

Surface protection systems for concrete



Mapecrete Range

Introduction

Certain concrete surfaces are characterised by their high surface porosity, and tend to absorb any water or liquids which come into contact by capillary absorption. Not only is this property of concrete surface elements responsible for anti-aesthetic actions that occur following the formation of efflorescence and stains, it may also be responsible for triggering off a slow, irreversible process of deterioration of the surface due to repeated freeze/thaw cycles during the winter, caused by the combined effect of the presence of

water and low temperatures typical at this time of year. It is essential, therefore, that building surfaces are treated with specific formulatates that penetrate into the cementitious matrix, and chemically bond to the elements that make up the matrix without altering its transpiration properties or original colour, making the concrete water-repellent and stain-resistant for a long time.



Protecting concrete surfaces

Water-repellent, stain-resistant, consolidating.

PROTECTIVE WATER-REPELLENT

- Transpirant, by penetrating deep into the porosity of the substrate and repelling water while allowing air and water vapour to pass.
- Suitable for both internal and external use.
- Impede the formation of mould, mildew and efflorescence.
- Protect materials against deterioration caused by atmospheric agents.

PROTECTIVE STAIN-RESISTANT

- Transpirant, by penetrating deep into the porosity of the substrate and repelling water while allowing air and water vapour to pass.
- Suitable for both internal and external use.
- Particularly suitable for floors in contact with liquid and oily food products.
- Protect materials against deterioration caused by atmospheric agents.

PROTECTIVE CONSOLIDATING

- Silicate-based treatments that seal the porosity of concrete surfaces.
- Do not form a film on the surface, but create a seamless, non-detachable layer.
- Impede the formation of efflorescence and stains.
- Treated surfaces are smoother and, thanks to their anti-dust effect, are also easier to clean.
- With silicate-based treatments, the durability and mechanical strength of surface concrete are improved.



Solvent-free, silane-based, thixotropic impregnator in water dispersion for water-repellent treatments on concrete

Concrete is treated with Mapecrete Creme Protection to form a water-repellent surface. The pores and capillaries are coated internally without filling them. No skin forms on the surface of the concrete and there is no change in its appearance.



Characteristics

- One-component, solvent-free, silane-based, thixotropic, creamy formulate in water dispersion.
- Protects concrete against capillary penetration of water, chloride ingress and the constant exposure of surfaces following freeze/thaw cycles.
- Very little evaporation during application, so the amount of penetration is easy to assess.
- Makes surfaces water-repellent without altering their transpiration properties or appearance.

Where is it used?

- Horizontal and vertical surfaces of normal or fibre-reinforced concrete.
- Concrete structures exposed to atmospheric agents such as bridges, joists, walkways and structures in marine environments.
- Concrete structures such as silos, cooling towers and buildings in general.
- Concrete flooring in external areas.

Application
on a vertical
surface

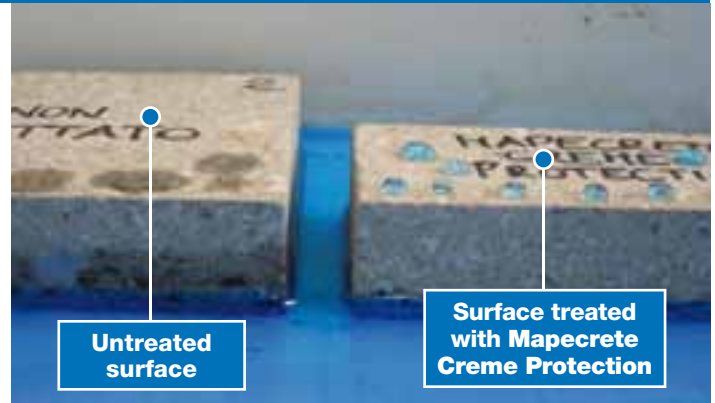


Application
on a ceiling



Advantages

- Excellent reduction of water absorption.
- Protects against attack from de-icing salts.
- Excellent resistance to alkalis.
- Excellent penetration into concrete.
- Promotes good adhesion for successive painting operations.
- Solvent-free.
- Dispersed in water.
- Environment friendly.
- Thixotropic, may also be applied on vertical surfaces and ceilings.



