

Planiseal WR 90 Gel

Ready-mixed pure silane-based, hydrophobising, protective, migrating thixotropic gel applied by airless spray on surfaces of reinforced concrete



WHERE TO USE

Thanks to its hydrophobising properties, **Planiseal WR 90 Gel** is particularly recommended for protecting all reinforced concrete structures exposed to aggressive agents such as chlorides and to damage caused by freeze-thaw cycles. Thanks to its special formulation, **Planiseal WR 90 Gel** may be applied directly on both vertical and horizontal surface of porous and compact concrete, on new concrete and on concrete that has already been repaired with no evident signs of detachment from the reinforcing steel.

Some application examples

- Piles and abutments on bridges and viaducts.
- Floor slabs.
- Structures in marine environments such as quaysides, jetties, etc.
- Pre-fabricated reinforced concrete structures.
- Concrete floors.
- Foundations.
- Prefabricated structures (buffer panels, beams, columns, etc.).
- Internal and external reinforced concrete structures in general.

TECHNICAL CHARACTERISTICS

Planiseal WR 90 Gel is a pure silane-based, low-density, hydrophobising, thick liquid with high penetration capacity according to a formulation developed by the MAPEI Research & Development laboratories. It forms a gel when applied by airless spray and is used to protect reinforced concrete.

Thanks to its special composition, **Planiseal WR 90 Gel**

travels through the capillary pores and penetrates deep down into concrete to form a protective, hydrophobic coating that, over the years, helps prevent from degradation.

Although the unchanged breathability of the substrate **Planiseal WR 90 Gel** drastically reduces water and chloride absorption which helps prevent corrosion of the reinforcement steel in the concrete. Thanks to its special properties, it also helps prevent deterioration of new and repaired concrete caused by freeze-thaw cycles and de-icing salts and increases its durability, especially when used as part of a repair and protection cycle on reinforced concrete.

Planiseal WR 90 Gel differs from **Planiseal WR 100** and **Planiseal WR 80 Cream** because it's a thixotropic gel characterised by a longer absorption time on high quality concrete surfaces assuring a higher penetration depth.

Planiseal WR 90 Gel complies with Euronorm EN 1504-9 (*"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 requirements of EN 1504-2 (*"Concrete surface protection systems"*) according to principles PI, MC and IR for class: H – hydrophobic impregnation: surface protection products.

RECOMMENDATIONS

- Do not dilute **Planiseal WR 90 Gel** with water during preparation.
- Do not add any other product (solvent, cement, etc.).

Planiseal WR 90 Gel

- Do not apply to the surface of concrete in direct contact with drinking water.
- Do not apply the product if the surrounding temperature is less than +5°C.
- Protect adjacent surfaces, including metal, glass and wood. Immediately remove all accidental splashes with water or ethanol.

APPLICATION PROCEDURE

Substrate preparation

Concrete must be well cured, sound, and clean and free of all traces of oil, grease, cement laitance, old paint and any other material or substance that could prevent **Planiseal WR 90 Gel** from penetrating into the concrete. When treating old concrete, the cleaning method adopted depends on the type of dirt or stain to be removed. Hydro-blasting with cold water is generally sufficient to open surface pores and encourage the product to penetrate. Hydro-blasting with hot water is particularly effective in removing oil and grease. If there are no stains or dirt blowing the surface down with compressed air is usually sufficient. Before applying **Planiseal WR 90 Gel** wait until the surfaces are dry.

Preparation of the product

Planiseal WR 90 Gel is supplied ready-mixed and must not be diluted with water or solvent. The products may be applied directly from the drum after shaking it well to form a uniform consistency.

Application of the product

Make sure the surface of the concrete is not frozen and that rain or a drop in temperature to below +5°C is forecast for at least 12 hours after application. The effectiveness of **Planiseal WR 90 Gel** depends on its penetration depth and this in turn depends on the type and absorbency of the concrete. The product is applied in one coat by high-pressure airless spray. Protect the product from the rain for at least 12 hours after application. The product dries completely after 1 to 4 weeks, depending on the type of substrate, the surrounding temperature and

the surrounding conditions in general. At the end of the drying period, there will be traces of **Planiseal WR 90 Gel** on the surface which can be easily removed by hydro-blasting. Do not apply **Planiseal WR 90 Gel** on substrates that are not sufficiently cured. Areas that are still moist could limit the spread of the product deep down into the concrete.

Contact MAPEI Technical Services for advice regarding application on substrates or in conditions not mentioned in this Data Sheet.

PRECAUTIONS TO BE TAKEN DURING APPLICATION

- Do not apply **Planiseal WR 90 Gel** if it is about to rain or if rain is forecast within 12 hours of application.
- Apply at a temperature of +5°C to +35°C.
- Do not apply the product in strong winds.
- Do not apply the product on wet or damp concrete.
- Do not apply on hot surfaces exposed to strong solar radiation.

