

MAPECOAT TNS EXTREME

Two-component rapid-drying epoxy-acrylic coloured topcoating for car traffic areas



DESCRIPTION

Mapecoat TNS Extreme is a two-component water-based rapid-drying epoxy-acrylic resin with selected fillers specifically formulated in MAPEI Research & Development laboratories used to form a durable coating of car traffic and pedestrian areas as well as cycle lanes.

WHERE TO USE

- Protecting and colouring car traffic areas, such as pedestrian crossings, parking areas, access ramps.
- Coating and colouring of outdoor areas subject to a high level of footfall, including in wet conditions.
- Coating and protecting bituminous conglomerate surfaces with an imprinted asphalt finish.
- Colouring and protecting cycle lanes, urban design, multi-purpose and sport areas.
- Colouring pavements and pedestrian areas.

TECHNICAL CHARACTERISTICS

Mapecoat TNS Extreme is a two-component, water-based, rapid-drying, epoxy-acrylic resin which, thanks to its excellent physical and mechanical properties, may be used to colour and protect high-traffic surfaces used by vehicles, pedestrian areas and cycle lanes. The special formulation of **Mapecoat TNS Extreme** allows for its application on bituminous and cementitious conglomerate substrates and pavers. Thanks to the selected fillers used in its special formulation, **Mapecoat TNS Extreme** may be used as a coating on external flooring that needs to have a high level of slip-resistance, including in wet conditions, such as access driveways, line marking in general, cycle lanes, etc.

Thanks to its special composition, **Mapecoat TNS Extreme** is easy to apply and is rapid-drying and treated surfaces can be put back into service quickly. This means **Mapecoat TNS Extreme** may be applied directly on hot bituminous conglomerate, particularly suitable in the case of applications using the stamped asphalt technique. Unlike conventional colouring systems, **Mapecoat TNS Extreme** allows highly durable, non-slip surfaces to be created that maintain their surface finish over the years, including in wet conditions. The mechanical properties of the coating, combined with its high resistance to chemical products potentially harmful to surfaces (such as de-icing salts, oil and fuel, etc.), also make **Mapecoat TNS Extreme** suitable for coating large areas, either those that need to be treated periodically to prevent ice forming or for routine cleaning purposes. **Mapecoat TNS Extreme** is particularly suitable for protecting substrates: in fact, in the

case of concrete flooring, the coloured coating limits the effect of agents that could damage or deteriorate the surface, such as carbon dioxide and moisture, thereby making the structure more durable.

From an aesthetic point of view, the wide range of colours available, along with the other shades offered thanks to the **ColorMap** automatic colouring system, also allow for the creation of personalised colours.

Mapecoat TNS Extreme is tested by Weather-Ometer to simulate severe physical and environmental cycles and is able to resist prolonged exposure to sunlight, particularly ultraviolet rays.

RECOMMENDATIONS

Mapecoat TNS Extreme may be applied over old resin and painted surfaces: in such cases, the condition of the old coating will need to be checked beforehand, such as its adhesion, as well as its compatibility with **Mapecoat TNS Extreme**. If tests show the old finish is suitable for recoating, the surface must be prepared properly by cleaning it with a degreasing product and then sanded to make the application surface as rough as possible before applying **Mapecoat TNS Extreme**; if necessary, the surface must also be treated with a suitable primer. When applying **Mapecoat TNS Extreme** on new layers of hot bituminous conglomerate, it is recommended to make sure the maximum bitumen content is no more than 6%, otherwise adhesion may be affected. Always apply the product on a small test area beforehand. It is recommended to contact our Sports System Technology department or MAPEI Technical Services to check and discuss how to use **Mapecoat TNS Extreme** correctly, based on local conditions and the type of substrate.

- Do not dilute **Mapecoat TNS Extreme** with solvent.
- Do not apply **Mapecoat TNS Extreme** directly on dusty, crumbling, or weak surfaces.
- Do not apply **Mapecoat TNS Extreme** on substrates with oil or grease stains, or with stains in general.
- Do not apply **Mapecoat TNS Extreme** on surfaces where water in counter-pressure is present. In such cases, the substrate needs to be treated beforehand by adopting the most appropriate technical solutions and then checked to make sure it is feasible to apply **Mapecoat TNS Extreme**.
- When applying **Mapecoat TNS Extreme** on cementitious substrates, always prime the surface

APPLICATION PROCEDURE

Preparation of the substrate

Substrates on which **Mapecoat TNS Extreme** is to be applied must be compact, solid, and flat and have no detached or loose areas. Specifically, the surface on which the coating is to be applied must be strong enough to withstand the loads acting on the substrate when in use, especially in car traffic areas.