Application of the product

Spread **Mapecrete Creme Protection** directly on the surface to be treated with a squeegee, an airless spray gun, by trowel or with a roller.

The product may be applied in one or two coats, according to the absorption and condition of the concrete substrate.

Immediately after applying the product, the surface

becomes a whitish colour with a creamy consistency which gradually becomes transparent while it dries (from 30 minutes to several hours).



Appearance just after spreading Mapecrete Creme Protection



Appearance after 15-30 minutes



Appearance after 3 hours

The Mapei solution for stain-resistant surfaces

Mapecrete Stain Protection

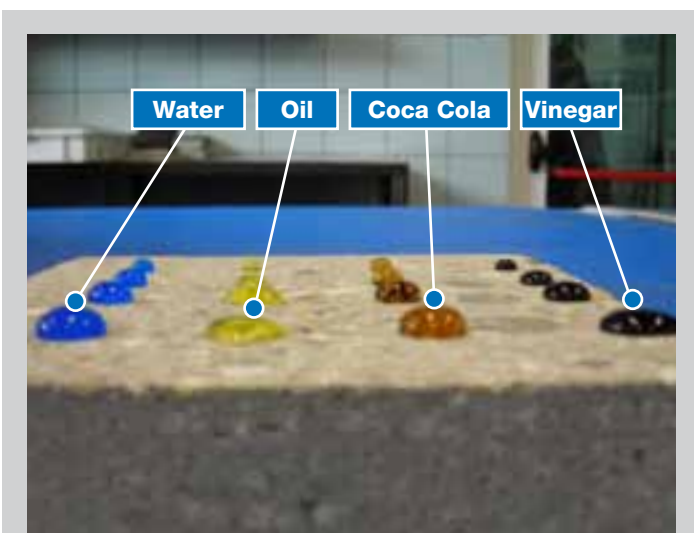
Water and oil-based stain-resistant treatment in water dispersion for concrete, natural stone, stone and cementitious surfaces

Concrete is treated with Mapecrete Stain Protection to form a stain-resistant finish on the surface. The pores and capillaries are partially filled. This product does not form a film on the surface of concrete.



Characteristics

- One-component, solvent-free formulate made from micro-emulsions dispersed in water.
- Very efficient in protecting concrete or cementitious-based substrates from staining caused by oil, grease, coffee, soft drinks and watery substances in general.
- Has the capacity to penetrate deep into substrates without modifying their appearance.
- No film forms on the treated surface, it has a dust-repellent finish and helps keep the surface clean.



Effect on the surface after applying Mapecrete Stain Protection

Where is it used?

- Concrete surfaces with either a rough or ground finish.
- Concrete industrial floors for shopping centres, discount food stores and storage depots, particularly those used by supermarkets or for storing foodstuffs.
- Ground industrial floors, including floors with a “terrazzo veneziano” finish with natural or artificial inerts.

Advantages

- Excellent stain-resistance against liquids and oily substances.
- Efficient barrier to stains caused by capillary rising damp.
- Reduces water absorption of treated surfaces.
- Excellent penetration into concrete.
- Good penetraton capacity, including into hairline cracks in concrete.
- Does not modify the appearance of the treated surface.
- Easy to apply, solvent-free watery solution.
- Stable if exposed to UV rays, so suitable for external use.

