

MasterShield ER I42

A water-based epoxy-acrylic protective coating with a high solids content and titanium dioxide, specifically formulated for tunnels and underpasses; free from organic solvents.

Material description

MasterShield ER I42 is a two-component, water-based epoxy-acrylic protective coating that contains no organic solvents.

Its special formulation offers a high level of protection against the ingress of water, chlorides and atmospheric CO₂. The high titanium dioxide content produces a white colour that improves visibility on road sections with low light levels, such as tunnels or underpasses.

Main uses

The **MasterShield ER I42** epoxy-acrylic protective coating is suitable for the protection of concrete structures and cementitious substrates, whether in good condition or previously repaired using mortars from the **MasterCrete** range, such as:

- structures made of reinforced concrete characterised by low light levels, such as road and rail tunnels and underpasses;
- structures made of reinforced concrete with insufficient concrete cover.

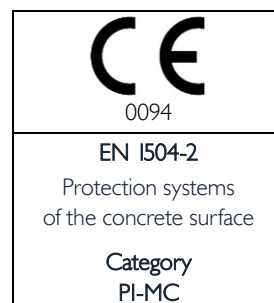
If the project involves specific service conditions, please always contact the Master Builders Solutions Technical Service for approval of the application.

Features

- **Preventing water ingress** helps to prevent any corrosion of the reinforcement caused by, for example, the ingress of chloride ions or repeated freeze-thaw cycles.
- **Check the moisture content:** high water vapour permeability is essential to prevent the build-up of vapour pressure at the interface with the substrate as temperatures fluctuate, which could lead to delamination.
- **Resistance to UV radiation:** an important characteristic for ensuring long-term durability, including from an aesthetic point of view, thanks to its aliphatic formulation.

- **Effectively preventing the ingress of carbon dioxide**, which over time alters the pH of the concrete matrix and its natural ability to protect the reinforcement, thereby preventing the onset of corrosion.
- **Improving visibility in underpasses and tunnels:** thanks to a formulation with a high titanium dioxide content.
- **High resistance to dirt accumulation:** reduces the resources required to maintain the interior surfaces of underpasses and tunnels.
- **Resistant to reverse hydraulic pressure.**

In compliance with the European Regulations (EU No. 305/2011 and EU No. 574/2014), the coating is CE marked in accordance with UNI EN 1504-2 and is accompanied by the relevant DoP (Declaration of Performance).



Consumption

MasterShield ER I42: 270 g/m² per 100 µm of dry film to be applied.

Dry film [µm]	Wet film [µm]	Consumption [kg/m ²]
100	205	0.27
200	410	0.53
300	615	0.80

Can be diluted with clean water: up to 10% for the first coat. We recommend a film thickness of 200 µm.

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Packaging and storage

MasterShield ER I42 is available in a 22.2 kg kit:

Component A: 20 kg bucket.

Component B: 2.2 kg bucket.

Keep the product in its original packaging in a dry, protected location at a temperature between +5°C and +35°C. Do not expose to direct sunlight.

Under the above conditions, the product has a shelf life of 6 months.

Preparation and method of application

Preparing the substrates

- The concrete surface to be smoothed with **MasterShield ER I42** must be perfectly clean, solid, without degraded, loose or detached parts, without irregularities that could compromise the application of the product, and free of cement laitance, traces of release agents, or any substance that could affect the adhesion of the product to the substrate.
- Once the above has been verified, you can proceed according to the possible scenarios described below:
 - if it is not necessary to restore degraded areas or repair significant surface irregularities, the substrate must still be made slightly rough by sandblasting, hydro-sandblasting or high-pressure washing.
 - If, on the other hand, the substrate has slight irregularities or is slightly uneven, these must be repaired, after adequate treatment and saturation of the dry substrate surface with water, using fine-grained cortical repair mortars from the **MasterCrete** range.
 - If the substrate shows deterioration with thicknesses to be restored exceeding 1 cm and any exposed reinforcement rods, the latter must be treated with the **MasterCrete** range passivating mortar, while the appropriate **MasterCrete** line product must be used for the volume to be restored, depending on the nature of the work.

- Before applying the **MasterShield ER I42** coating, ensure that the substrate is dust-free, dry and free from any substances that could impair adhesion.

Product preparation

The **MasterShield ER I42** coating must be prepared by mixing components A and B together with a low-speed resin mixer, in accordance with the mixing ratios specified in this technical data sheet and using the entire contents.

For the first coat, the product may be diluted with clean water by up to 10%.

System installation

On the substrate described above, apply the **MasterShield ER I42** coating by spraying using a suitable airless system, or by brush or roller, allowing a drying time of between 12 and 72 hours between coats, depending on site conditions.