Cleaning

Rinse tools and remove all traces and splashes of product immediately after application with ethanol.

CONSUMPTION

Consumption varies according to the porosity and roughness of the substrate and is generally from 0.3 kg/m².

PACKAGING

Planiseal WR 90 Gel is available in 20 kg drums.

STORAGE

Planiseal WR 90 Gel may be stored for 12 months in its original packaging in a covered, dry area. Store the product in an area with a temperature of +5°C to +35°C.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

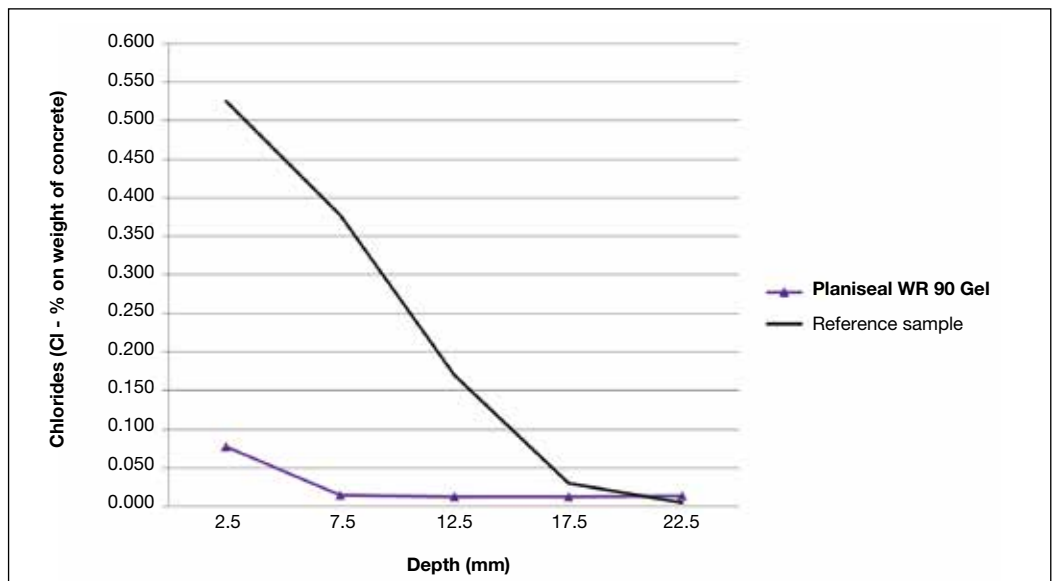
Planiseal WR 90 Gel irritates the skin. When applying the product it is recommend



Loss in mass after freeze-thaw cycles' resistance test in samples without the treatment



Samples treated with Planiseal WR 90 Gel after freeze-thaw cycles' resistance test



Reduction of chloride content in a sample treated with **Planiseal WR 90 Gel** compared with concrete without the treatment (water/cement ratio 0.45 – NT BUILD 515)

Planiseal WR 90 Gel: *ready-mixed pure silane-based, hydrophobising, protective, migrating thixotropic gel applied by airless spray on surfaces of reinforced concrete. Complies with Euronorm EN 1504-9 (H) principles PI, MC and IR*

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Consistency: liquid

Colour: pink

Density (g/m³): 0.9

Dry substance content (%): > 90

APPLICATION DATA (at +20°C - 50% R.H.)

Application temperature: +5°C to +35°C

Dilution rate: ready-mixed

FINAL PERFORMANCE

Performance characteristic	Test method	Requirements according to EN 1504	Performance of product
Penetration depth:	EN 1504-2 (table 3, n. 19)	Class I: < 10 mm Class II: ≥ 10 mm	Class II: ≥ 10 mm
Water absorption and resistance to alkalis:	EN 13580	Absorption rate < 7.5% compared with untreated test sample	1.7%
		Absorption ratio after immersion in alkali solution <10%	7.8%
Drying speed coefficient:	EN 13579	Class I: > 30% Class II: > 10%	88% (Class I)
Loss in mass after freeze-thaw cycles with de-icing salts:	EN 13581	The loss in mass at the surface of the impregnated test sample must take place at least 20 cycles after the non-impregnated test sample	Δ cycles > 48
Reduction in chloride ion diffusion:	NT Build 515	/	90%
Hazardous substances:	EN 1504-2, 5.3	/	compliant



Penetration depth of Planiseal WR 90 Gel

Planiseal WR 90 Gel

to wear protective gloves and goggles and to take the usual precautions for handling chemicals. If the product comes in contact with the eyes or skin wash immediately with plenty of water and seek medical advice.

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

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.

ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

**All relevant references
for the product are available
upon request and from
www.mapei.com**