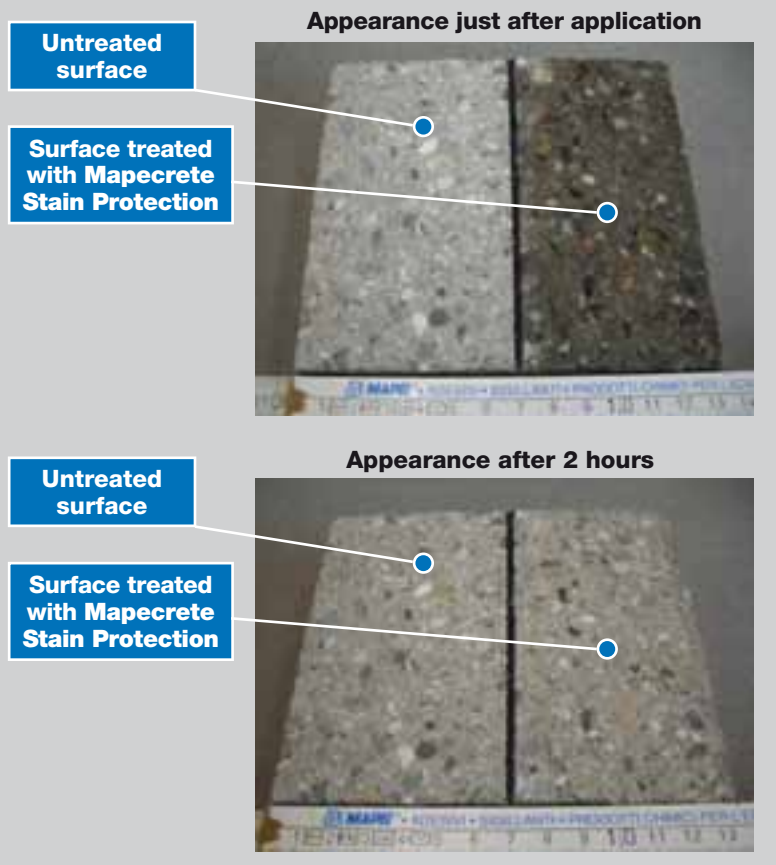


Application of the product

Spread a single coat of **Mapecrete Stain Protection** directly on the surface with an airless spray gun or by brush.

The drying time of the product depends on the porosity of the substrate on which it is applied (from 2 to 4 hours, depending on the temperature and level of humidity).

The full efficiency of **Mapecrete Stain Protection** is reached approximately 24 hours after application.



The Mapei solution for consolidating surfaces

Mapecrete LI Hardener

Surface liquid treatment with a consolidating effect for new or existing concrete floors and concrete with a dusted surface

Mapecrete LI Hardener is suitable for new or existing industrial and commercial cementitious floors thanks to its capacity to seal the porosity of the cementitious paste and, as a result, increase the strength of the surface of the floor.



Characteristics

- Solution of UV-resistant, modified lithium silicates.
- Penetrates into the pores of the concrete to react chemically with the free lime and create a dense micro-structure.
- The chemical reaction forms non-soluble hydrated silicates that increase the density of the surface and strengthen the cementitious paste.
- Thanks to the effect of the lithium salts against the alkali-aggregate reaction, increases the durability of flooring.

Application of Mapecrete LI Hardener



Spreading Mapecrete LI Hardener with a large brush



Going over the surface with a polishing machine



Finished floor



Where is it used?

- Industrial and commercial concrete flooring (department stores, shopping centres, car parks, garages and craft workshops).
- Industrial and commercial concrete flooring dusted with cement dust.
- Cementitious flooring where higher resistance to abrasion, scratches and aesthetic defects is required.
- Cementitious flooring after polishing the surface.
- Industrial and commercial flooring to create a dust-repellent finish.

Advantages

- Non-filming treatment that reacts chemically with the substrate.
- Penetrates into the surface to form strong, chemically-resistant, non-soluble compounds.
- Increases the abrasion-resistance of surfaces.
- Reduces the formation of dust and keeps floors cleaner.
- Treated surfaces are more attractive and have a shinier finish.
- Contains no sodium or potassium which could cause damaging alkali-aggregate reactions.
- Increases the durability of floors, reducing maintenance work.



