

# MAPECOAT TNS EXTREME SF

Two-component epoxy-acrylic rapid-drying coloured topcoating for pedestrians areas, cycle lanes as well as sport surfaces



## DESCRIPTION

**Mapecoat TNS Extreme SF** 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 surfaces used by vehicles, pedestrian areas and cycle lanes.

## WHERE TO USE

- Protecting and colouring the surface of bituminous and cementitious conglomerate.
- Protecting and colouring the surface of concrete, decorative concrete and self-blocking concrete block paving.
- Coloured topcoating for application on **Mapecoat TNS Extreme**, even on areas used by vehicles.
- Coloured topcoating for multi-layered systems for **Mapecoat TNS** sports surfaces.
- Coloured topcoating applied after **Mapecoat TNS Extreme** to create coloured pedestrian crossings and for colouring cycle lanes used also by vehicles.
- Coating and colouring of pedestrian areas and cycle lanes made from cementitious substrates, including porous and bituminous conglomerate substrates.
- Colouring and protecting cycle lanes, urban design, multipurpose areas and areas used for sports.
- Colouring pavements and pedestrian areas.

## TECHNICAL CHARACTERISTICS

**Mapecoat TNS Extreme SF** is a two-component, water-based, rapid-drying, epoxy-acrylic resin which, thanks to its excellent physical and mechanical properties, can be used to colour and protect areas subject to high pedestrian traffic, sports surfaces, cycle lanes both made of asphalt or concrete.

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.), make **Mapecoat TNS Extreme SF** suitable for coating areas that need to be treated periodically to prevent ice formation and/or for routine cleaning purposes.

Thanks to its special composition, **Mapecoat TNS Extreme SF** dries quickly, which makes it easier to be applied, and treated surfaces can be put back into service quickly.

When **Mapecoat TNS Extreme SF** is applied as a topcoat to create **Mapecoat TNS** systems, it improves the mechanical properties of the surfaces, which is particularly important for sports such as artistic skating, speed skating, cycling, etc.

From an aesthetic point of view, the wide range of colours available, along with other shades using the **ColorMap®** automatic colouring system, which means personalised colours may also be created.

**Mapecoat TNS Extreme SF**, is tested in a 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 SF** can be applied over old resin and paint: in such cases the condition of the old coating will need to be checked beforehand, such as its adhesion, its compatibility with **Mapecoat TNS Extreme SF**, by testing it on a small area of the coating. If the old finish is suitable for re-coating, the surface must be suitably prepared by cleaning it with a degreasing water jet and then sanded to make the application surface as rough as possible before applying **Mapecoat TNS Extreme SF**; if necessary, the surface must also be treated with a suitable primer.

It is recommended to contact our Sports System Technology department or Mapei Technical Services to check and discuss how to use **Mapecoat TNS Extreme SF** correctly, based on local conditions and type of substrate.

- Do not dilute **Mapecoat TNS Extreme SF** with solvent.
- Do not apply **Mapecoat TNS Extreme SF** directly on dusty, crumbling or weak surfaces.
- Do not apply **Mapecoat TNS Extreme SF** on substrates with oil or grease stains, or with stains in general.
- Do not apply **Mapecoat TNS Extreme SF** 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 SF**.
- If **Mapecoat TNS Extreme SF** is to be applied on cementitious substrates, the surface must be previously treated with a primer.

## APPLICATION PROCEDURE

### Preparation of the substrate

Substrates on which **Mapecoat TNS Extreme SF** 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.

If the substrate is made of cement conglomerate, the floor must be prepared with suitable power tools (e.g. shot-blasting or grinding with a diamond disk) to remove all traces of dirt, cement laitance and crumbling or detached portions and to make the surface slightly rough and absorbent. Then, in order to guarantee the correct adhesion of **Mapecoat TNS Extreme SF**, 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 SF** 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**.

To repair, skim or smooth over areas of damaged or deteriorated concrete, use a cementitious mortar from the **Mapecrout** line or **Planitop**, **Mapefinish**, **Planex HR** or **Planex HR Maxi**, depending on the level and type of damage.

**Mapecoat TNS Extreme SF** 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.

Before applying **Mapecoat TNS Extreme SF**, any traces of dust or dirt on the surface must be vacuumed off or removed.

**Mapecoat TNS Extreme SF** can also be applied on bitumen 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.

**Mapecoat TNS Extreme SF** 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** can be applied.

### Preparation of the product

**Mapecoat TNS Extreme SF** is a two-component product. The two components which make up the product 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 SF** have been mixed together, dilute the mix with 5-10% of water and mix again using the same procedure as before.

### Application of the product

Apply **Mapecoat TNS Extreme SF** by spray with an air-HVLP spray gun, membrane pump, airless pump or with a roller, spreader or rubber rake.

The application cycle generally consists of 1 or 2 coats of **Mapecoat TNS Extreme SF**; wait 2 hours between each coat in normal conditions (50% humidity and a surrounding 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 SF** 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 SF** if it is about to rain or in windy weather.
- Do not apply **Mapecoat TNS Extreme SF** on damp or wet surfaces, also after rinsing operations of the substrate, otherwise bond may be affected.
- Do not apply if the temperature is lower than +5°C or higher than +35°C.
- Do not apply if the temperature of the substrate is higher than +50°C.
- Do not apply when humidity is above 85%.