In the case of concrete substrates, to allow the correct adhesion of **Mapecoat TNS Extreme**, it is necessary to apply a suitable primer on the dry surface. For surfaces with residual humidity up to 3%, use **Mapecoat TNS Primer EPW**. In the presence of residual humidity between 3-6%, apply a suitable chemical barrier made of the three-component epoxy-cementitious primer **Triblock P**. Apply the first coat of **Mapecoat TNS Extreme** within 24 hours of applying **Mapecoat TNS Primer EPW** and within 36 hours if a **Triblock P** chemical barrier has been applied. Any cracking present in the concrete substrate must be repaired by applying **Eporip** or **Eporip SCR** injectable epoxy resin.

Repair, skim, or smooth over areas of damaged or deteriorated concrete with a cementitious mortar from the **Mapecrout** or **Planitop** ranges, according to the type of damage to be repaired and the loads the flooring needs to withstand. The substrate on which **Mapecoat TNS Extreme** is to be applied must be levelled off so that it may be applied evenly and uniformly.

In the case of bituminous substrate, cracks must be filled and repaired using reactive products such as **Ultrabond Turf 2 Stars Pro**, **Ultrabond Turf 2 Stars** or **Ultrabond Turf PU 2K**. For hollows up to 2 cm deep, we suggest a balanced mix of the products mentioned above (**Ultrabond Turf**) and 15-20% in weight of **Quartz 0.9** silica sand. Remove badly damaged and worn bituminous conglomerate and replace it with a new layer, with a ready-to-use, reactive product, such as **Mape-Asphalt Repair 0/8**. Then, before applying **Mapecoat TNS Extreme**, any traces of dust or dirt on the surface must be vacuumed off or removed.

Mapecoat TNS Extreme may also be applied on bituminous conglomerate substrates as soon as they have been applied so that the heat from the asphalt dries the product even more quickly, particularly when applied in cold weather. It is recommended to apply **Mapecoat TNS Extreme** on bituminous conglomerate substrates with a maximum bitumen content of 6%; for higher levels, contact the technical support team at Sports System Technology or the MAPEI Technical Services Division to verify and agree on the correct application of **Mapecoat TNS Extreme**, according to the condition of the substrate. **Mapecoat TNS Extreme** may also be

applied on old asphalt substrates: in such cases, make sure the surface is prepared properly by hydro-blasting it with water or by grinding, then check to make sure it is feasible to apply **Mapecoat TNS Primer EPW**.

Preparation of the product

Mapecoat TNS Extreme is a two-component product. The two components must be mixed together just before application. Mix component B thoroughly and add the contents of component A. Mix again for at least 2 minutes with an electric mixer fitted with a mixing attachment at low speed to avoid entraining air into the product until they are completely blended. Once the two components of **Mapecoat TNS Extreme** have been mixed together, dilute with 5-15% of water and mix again using the same procedure as before.

Application of the product

Apply **Mapecoat TNS Extreme** by spraying with an air-HVLP spray gun, membrane pump, roller, spreader, or rubber squeegee. Particularly in the case of coatings on car traffic areas, it is recommended to apply the product with a trowel or by spray, which will also increase the durability of the surface.

To even out the surface of a particularly porous bituminous conglomerate or for localised repairs (such as cold joints), add up to 25% by weight of **Quartz 0.5** to **Mapecoat TNS Extreme** and apply it with a trowel in order to regulate and even out the consumption of successive layers.

Mapecoat TNS Extreme must not be used to fill particularly thick areas or gaps.

The application cycle generally consists of at least 2 coats of **Mapecoat TNS Extreme**; wait 2 hours between each coat in normal conditions (50% humidity and an environment temperature of +23°C). Lower temperatures may increase the drying time.

As soon as the surfaces have been coated, they should be protected from rain to prevent

Mapecoat TNS Extreme from coming into contact with water during its initial drying phase, otherwise, its adhesion and the overall quality of the work may be affected.

PRECAUTIONS TO BE TAKEN DURING PREPARATION AND APPLICATION

- Do not apply **Mapecoat TNS Extreme** if it is about to rain or in windy weather.
- Do not apply **Mapecoat TNS Extreme** on damp or wet surfaces, even after any surface washing. Otherwise, it may not form a good bond.
- Do not apply the product if the temperature is lower than +5°C or higher than +35°C.
- Do not apply if the level of humidity is higher than 85%.

CLEANING

Clean tools used to apply the product with water. Once dry, **Mapecoat TNS Extreme** may only be removed mechanically. Clean all tools and equipment thoroughly immediately after applying the product, particularly spray pumps.