Application of the product

Mapecrete LI Hardener may be applied just 2-3 days after the concrete has been poured, polished and dusted with cement dust such as **Mapetop N AR6**.

Apply **Mapecrete LI Hardener** by spraying it on the surface to be treated with a low pressure pump, or by pouring it directly on the floor and then immediately spreading it out to form an even coat. In both cases, the part of the floor treated must be kept constantly wet for at least 20-30 minutes with **Mapecrete LI Hardener** to allow it to penetrate into the substrate.

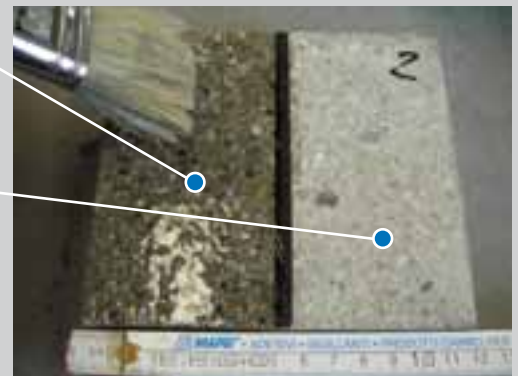
Remove any excess liquid and dry and polish the treated surface either manually or with suitable equipment.

After completing the application and drying operations, we recommend waiting until the following day before stepping on the surface, even if the consolidating effect of the product continues for several days.

Appearance just after application

Surface treated with Mapecrete LI Hardener

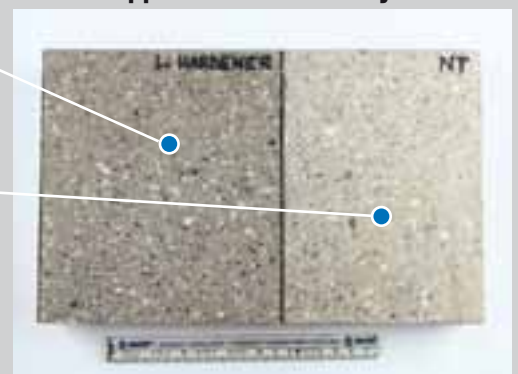
Untreated surface



Appearance after 2 days

Surface treated with Mapecrete LI Hardener

Untreated surface



Mapei Research & Development

The **Mapecrete** range of protection systems for concrete surfaces is the result of new, in-depth research carried out by the Mapei Research Laboratories.

