

# Sika® FerroGard® -903

## Corrosion Inhibiting Impregnation

### Product Description

Sika® FerroGard®-903 is a surface applied corrosion inhibitor, designed for use as an impregnation of steel reinforced concrete. Sika® FerroGard®-903 is based on organic and inorganic compounds. Sika® FerroGard®-903 penetrates the concrete and forms a protective mono molecular layer on the surface of the reinforcing steel.

Protection with Sika® FerroGard®-903 both delays the start of corrosion and reduces the corrosion rate. Corrosion protection with Sika® FerroGard®-903 - increases the service and maintenance life cycles by up to 15 years when used as part of a complete Sika Concrete Repair and Protection System.

### Uses

- For the corrosion protection of steel reinforced concrete structures above and below ground
- For repair and maintenance as treatment of (as yet) undamaged reinforced concrete structures where reinforced steel which is corroding, or is in danger of corroding due to the effects of carbonation or chloride attack
- Sika® FerroGard®-903 is especially suitable for extending the service life of aesthetically valuable fair-faced concrete surfaces

### Characteristics / Advantages

- Does not change the appearance of the concrete structure
- Does not alter the water vapour diffusion capability
- Long term protection and durability
- Can be applied to the surface of existing repairs and surrounding areas to prevent the development of incipient anodes
- Can be applied where other repair/prevention options are not viable
- Economic extension of the service life of reinforced concrete structures
- Easy, economical application
- Penetration depth can be tested on site using the Sika "Qualitative Colour Test" - refer to your local Technical Service Department for details

### Tests

#### Approval / Standards

Mott MacDonald, Evaluation of Sika® FerroGard®, Ref. 26'063/001 Rev A April 1996.

Wolfseher & Partner, Materials Technological Investigation, Report No. 96.144.11 and Report No. 98.115.11.

Construction



## Product Data

### Form

**Appearance / Colour** Transparent liquid.

**Packaging** 25 kg pail  
200 kg drum

### Storage

**Storage Conditions / Shelf life** 24 months from date of production if stored properly in undamaged and unopened, original sealed packaging. Store in a cool environment. In case of - frost ( $< -5^{\circ}\text{C}$ ), - reversible crystallisation may occur. If this happens, let the product warm up at room temperature ( $+15 - +25^{\circ}\text{C}$ ), then stir well to redissolve the crystals.

### Technical Data

**Chemical Base** Amino alcohol and inorganic combination.

**Density**  $\sim 1.13$  (at  $+20^{\circ}\text{C}$ )

**pH Value**  $\sim 11$

**Viscosity**  $\sim 25$  mPas.s

**Penetration Rate** Site surveys and experimental tests have shown that Sika® FerroGard®-903 can penetrate through concrete at a rate of a few millimetres per day and to a depth of approximately 50 to 60 mm in 3 months. This penetration rate can be faster or slower dependent on the porosity of the concrete. Sika® FerroGard®-903 penetrates through both liquid and vapour phase diffusion mechanisms.  
As concrete quality and permeability differs, conduct some preliminary depth profile testing to assess the specific penetration rate.

### System Information

#### Application Details

**Consumption / Dosage** Generally  $0.500\text{ kg/m}^2$ .  
For very dense concrete with low permeability, the rate of application of Sika® FerroGard®-903 can be reduced but must not be lower than  $0.300\text{ kg/m}^2$ .

**Substrate Quality** Clean and free from dust, dirt, oil, grease, efflorescence, hydrophobic impregnations and coatings etc..

**Substrate Preparation** Cleaning is preferably done by high-pressure water jetting - Do not use hot water.  
The substrate should be allowed to dry out prior to the application of Sika® FerroGard®-903.

### Application Instructions

**Mixing** Sika® FerroGard®-903 is supplied ready for use and must not be diluted. Do not shake the material prior to use. Following transportation, some foam may appear in the pail - this does not affect the performance of the product.

**Application Method / Tools** Sika® FerroGard®-903 should be applied to saturation by brush, roller or low pressure spray equipment. Do not apply in direct sunlight.  
To improve penetration speed, concrete treated with Sika® FerroGard®-903 may be dampened once or twice 1 - 3 days after application.  
Where there are high aesthetic demands on fair-faced concrete, the treated surfaces should be cleaned by water jetting ( $\sim 100$  bars) within 2 days of the application.

**Cleaning of Tools** Use water to clean application equipment etc.

## Waiting Time / Overcoating

Number of coat:

This is dependent on the porosity and moisture content of the substrate and the weather conditions, normally 3 to 5 coats are necessary to achieve the required consumption.

Waiting time between coats:

This is dependent on the porosity of the concrete and the weather conditions, normally 30 minutes to a few hours to allow the surface to dry between coats.

Over coating:

Two days (or later) after the application of Sika® FerroGard®-903, the treated surfaces must be washed down once or twice with water and allowed to dry for at least 3 days.

Then clean the surface thoroughly by water jet (100 - 150 bars) and allow to dry for a further 3 days.

SikaGard® hydrophobic impregnations or SikaGard® breathable coatings can then be applied - follow the information in the respective product data sheet.

Tests have shown good compatibility with most Sika® breathable coatings. If other products are to be applied, please contact the manufacturers technical department for confirmation of compatibility with Sika® FerroGard®-903.

Over coating with cementitious products:

1. Patch repair

Allow areas treated with Sika® FerroGard®-903 to dry for a couple of days. Rinse treated surface with high-pressure water jet (~ 100 - 150 bars). As a bonding agent for cementitious repair systems, only SikaTop® Armatec-110 Epocem® is to be used (follow the information in the product data sheet).

2. Pore sealing on large areas

Allow areas treated with Sika® FerroGard®-903 to dry for a couple of days. Wash with water and allow to dry again. Clean with high pressure water jet (~ 100 - 150 bars) and use SikaTop®-121, SikaGard®-720 Epocem® or Sika® MonoTop-107.

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## Notes on Application / Limitations

Do not apply where there is:

- Expected rain or frost

The following construction materials have to be protected from splashes of Sika® FerroGard®-903 during application:

- Silicone rubber
- Flexible PVC
- Epoxy and PU based material
- Aluminium, copper & galvanised steel
- Timber
- Marble and other similar natural stone

Visible concrete defects (spalling, cracks etc) must be repaired using conventional repair methods (removal of contaminated concrete, treatment of reinforcement, reprofiling etc.).

Sika® FerroGard®-903 may not be used if the chloride concentration at the reinforcement depth is higher than 1.0% chloride ions, corresponding to 1.7% sodium chloride (by weight of cement).

Do not apply in tidal zones or on substrates saturated with water.

Dependent on substrate conditions, the application of Sika® FerroGard®-903 may lead to a slight darkening of the surface. Proceed with preliminary testing.

All surface treatments are to be carried out using cold water.

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## Curing Details

<b>Curing Treatment</b>	Sika® FerroGard®-903 does not require any special curing but must be protected from rain for at least 6 hours at +20°C.
<b>Value Base</b>	All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.
<b>Health and Safety Information</b>	For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet containing physical, ecological, toxicological and other safety-related data.

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.



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