

ULTRABOND ECO PU 2K

Two-component, solvent-free, high performance polyurethane adhesive with very low emission level of volatile organic compounds (VOC) for ceramic and stone tiles



0474

CLASSIFICATION ACCORDING TO EN 12004

Ultrabond Eco PU 2K is an R2T class reactive (R) improved (2) slip-resistant (T) adhesive. Conformity of **Ultrabond Eco PU 2K** is declared in ITT certificates n° 15/10709-1380 and n° 15/10709-1380-S issued by LGAI Technological Center S.A. of Bellaterra - Barcelona (Spain).

WHERE TO USE

Bonding ceramic tiles, stone tiles and mosaics on all types of internal and external wall and floor substrates normally used in the building industry such as screeds, render, concrete, cement-fibre panels, gypsum, plasterboard, pre-fabricated gypsum panels, etc. and on particularly difficult substrates such as metal, PVC, polyester, etc.

Some application examples

- Bonding all types of ceramic tile, stone tile and mosaic in showers and on sheet steel used to make prefabricated bathrooms.
- Bonding ceramic and mosaic on wooden work surfaces and kitchen tops.
- Bonding ceramic tiles, stone tiles and mosaics on external balconies and terraces, accessible flat roofs and domed roofs.
- Bonding recomposed and natural stone, including materials subjected to large movements and dimensional variations in contact with water (class C according to MAPEI internal standards, such as Green Alpine).
- Bonding ceramic and stone tiles on substrates subjected to high vibrations and deformation.

TECHNICAL CHARACTERISTICS

Ultrabond Eco PU 2K is a two-component, solvent and water-free, elastic, waterproof adhesive with very low emission level of volatile organic compounds (EMICODE ECI R Plus) made up of a polyurethane base (component A) and a special catalyser (component B).

When the two components are mixed together they form a paste with the following characteristics:

- good workability;
- excellent durability and resistance to ageing;
- perfect adhesion to all types of substrate normally used in the building industry;
- hardens by chemical reaction without shrinking to form a tough, strong bond;
- high elasticity;
- may be applied on vertical surfaces without slumping and without allowing tiles to slip, including large, heavy tiles;
- suitable for users allergic to epoxy and epoxy-polyurethane products.

The slip-resistance of the product complies with EN 12004 standards.

RECOMMENDATIONS

- Do not use on damp surfaces or if there is a risk of capillary-action rising damp.
- The kits are pre-dosed to prevent mixing errors. Do not use partial quantities of the product and do not guess the amounts to be mixed: hardening will be affected if the two components are not mixed together correctly.
- The components must be mixed together at a temperature of between +5°C and +30°C.
- Contact MAPEI Technical Services before using the product for surfaces permanently immersed in water.
- Do not use **Ultrabond Eco PU 2K** to bond transparent glass.

APPLICATION PROCEDURE

Substrate preparation

Substrates must be well cured, strong, free of loose portions, grease, oil, paint, wax etc. and sufficiently dry. Cementitious substrates must not shrink after bonding tiles. In good weather, therefore, render must be cured for at least one week per cm of thickness and cementitious screeds must be cured for at least 28 days, unless they are made using a special MAPEI ready-mixed screed binder such as **Mapecem**, **Mapecem Pronto**, **Topcem** or **Topcem Pronto**. Metallic substrates must be sandblasted to remove all traces of rust. For gypsum and anhydrite we recommend consolidating the surface by applying a coat of **Primer EP** or **Primer MF**.

Preparation of the mix

Ultrabond Eco PU 2K is supplied in two pre-dosed tubs:

- component A: grey or white colour, 88 parts in weight;
- component B: dark colour, 12 parts in weight.

The mixing ratio between the resin (component A) and catalyser (component B) must be strictly adhered to; any variation may affect the hardening process of the product.

Pour the catalyser (component B) into the container of component A and blend together with a mixer at low-speed to form a smooth, even grey or white paste.

A low speed electric mixer is preferable for this operation so that the paste is perfectly blended without overheating, which would reduce its workability time. Apply the adhesive within 30-40 minutes of mixing.

Spreading the mix

Apply an even layer of **Ultrabond Eco PU 2K** on the substrate with a notched spreader. Use a spreader that allows at least 65-70% of the back of the tiles to be wetted (see "Consumption" section).

When bonding tiles on external surfaces make sure the back of the tiles is completely wetted.

When the adhesive is used to both waterproof the surface and bond tiles, such as when bonding tiles on wooden kitchen tops, apply an even layer of **Ultrabond Eco PU 2K** around 1 mm thick with a smooth spreader to waterproof the surface, then apply a second layer of **Ultrabond Eco PU 2K** with a notched spreader when the first layer has hardened (within 24 hours).