## CLEANING

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

## CONSUMPTION

The consumption rate for **Mapecoat TNS Extreme SF** 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:

- surface coated with **Mapecoat TNS Extreme** or a **Mapecoat TNS** system for sports surfaces: consumption approx. 0.20-0.40 kg/m<sup>2</sup> per coat;
- smooth concrete surface or non-absorbent surfaces - approx. consumption approx. 0.20-0.40 kg/m<sup>2</sup> per coat.

Apply 1 or 2 coats of product on **Mapecoat TNS Extreme** or one of the **Mapecoat TNS** multi-layered systems and at least 2 coats on substrates without coating.

## PACKAGING

Mapecoat TNS Extreme SF is supplied in 16.7 kg units:

- – component A 0.7 kg;
- – component B 16 kg.

## 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 Safety Data Sheet, available from our website [www.mapei.com](http://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 <b>ColorMap</b> <sup>®</sup> automatic colouring system
Consistency:	liquid	paste
Density:	approx. 1.11 g/cm <sup>3</sup>	approx. 1.40 g/cm <sup>3</sup>

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

Mixing ratio:	A: B = 4 : 96
Consistency of mix:	paste
Density of mix:	approx. 1.45 g/cm <sup>3</sup>
Dry solids content:	71 %
Application temperature:	from +5°C to +35°C
Workability time:	6 hours
Drying time:	
(at +35°C - 80% R.H.):	45 min.
(at 23°C - 50% R.H.):	2 hours
(at +5°C - 80% R.H.):	6 hours
Touch dry:	1 hour
Waiting time between each coat:	minimum 2 hours
Complete hardening:	24 hours

After the having mixed the two products thoroughly, dilute the mix with 5 - 10% of water (depending on the temperature of the environment and of the substrate. Mix the product thoroughly before use. Where possible, use a drill at low-speed but take care to avoid entraining air into the product.

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

VOC content of ready-mixed product (coloured) (European Directive 2004/42/EC):	≤ 50 g/l
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#### PERFORMANCE CHARACTERISTICS FOR CE MARKING ACCORDING TO EN 1504-2, SYSTEMS 2+ AND 3: ZA.1d + ZA.1e + ZA.1f + ZA.1g (C, principles PI - MC - PR - RC - IR)

ESSENTIAL CHARACTERISTICS	TEST METHOD ACCORDING TO EN 1504-2	REQUIREMENTS	PRODUCT TYPICAL VALUES
Cross-cut test:	EN ISO 2409	≤ GT2	GT0, compliant
Permeability to CO <sub>2</sub> :	EN 1062-6	S <sub>D</sub> > 50m	130 m
Permeability to water vapour:	EN ISO 7783-1 EN ISO 7783-2	Class I: S <sub>D</sub> < 5 m (permeable to water vapour)	Class I
Capillary absorption and water permeability :	EN 1062-3	w < 0.1 kg/m <sup>2</sup> h <sup>0.5</sup>	< 0.1 kg/m <sup>2</sup> ·h <sup>0.5</sup>
Thermal compatibility: ageing: 7 days at +70°C:	EN 1062-11	Bond ≥ 1.5 N/mm <sup>2</sup>	compliant
Thermal compatibility: freeze-thaw cycling with de-icing salt immersion:	EN 13687-1	Bond ≥ 1.5 N/mm <sup>2</sup>	compliant
Thermal compatibility: thunder-shower cycling:	EN 13687-2	Bond ≥ 1.5 N/mm <sup>2</sup>	compliant
Thermal compatibility: thermal cycling without de-icing salt impact:	EN 13687-3	Bond ≥ 1.5 N/mm <sup>2</sup>	compliant
Resistance to temperature shock	EN 13687-5	Bond ≥ 1.5 N/mm <sup>2</sup>	compliant
Bond strength by pull-off:	EN 1542	Bond ≥ 1.5 N/mm <sup>2</sup>	compliant
Reaction to fire:	EN 13501-1	euroclass	C-s1, d0 / B <sub>FL</sub> -s1
slip resistance, on wet surface:	EN 13036-4	Class III ≥ 55	≥ 55
Exposure to artificial weathering:	EN 1062-11	After 2000 h of artificial adverse weather conditions: no flaking according to EN ISO 4628-5	No blistering, cracking, peeling. (slight change in colour)
Abrasion strength:	EN ISO 5470-1	Loss of weight < 3 g abrading wheel H22/rotation 1000 cycles/load 1000 g	< 3 g
impact strenght:	EN ISO 6272-1	No cracks or delamination after loading: Class I ≥ 4 Nm	Class I
Chemical resistance - group 3 (oil/ fuel):	EN 13529	Class II: 28 days with no pressure	Class II
Chemical resistance - group 11 (alkali):	EN 13529	Class II: 28 days with no pressure	Class II
Chemical resistance - group 12 (salts):	EN 13529	Class II: 28 days with no pressure	Class II
Chemical resistance - group 14 (surfactants):	EN 13529	Class II: 28 days with no pressure	Class II
Hazardous substances:	n/a	-	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](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. The most up-to-date TDS can be downloaded from our website [www.mapei.com](http://www.mapei.com).

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