CONSUMPTION

The consumption rate for **Mapecoat TNS Extreme** is heavily influenced by the absorption and roughness of the substrate and by the application method used. The approximate consumption rate for application with a trowel on an even, regular surface is as follows:

- bituminous conglomerate surface: consumption of approx. 1.00-1.20 kg/m² for the first coat and 0.40-0.60 kg/m² for the next coats;
- smooth cementitious surface or non-absorbent surfaces: consumption of approx. 0.40-0.60 kg/m² per coat.

Apply at least 2 coats.

PACKAGING

Mapecoat TNS Extreme is supplied in 16.67 kg kits:

- component A 0.67 kg;

- component B 16 kg (coloured).

STORAGE

12 months in a dry place away from sources of heat at a temperature of between +5°C and +30°C, which must be controlled also during transport. Protect from frost.

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

	component A	component B
Colour:	straw yellow	white, colour chart or various colours using the ColorMap® automatic colouring system
Consistency:	liquid	paste
Density (EN ISO 2811-1):	approx. 1.11 (g/cm ³)	approx. 1.40 (g/cm ³)

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

Mixing ratio by weight:	A : B = 4 : 96
Consistency of mix:	paste
Colour:	colour chart or various colours using the ColorMap® automatic colouring system
Density of mix:	approx. 1.45 (g/cm ³)
Dry solids content:	71 (%)
Recommended application temperature range (surrounding temperature):	from +5°C to +35°C
Drying time	
(at +35°C - 80% R.H.):	45 minutes
(at +23°C - 50% R.H.):	2 hours
(at +5°C - 80% R.H.):	6 hours
Pot life:	6 hours
Touch dry:	1 hour

Waiting time between each coat:	min. 2 hours
Complete hardening time:	24 hours
Consumption:	approx. 1,5 kg/m ² in two coats (bituminous conglomerate substrate)

FINAL PERFORMANCE (at +23°C - 50% R.H.)

VOC content of ready-mixed product (coloured) (European Directive 2004/42/EC) (g/l):	≤ 50
Slip resistance, on a wet surface (EN 13036-4):	≥ 55 (class III for exterior use according to EN 1504-2)
Resistance to abrasion (EN ISO 5470-1):	< 3 g
Capillary absorption and permeability to water according to EN 1062-3 (w [kg/(m²h^{0.5})]):	w < 0.1

PERFORMANCE CHARACTERISTICS FOR CE CERTIFICATION ACCORDING TO EN 1504-2, ATTESTATION OF COMPLIANCE SYSTEMS 2+ AND 3 - CLASS ZA.1d + ZA.1e + ZA.1f + ZA.1g (C, principles PI - MC - PR - RC - IR)

STANDARD	TEST	RESULTS AND COMPLIANCE WITH REQUIREMENTS	
EN ISO 2409	oblique shear	result/class:	GT1, compliant (≤ GT2)
EN 1062-6	Permeability to CO ₂	μ: s _D (m): dry thickness according to s _D (m): result/class:	130 780 mm Compliant s _D > 50
EN ISO 7783	Permeability to water vapour	μ: s _D (m): dry thickness according to s _D (m): result/class:	Class I
EN 1062-3	capillary absorption and permeability to water	w [kg/(m ² h ^{0.5})]:	w < 0.1
EN 1062-11 4.1	thermal compatibility: ageing 7 days at +70°C	result/class:	Compliant, ≥ 1.5 N/mm ²
EN 13687-1	thermal compatibility: freeze-thaw cycling with de-icing salt immersions	result/class:	≥ 1.5 N/mm ²
EN 13687-2	thermal compatibility: thunder shower cycling	result/class:	≥ 1.5 N/mm ²
EN 13687-3	thermal compatibility: thermal cycles without immersion in de-icing salts	result/class:	≥ 1.5 N/mm ²
EN 13687-5	resistance to temperature shock	result/class:	≥ 1.5 N/mm ²

EN 1542	bond strength by pull-off	result/class:	≥ 1.5 N/mm ²
EN 13501-1	reaction to fire	euroclass:	D-s2, d0 / B _{FL} s1
EN 13036-4	slip resistance, on a wet surface:	result/class:	≥ 55
EN 1062-11:2002 4.2	exposure to artificial atmospheric agents	result/class:	No blistering, cracking, peeling. (Slight colour change) NPD
EN ISO 5470-1	abrasion resistance	Δ weight; H22 disk, 1000 cycles (g): result/class:	< 3
EN ISO 6272-1	impact resistance	result/class:	Class I
EN 13529 – group 3	chemical resistance - group 3 (oil / fuel)	result/class:	Class II
EN 13529 – group 11	chemical resistance - group 11 (alkali)	result/class:	Class II
EN 13529 – group 12	chemical resistance - group 12 (salts)	result/class:	Class II
EN 13529 – group 14	chemical resistance - group 14 (surfactants)	result/class:	Class II
EN 1081	hazardous substances	result/class:	NPD

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.

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