



Mapecoat I 650 WT

Two-component epoxy paint in water dispersion with a ceramic-effect finish and low dirt-retaining surface for finishing support walls in tunnels



WHERE TO USE

Coating product developed specifically to form a protective film on concrete and cementitious render surfaces to increase the luminosity in closed areas in underground structures with artificial lighting, particularly suitable for use in road tunnels.

TECHNICAL CHARACTERISTICS

Mapecoat I 650 WT is a two-component epoxy paint with titanium dioxide in water dispersion with a ceramic-effect finish, according to a formula developed in MAPEI's research laboratories.

Mapecoat I 650 WT is odourless and contains no solvents which makes it ideal for application in closed or poorly-ventilated areas. It may also be applied on slightly damp surfaces as long as they are well cured.

Mapecoat I 650 WT has the following characteristics:

- its high resin content forms a protective film with low porosity and low dirt retention;
- excellent resistance to abrasion, washing and cleaning cycles with brushes;
- easy maintenance;
- highly reflective;
- excellent covering capacity;
- easy to apply, good workability and limited visible application.

Mapecoat I 650 WT fulfils all the main criteria for the EN 1504-9 Standards (*"Products and systems for the protection and repair of concrete structures: definitions, requirements, quality control and conformity assessment. General principles for the use of products and systems"*) and the minimum requirements for EN 1504-2 Standards according to PI-MC-PR-IR principles (*"Protection systems for concrete surfaces"*).

RECOMMENDATIONS

- Do not apply **Mapecoat I 650 WT** on dusty, crumbling or inconsistent surfaces.
- Never add solvents to **Mapecoat I 650 WT**.
- Do not apply **Mapecoat I 650 WT** if the temperature is lower than +10°C or higher than +30°C.

APPLICATION PROCEDURE

Preparation of the substrate

New surfaces, or surfaces repaired with mortar from the **Mapegrout** range after removing the deteriorated concrete by scarifying, must be well cured, clean, sound and dry, or with a low content of residual humidity not caused by capillary rising damp or lift from the water table.

Remove all traces of oil, grease and stripping compound from the surface, traces of old coating products, loose or detached parts and surface dirt by using high pressure water jets (from 150 to 400 bar, according to the type of cleaning operation required). If the surface is not perfectly flat, saturate the substrate but leave the surface dry and spray on a 5 mm thick layer of **Idrosilex Pronto RPG** white, fibre-reinforced,

Mapecoat I 650 WT



Application of Mapecoat I 650 WT



Support walls treated with Mapecoat I 650 WT

TECHNICAL DATA (typical values)

PRODUCT IDENTITY			
	Component A	Component B	
Consistency:	liquid	thick liquid	
Colour:	straw yellow	white	
Density (g/cm ³):	1.13	1.50	
Brookfield viscosity (mPa·s):	2,100 (No. 2 needle - 10 revs)	12,000 (No. 5 needle - 10 revs)	
APPLICATION DATA (at +23°C - 50% R.H.)			
Mixing ratio:	component A : component B = 20 : 80		
Consistency of mix:	fluid		
Colour of mix:	white (*)		
Density of mix (kg/m ³):	1,400		
Brookfield viscosity of mix (mPa·s):	18,000 (No. 6 needle - 10 revs)		
Solids content (%):	76		
Application temperature range:	from +10°C to +30°C		
Workability time:	40 min		
Dust dry:	3-4 h		
Touch dry:	4-5 h		
Waiting time between first and second coat:	6-24 h depending on temperature and humidity		
Complete hardening time:	7 days		
FINAL PERFORMANCE			
Performance characteristic	Test method	Requirements according to EN 1504-2 coating (C) principles PI, MC, IR and PR	Performance of product
Permeability to CO ₂ (m):	EN 1062-6 (treatment of sample according to prEN 1062-11)	S _D > 50 m	150
Permeability to water vapour - equivalent thickness of air S _D (m):	EN ISO 7783-2	Class I S _D < 5 m Class II 5 m ≤ S _D ≤ 50 m Class III S _D > 50 m	S _D < 5 Class I (permeable to water vapour)
Impermeability expressed as coefficient of permeability to free water (kg/m ² ·h ^{0.5}):	EN 1062-3	W < 0.1	< 0.015
Resistance to thermal shock (Mpa):	EN 13687-5	For rigid systems with no traffic: ≥ 1.0 with traffic: ≥ 2.0	≥ 3.5
Direct tensile adhesion (MC 0.40 type substrate) according to EN 1766 (MPa):	EN 1542	For rigid systems with no traffic: ≥ 1.0 with traffic: ≥ 2.0	≥ 3.5 (after 7 days)
Thermal compatibility measured as adhesion according to EN 1542 (MPa): - freeze-thaw cycles with de-icing salts: - storm cycles: - thermal cycles with no de-icing salts:	EN 13687/1 EN 13687/2 EN 13687/3	≥ 2.0 (after 50 cycles) ≥ 2.0 (after 10 cycles) ≥ 2.0 (after 20 cycles)	≥ 3.5 ≥ 3.5 ≥ 3.5
Resistance to impact measured on MC 0.40 dressed concrete samples according to EN 1766:	EN ISO 6272-1	No cracks or delamination after loading Class I: ≥ 4 Nm Class II: ≥ 10 Nm Class III: ≥ 20 Nm	Class I
Resistance to severe chemical attack Class II: 28 days with no pressure	EN 13529	not required	No alteration when in contact with: NaOH 20% (Group 11) NaCl 20% (Group 12) Watery solution with organic surface-active agents (Group 14)
Diffusion of chloride ions (mm):	Subject to local and national norms and regulations: UNI 7928	no minimum value required	No penetration
Abrasion resistance - Taber abrasimeter (1,000 cycles/1,000 revs, CS 17 disk) expressed as loss by weight (mg):	EN ISO 5470-1	< 3000 mg	100
Gloss: - 85°: Note: The gloss factor is influenced by various factors, such as the type of substrate (level of porosity) and application technique	EN ISO 2813	not required	10
Dirt pick up: classification ΔL - very low: ≤ 3 - low: from > 3 to ≤ 9 - medium: from > 9 to ≤ 15 - high: > 15	UNI 10792	not required	≤ 3
Reaction to fire:	EN 13501-1	Euroclass	B-s1-d0