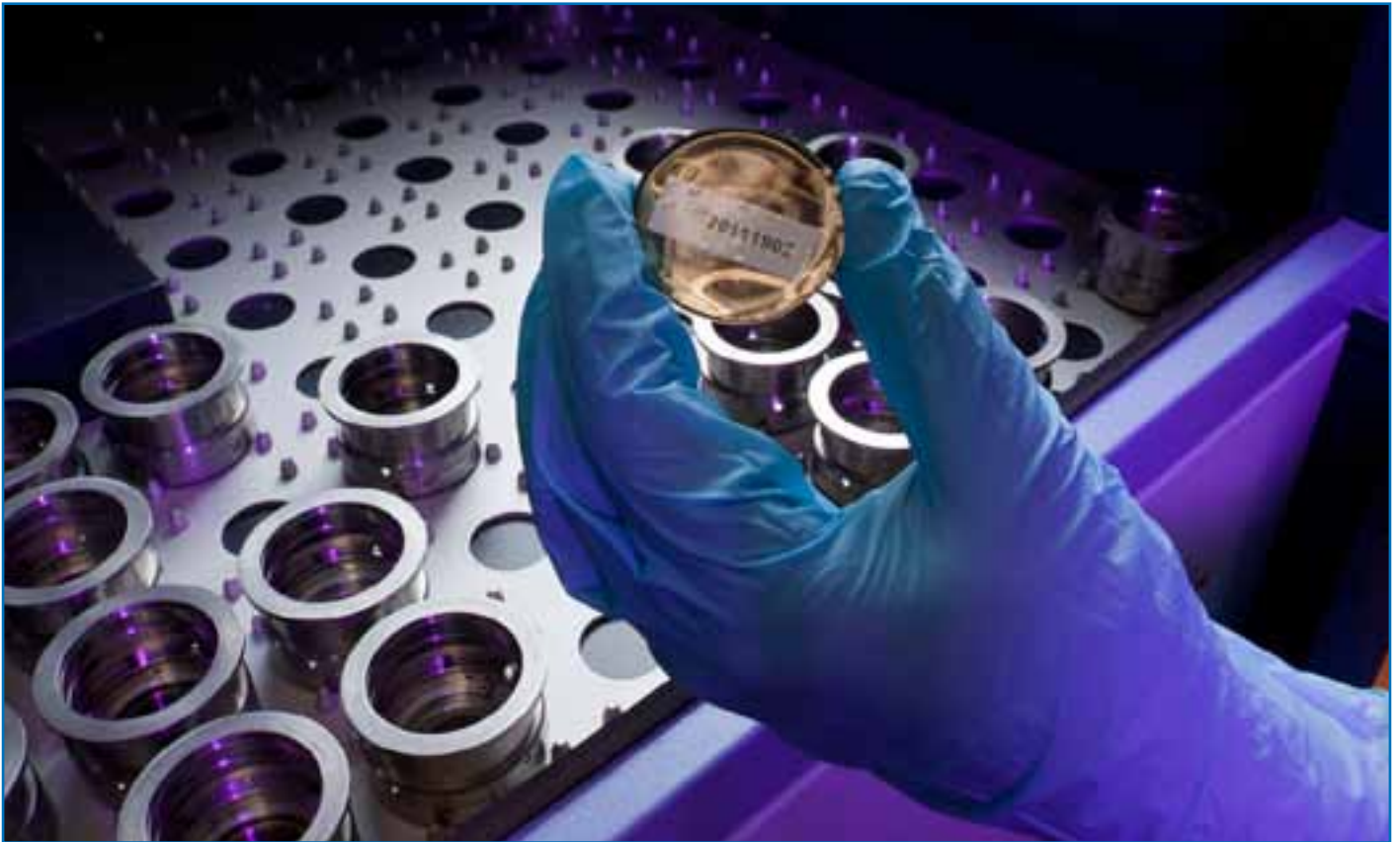
Mapei has always dedicated a great deal of effort into Research, with more than 5% of annual turnover channelled into Research & Development.

Our laboratories, equipped with the most up to date

equipment and instruments, interface with each other constantly, as well as with scientific and industrial research institutes. They also offer precious, valid support to our Technical Services Department by investigating into a wide range of issues, including those regarding the jointless flooring sector.



ESEM-FEG electron microscope



Chemical elemental analysis by X-ray fluorescence



VOC analysis

-  PRODUCTS FOR CERAMICS AND STONE MATERIALS
-  PRODUCTS FOR RESILIENT AND TEXTILE MATERIALS
-  PRODUCTS FOR WOODEN FLOORING
-  PRODUCTS FOR CEMENTITIOUS AND RESIN FLOORING
-  PRODUCTS FOR ACOUSTIC INSULATION
-  PRODUCTS FOR BUILDING
-  ADMIXTURES FOR CONCRETE
-  PRODUCTS FOR STRUCTURAL STRENGTHENING
-  PRODUCTS FOR THE REPAIR OF MASONRY
-  PRODUCTS FOR THERMAL INSULATION
-  WALL PROTECTIVE AND DECORATIVE COATINGS
-  PRODUCTS FOR WATERPROOFING
-  PRODUCTS FOR UNDERGROUND CONSTRUCTIONS
-  ELASTIC SEALANTS AND ADHESIVES
-  GRINDING AIDS FOR CEMENT

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