Bonding tiles

Tiles must always be dry when they are bonded.

Press the tiles down well to ensure they are in contact with the adhesive and that the back of the tiles are wetted. If the layer of wet **Ultrabond Eco PU 2K** also acts as a waterproofing layer, make sure the ribs on the back of the tiles do not penetrate completely through the adhesive.

When using **Ultrabond Eco PU 2K** to bond tiles on deformable substrates, tiles larger than 5x5 cm must be positioned so they have large gaps between them.

In normal conditions (temperature and humidity level) the open time of **Ultrabond Eco PU 2K** is approximately 20 minutes. Final adjustment of the tiles must be carried out within 70 minutes of bonding.

The setting time of the adhesive depends on the surrounding temperature (see following table).

Setting time of **Ultrabond Eco PU 2K** according to surrounding temperature:

Temperature in °C	30	25	20	15	10
Time in hours	2	4	5	7	10

GROUTING AND SEALING

Grout the gaps between the tiles after 12 hours using a suitable cementitious or epoxy MAPEI grouting mortar, available in a wide range of colours.

Seal expansion joints using a suitable MAPEI sealant.

SET TO FOOT TRAFFIC

Floors set to foot traffic after 12 hours.

READY FOR USE

Surfaces are ready for use after 7 days.

CLEANING

Ultrabond Eco PU 2K is easy to remove from tools, buckets and clothing before it hardens with alcohol. Once hardened **Ultrabond Eco PU 2K** must be removed mechanically or with **Pulicol 2000**.

CONSUMPTION

Bonding ceramic and stone:

- mosaics and small tiles (No. 4 spreader): 2.5 kg/m²
- normal size tiles (N° 5 spreader): 3.5 kg/m²
- large tiles, marble and stone (double-buttering technique): 5 kg/m²

PACKAGING

Ultrabond Eco PU 2K is supplied in twin metal tubs comprising:

- 10 kg kits (8.8 kg component A + 1.2 kg component B).
- 5 kg total weight (4.4 kg component A + 0.6 kg component B).

STORAGE

Ultrabond Eco PU 2K remains stable for at least 12 months if the tubs are sealed. Component B (catalyser) must be stored in a warm area to prevent it crystallising at cold temperatures (minimum +10°C).

If the catalyser crystallises it must be warmed up before use.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Ultrabond Eco PU 2K comp. A is not considered as dangerous according to the current regulation regarding the classification of mixtures.

Ultrabond Eco PU 2K comp. B is irritant for the eyes, the respiratory apparatus and skin. It can cause irreversible damages if used for lengthy periods and sensitization if it comes into contact with the skin in those subjects sensitive to isocyanates. The product does not produce dangerous vapours in the environment and in normal surrounding conditions. If the product is used at a temperature higher than +60°C, it may become dangerous and cause sensitization if inhaled. In case of illness, seek medical attention.

When applying the product, we recommend using protective clothing, safety goggles and to protect the respiratory apparatus using a face mask. Work only in well-ventilated areas. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention.

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.

TECHNICAL DATA (typical values) Compliant to the standard: – Euronorm EN 12004 (R2T) – ISO 13007-1 (R2T)		
PRODUCT IDENTITY		
	component A	component B
Consistency:	thixotropic paste	liquid
Colour:	grey/white	dark
Density (g/cm³):	1.6	1.2
Dry solids content (%):	100	100

Brookfield viscosity (mPa·s):	6,000,000 (rotor F - 1 rpm)	150 (rotor 1 - 100 rpm)
EMICODE:	EC1 R Plus - very low emission	
APPLICATION DATA (at +23°C and 50% R.H.)		
Mixing ratio in weight:	88/12	
Consistency of mix:	thixotropic paste	
Density of mix (g/cm ³):	1.5	
Brookfield viscosity (mPa·s):	2,500,000 (rotor F - 1 rpm)	
Pot life of mix:	20-30 minutes	
Application temperature:	+5°C and +30°C	
Open time (EN 1346):	20 minutes	
Adjustment time:	70 minutes	
Setting time: - start: - finish:	4,5 hours 7 hours	
Set to foot traffic:	12 hours	
Ready for service:	7 days	
FINAL PERFORMANCE		
Adhesion according to EN 12003 (N/mm ²): - initial adhesion: - adhesion after immersion in water: - adhesion after thermal shock:	> 2 > 2 > 2	
Resistance to ageing:	high	
Resistance to solvents and oil:	good	
Resistance to acids and alkalis:	good	
Resistance to temperatures:	-40°C to +100°C	
Deformability:	good	
CERTIFICATES AND CLASSIFICATION		
Ris. IMO 61 (67) FTCP - Ann. 1, part 2 and 5:	low flames spread characteristics	

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

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