfield Viscosity (mPa·s):	350 (# 2 - rpm 50)
Maximum permissible humidity to use as moisture barrier:	6% CM (Carbide Hygrometer - UNI 10329) or 100% RH (In situ probe Test - ASTM F2170 - B BS 8203)
Permeability to water vapour (ASTM E96-05):	< 0.1 perm at DFT (dry film thickness) ≥ 0.25 mm
Reduction of moisture vapor (ASTM E96-05):	> 96% at 0.25 mm DFT
Resistance to high alkalinity pH 14 (ASTM D1308):	no effect
Application temperature range:	from +10°C to +30°C
Workability – at +10°C: – at +23°C: – at +30°C:	150 minutes 40 minutes 30 minutes
Set to light foot traffic – at +10°C: – at +23°C: – at +30°C:	24 hours 8 hours 6 hours
Final curing at +23°C:	7 days

### FINAL PERFORMANCE

Resistance to moisture:	excellent
Adhesion to concrete (N/mm <sup>2</sup> ):	> 3 (failure in the substrate)
Temperature when in use:	from –5°C to +80°C

# Primer MF EC Plus

## PACKAGING

The product is available in 5 kg kits (4 kg comp. A + 1 kg comp. B).

## STORAGE

24 months in its original, well-sealed packaging stored under normal conditions. Protect from frost.

## SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

**Primer MF EC Plus** component A irritates the skin and eyes. Components A and B may cause sensitisation to those predisposed if they come in contact with the skin. **Primer MF EC Plus** component B is harmful if swallowed or if it comes in contact with the skin. It is also corrosive and may cause burns. The product contains low molecular weight epoxy resins that may cause sensitisation if cross-contamination occurs with other epoxy compounds.

When applying the product it is recommended to use protective gloves and goggles and to take the usual precautions for handling chemicals. If the product comes in contact with the eyes or skin, wash immediately with plenty of water and seek medical attention.

When the product reacts it generates considerable heat. After mixing components A and B, we recommend applying the product as soon as possible and to never leave the container unguarded until it is completely empty.

**Primer MF EC Plus** components A and B are also hazardous for aquatic life. Do not dispose of this product in the environment. 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 ONLY 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)

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



This symbol is used to identify Mapei products which give off a low level of volatile organic compounds (VOC) as certified by GEV (Gemeinschaft 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)**



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