MAPECOAT TNS EXTREME

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





CE
EN 1504-2

IN COMPLIANCE WITH EUROPEAN STANDARD
EN 1504-2 (C)
PRINCIPLES
PI-MC-PR-RC-IR
MAPEI
SURFACE PROTECTION SYSTEMS FOR CONCRETE

BENEFITS AND FEATURES

- Fast drying
- High slip resistance, even in wet conditions
- Available in custom colours upon request
- Can be put back into service very quickly
- Suitable 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 on 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, and access ramps.
- Coating and colouring of outdoor areas subject to heavy foot traffic, even in wet conditions.
- Coating and colouring of bituminous surfaces with a stamped asphalt finish.
- Colouring and protecting cycle lanes, urban design, multipurpose areas, and areas used for sports.
- Colouring pavements and pedestrian areas.

RECOMMENDATIONS

- Do not dilute **Mapecoat TNS Extreme** with solvents.
- Do not apply **Mapecoat TNS Extreme** directly on dusty, crumbling, or weak surfaces.
- Do not apply **Mapecoat TNS Extreme** on substrates contaminated with oil or grease, or dirt in general.
- The concrete substrate must be completely cured (min. 28 days with residual moisture under 3%) and free from rising damp. In case of new concrete substrates, apply a suitable vapour barrier.

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- New asphalt substrates must be cured for at least 15-20 days, according to climatic conditions, to allow correct oxidation.
- **Mapecoat TNS Extreme** must not be applied directly to substrates subject to negative water pressure. The surface of such substrates must be treated with appropriate products, and then the possibility of applying **Mapecoat TNS Extreme** must be assessed.
- **Mapecoat TNS Extreme** can only be applied over other finishes after careful examination of the condition of the existing coating and preliminary tests to ensure compatibility and adhesion between the old finish and **Mapecoat TNS Extreme**.
- It is possible to apply **Mapecoat TNS Extreme** on cementitious substrates only after priming.
- Do not apply if it is about to rain or in windy weather.
- Do not apply on damp or wet surfaces.
- The temperature of the substrate must be between +5°C and +50°C.
- Do not apply at temperatures lower than +5°C or higher than +35°C.
- When applying **Mapecoat TNS Extreme** on surfaces intended for the prolonged parking of vehicles, in order to increase resistance to tyre plasticisers, the application cycle must be finished with a coat of **Mapefloor Finish HTR**.

APPLICATION PROCEDURE

Characteristics of the substrate

Before applying **Mapecoat TNS Extreme**, the substrate on which it is to be applied must be carefully analysed.

For a successful application of the product, the substrate must be strong enough for the loads the surface will have to withstand when in use.

Minimum requirements for application on concrete substrates:

- suitably cured (minimum 28 days)
- free from rising damp
- primed with **Mapecoat TNS Primer EPW** in case of residual moisture up to 3%, or with **Triblock P** in case of residual moisture up to 6%.
- dry
- flat
- free from detaching or loose parts
- presence of a suitable slope for rainwater drainage

Minimum requirements for application on bituminous substrates:

- suitably cured (minimum 15–20 days)
- dry
- flat
- free from detaching or loose parts
- presence of a suitable slope for rainwater drainage

Notes: The absence of a suitable vapour barrier (concrete) could lead to detachment and/or blisters.

Assess the priming of the bituminous substrate based on its specific condition.

Preparation of the substrate

Substrates on which **Mapecoat TNS Extreme** is to be applied must be compact, strong, and flat, and have no detached or loose areas. The application surface for the coating, in particular, must be strong enough to withstand the loads acting on the surface when in use, particularly surfaces used by vehicles.