We recommend applying two coats to achieve the thickness specified in the design data; this is usually a dry film thickness of 200 µm, depending on the level of protection required by the design.

Apply the products in ambient temperatures between +5°C and +35°C.

Cleaning of equipment

To clean tools whilst the product is still wet, use clean water.

Ageing and maturation

Protect the applied system throughout the curing process from wash-off, dust, excessive draughts and direct sunlight.

MasterShield ER 142

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Application temperatures

Application environment temperature needs to be between +5°C and +35°C.

Warnings

- Do not apply **MasterShield ER 142** to surfaces that are overheated, frozen or thawing.
- Protect from rain or any water or other substances seeping in for at least 24 hours after application; however, avoid applying the system if rain or a risk of frost is forecast for the next 24 hours.

Technical data for MasterShield ER 142

Product identification data (A+B)	
Consumption	270 g/m ² per 100 µm of dry film
Mixing ratio A: B	90: 10
Density (EN ISO 2811-1)	1.3 kg/L ± 0.05 kg/L
Dry residue (UNI EN ISO 3251)	49% ± 1%
Brookfield viscosity (+25°C)	6000 - 9000 cps
Colours	White
Titanium dioxide content	40 %
Pot-life (+20°C)	90 minutes
Recoating time (+20 °C, 65% RH)	12-72 hours depending on site conditions
Dry to the touch (+20°C)	3 – 48 hours
Application temperature	+5°C to +35°C
Category (EN 1504-2)	PI-MC
Recommended thickness	200 µm

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Performance – UNI EN 1504-2

(The performance values shown below are obtained in accordance with UNI EN 1504-2 for a dry thickness of the coating of 200 mm)

Feature	Test method		Regulatory requirement	Product performance
Adhesion to concrete	UNI EN 1542 (MC 0.40 substrate – UNI EN 1766)		≥ 0.8 MPa	> 3.0 MPa
Resistance to freeze-thaw cycles with de-icing salts	UNI EN 1542 after the UNI EN 13687/1 cycles on an MC 0.40-type substrate.		≥ 0.8 MPa	≥ 3.0 MPa
Water permeability as capillary absorption coefficient	EN 1062-3		$W < 0.1 \text{ kg/m}^2\text{h}^{0.5}$	$W < 0.01 \text{ W kg/m}^2\text{h}^{0.5}$ Prevents the ingress of chlorides
Permeability	Water vapour	EN 7783	Class I, $S_d < 5 \text{ m}$ Class II, $5 \text{ m} \leq S_d \leq 50 \text{ m}$ Class III, $S_d > 50 \text{ m}$	Class I, $S_d < 1.8 \text{ m}$ $\mu < 9000$
	CO ₂	EN 1062-6	$S_d > 50 \text{ m}$	$S_d > 120 \text{ m}$
Mechanical strength	Abrasion	UNI EN ISO 5470-1	Weight loss $< 3000 \text{ mg}$	$< 100 \text{ mg}$
UV resistance	UNI EN 1062-11 (2,000 hours of UV exposure)		No bulges or flaking	Specification superseded

Additional performance

(The performance values shown below are obtained for a dry thickness of 200 mm)

Feature	Test method	Regulatory requirement	Product performance
Resistance to negative hydraulic pressure	UNI 8298-8	From 0 bar to 2.5 bar	1.5 bar
Dirt pick-up, as a change in brightness DL	UNI 10792	Class I: $DL \leq 3$ (Very low) Class II: $3 < DL \leq 9$ (Low) Class III: $9 < DL \leq 15$ (Medium) Class III: $DL > 15$ (High)	Class I, $DL \leq 2.8$ (very slight change)
Washing resistance, expressed as the number of wash cycles	UNI 10560	Number of cycles required to make the substrate visible	5,000 cycles without any deterioration of the coating

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Safety instructions

For guidance on the correct and safe use, transport, storage and disposal of the product, please see the latest Safety Data Sheet (SDS).

Other services

For additional technical information, brochures, references, technical reports and technical assistance please visit www.master-builders-solutions.com/it-it or alternatively contact infomac@masterbuilders.com.

Scan QR code to visit the product page and download the latest version of this technical sheet and any additional documentation.



Disclaimer

Since 16/12/1992, Master Builders Solutions Italia Spa has been operating under a Certified Quality System compliant with the UNI EN ISO 9001 Standard. Furthermore, the Environmental Management System is certified according to the UNI EN ISO 14001 Standard and the Safety Management System is certified according to the UNI ISO 45001 Standard.

For further information, please consult the local Technician of Master Builders Solutions. The technical advice on how to use our products, either written or verbally given, are based on the current state of our scientific and practical expertise, and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products.

Therefore, the customer is not exempted from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes. This version supersedes all the previous ones.

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