(*) More colors available upon request.

medium-grained osmotic cementitious smoothing and levelling compound with low dirt retention using a spray-rendering machine fitted with a spraying lance for smoothing and levelling compounds, then smooth over the surface with a steel trowel. The following day, spray on a 2 mm thick layer of **Idrosilex Pronto RPF**, fibre-reinforced, fine-grained osmotic cementitious smoothing and levelling compound with low dirt retention using a spray-rendering machine fitted with a spraying lance for smoothing and levelling compounds, then smooth over the surface with a steel trowel. If the aforementioned repair and smoothing operations are not required, **Mapecoat I 650 WT** may be applied directly on the clean, sound cementitious surface.

Preparation of the product

Carefully mix the two components at a ratio of 1 : 4 by weight. Pour component A into component B, making sure that all traces of the components are removed from the sides of the container and well mixed.

Mix **Mapecoat I 650 WT** for several minutes with a low-speed drill to avoid dragging air into the mix (keep the rotor immersed in the product while mixing). After mixing the paint must have an even colour. Do not use partial quantities of the product in order to avoid dosage errors, otherwise

Mapecoat I 650 WT may not harden correctly. The product may also be diluted with 5-10% of clean water (8-10% for the first layer and 5-6% for the second layer).

Application of the product

Apply two coats of **Mapecoat I 650 WT** using conventional techniques, such as by brush, roller or airless spray. Wait from 6 to 24 hours between the first and second coat, according to the surrounding temperature and humidity. High temperatures and low levels of humidity reduce the waiting time between each coat, while low temperatures and high levels of humidity increase the waiting time.

Cleaning

Tools used to prepare and apply **Mapecoat I 650 WT** must be cleaned immediately after use with running water. Once hardened, the product may only be removed mechanically.

CONSUMPTION

Approximately 0.25 kg/m² per coat. Consumption depends on the characteristics of the substrate on which it is applied and the application method used, and may increase if the surface on which it is applied is uneven.

PACKAGING

15 kg kits:
component A = 3 kg;
component B = 12 kg.

STORAGE

Mapecoat I 650 WT may be stored for up to 12 months in its original packaging in a dry area at a temperature of between +5°C and +30°C and away from sources of heat.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Mapecoat I 650 WT components A and B are irritant for the skin and may cause sensitisation in those subjects sensitive to such substances.

Mapecoat I 650 WT component A is irritant for the eyes. Component B of **Mapecoat I 620 W** may cause damages to the eyes. The product contains low molecular weight epoxy resins that may cause sensitisation if cross-contamination occurs with other epoxy compounds.

When applying the product, we recommend the use of protective gloves and goggles and to take the usual precautions for handling chemical products. If the product comes into contact with the eyes or skin, wash immediately with plenty of clean water and seek medical attention.

Mapecoat I 650 WT component A is 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 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

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**Mapecoat
I 650 WT**



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920-7-2017 (GB)