In the case of cement conglomerate substrates, in order to ensure the correct adhesion of **Mapecoat TNS Extreme**, a suitable primer must be applied on the dry substrate. In case of substrates with residual moisture up to 3%, use Mapecoat TNS Primer EPW. In case of residual moisture between 3 and 6 %, apply a suitable chemical

barrier using **Triblock P** three-component epoxy cementitious primer. Apply the first coat of **Mapecoat TNS Extreme** after max. 24 hours of the application of **Mapecoat TNS Primer EPW** and after max. 36 hours if the chemical barrier with **Triblock P** has been carried out. Any cracks must be repaired using a suitable filling product, such as **Eporip**, epoxy resin for injection, or **Eporip SCR**.

If necessary, the repair of concrete portions, damaged skim or smoothing coats, should be carried out with cement mortars from the **Mapegrout** or **Planitop** ranges. Select the most suitable product according to the repair needs and the loads to which the flooring will be subject. **Mapecoat TNS Extreme** must be applied on a levelled substrate, so that it can 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% by weight of Quartz 0.9 silica sand. In the case of badly damaged and worn bituminous conglomerate, remove the damaged parts and replace them with a new layer, for instance, of **Mape-Asphalt Repair 0/8**, reactive, ready-to-use product. Then, before applying **Mapecoat TNS Extreme**, any traces of dust or dirt on the surface must be vacuumed off or removed. **Mapecoat TNS Extreme** can also be applied to freshly laid bituminous conglomerate substrates, allowing the heat from the asphalt to dry the product even faster. This is particularly effective when applied in cold weather. It is recommended that **Mapecoat TNS Extreme** is applied to bituminous conglomerate substrates with a maximum bitumen content of 6%. For higher bitumen contents, contact the Sports System Technology Service or MAPEI Technical Service to verify and possibly to advise on the correct application of **Mapecoat TNS Fast**, depending on the local conditions of the substrate. **Mapecoat TNS Extreme** can also be applied on old asphalt surfaces: in such cases, make sure the surface is prepared in a suitable way (by water jet or grinding). Evaluate beforehand if **Mapecoat TNS Primer EPW** should be applied.

Preparation of the product

Mapecoat TNS Extreme is a two-component product. The two components must be mixed together just before application. Homogenize component B thoroughly and add component A. Mix with an electric mixer fitted with a mixing attachment at low speed to avoid entraining air into the product for at least 2 minutes and until they are completely blended.

Once the two components of **Mapecoat TNS Extreme** have been mixed together, dilute the mix with water, and mix again using the same procedure as before.

Mapecoat TNS Extreme	Amount of water
16.7 kg	ca. 2.5 L

Application of the product

Apply **Mapecoat TNS Extreme** by spray with an air-HVLP spray gun, membrane pump, or with a roller, spreader, or rubber squeegee. Different application methods result in different final textures, so the choice of equipment must be based on the intended use and the desired final effect. Especially for surface coatings in car traffic areas, trowel or spray application is recommended, which also increases the durability of the pavement.

If it is necessary to even out particularly porous asphalt surfaces or carry out local repairs (e.g., cold joints), **Mapecoat TNS Extreme** may be filled with **Quarzo 0.5** at a rate of 25% by weight and applied by trowel, in order to ensure uniform consumption of the product in subsequent coats.

Mapecoat TNS Extreme must not be used as a thick-layer filler.

This system generally requires the application of 2 coats of **Mapecoat TNS Extreme**, with a waiting time of 2 hours between each coat under normal humidity and temperature conditions. (at +23°C and 50% R.H.). 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 could be affected.

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 of **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:

Coats	Bituminous conglomerate surface	Smooth cementitious surface or non-absorbent surfaces
First coat	1-1.20 kg/m²	0.40-0.60 kg/m²
Subsequent coats	0.40-0.60 kg/m²	0.40-0.60 kg/m²

Note: Apply at least 2 coats.

PACKAGING

Mapecoat TNS Extreme is supplied in 16.67 kg units:

- component A 0.67 kg
- component B 16 kg (coloured)

STORAGE

The product can be stored for 12 months in a dry place away from sources of heat at a temperature 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 SDS 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, Mapei colour chart, or various colours using the **ColorMap**® tinting system
Consistency:	liquid	paste

Density (EN ISO 2811-1):	approx. 1.11 g/cm³	approx. 1.40 g/cm³

APPLICATION DATA (at +23°C - 50% R.H.)	
Mixing ratio by weight:	A: B = 4 : 96
Consistency of the mix:	paste
Colour:	colour chart or varcolours using the **ColorMap**® tinting system
Density of mix:	approx. 1.45 g/cm³
Dry solids content:	71%
Recommended application temperature range (envirnoment):	from +5°C to +35°C
Drying time	
(+35°C - 80% R.H.):	45 minutes
(+23°C - 50% R.H.):	2 hours
(+5°C - 80% R.H.):	6 hours
Pot life:	6 hours
Touch dry:	1 hour
Waiting time between each coat:	minimum 2 hours
Complete hardening time:	24 hours
Consumption:	approx. 1.5 kg/m² in two coats (on bituminous conglomerate substrates)

FINAL PERFORMANCE (at +23°C - 50% R.H.)	
VOC content of ready-mixed product (coloured) (European Directive 2004/42/EC):	≤ 50 g/l
Slip resistance, on 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 (EN 1062-3), (w [kg/(m²h0,5)]):	w < 0.1
Coefficient of dynamic friction:	
- rubber, dry surface (μ):	0.87
- rubber, wet surface (μ):	0.71
Leather, dry surface (μ):	0.53
Leather, wet surface (μ):	0.48

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PERFORMANCE CHARACTERISTICS FOR CE CERTIFICATION ACCORDING TO EN 1504-2, SYSTEMS 2+ AND 3 - CLASS ZA.1d + ZA.1e + ZA.1f + ZA.1g (C, principles PI - MC - PR - RC - IR)		
Performance characteristic	Test methods	Product performance
Cross-cut test:	EN ISO 2409	GT1, compliant (≤ GT2)
CO_2 permeability (μ): s_D (m): dry thickness according to S_D (m): result/class:	EN 1062-6	130 780 mm complies s_D > 50
Permeability to water vapour:	EN ISO 7783	Class I
Capillary absorption and permeability to water w [kg/(m²h$^{0.5}$)]:	EN 1062-3	w < 0.1
Thermal compatibility: ageing: 7 days at +70°C:	EN 1062-11 4.1	compliant, ≥ 1,5 N/mm²
Thermal compatibility: freeze-thaw cycling with de-icing salt immersion:	EN 13687-1	≥ 1.5 N/mm²
Thermal compatibility: thunder-shower cycling:	EN 13687-2	≥ 1.5 N/mm²
Thermal compatibility: thermal cycling without de-icing salt impact:	EN 13687-3	≥ 1.5 N/mm²
Resistance to temperature shock:	EN 13687-5	≥ 1.5 N/mm²
Bond strength by pull-off:	EN 1542	≥ 1.5 N/mm²
Reaction to fire:	EN 13501-1	D-s2, d0 / B_{FL} s1
Slip resistance, on wet surface:	EN 13036-4	≥55
Exposure to artificial atmospheric agents:	EN 1062-11:2002 4.2	No blistering, cracking, peeling. (slight change in colour) NPD
Abrasion resistance Δ wheel weight H22, 1000 cycles (g): result/class:	EN ISO 5470-1	< 3
Impact resistance:	EN ISO 6272-1	Class I
Chemical resistance - group 3 (oil/fuel):	EN 13529 – group 3	Class II
Chemical resistance - group 11 (alkali):	EN 13529 – group 11	Class II
Chemical resistance - group 12 (salts):	EN 13529 – group 12	Class II
Chemical resistance - group 14 (surfactants):	EN 13529 – group 14	Class II
Hazardous substances:	EN 1081	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.

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

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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.

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