

PRODUCT DATA SHEET

Sika® FerroGard®-410 Patch CC

Discrete anode for corrosion control, containing 65 g zinc

DESCRIPTION

Sika® FerroGard®-410 Patch CC is a zinc-based discrete sacrificial anode placed in reinforced concrete structures which are corroding as a result of chloride ingress and/or carbonation. Sika® FerroGard®-410 Patch CC discrete anodes are placed into sound concrete that may be carbonated or chloride-contaminated, at the edge of repaired areas. Once installed, the Sika® FerroGard®-410 Patch CC anodes will corrode preferentially to the surrounding reinforcement, offering protection against corrosion damage.

USES

Sika® FerroGard®-410 Patch CC may only be used by experienced professionals.

Sika® FerroGard®-410 Patch CC is used for:

- Corrosion control of zones within sound contaminated concrete
- Reinforced concrete structures such as bridges, car parks, coastal structures, industrial structures and residential high-rise
- Coastal reinforced concrete structures both in and above the tidal zone

Please note:

- The Product may only be used by experienced professionals.
- Design of the galvanic protection system must be undertaken by a qualified, experienced corrosion design engineer.
- Installation must be carried out in accordance with engineer's design and specification.

PRODUCT INFORMATION

Chemical Base	Zinc compound
Packaging	25 anodes per box, vacuum packed in 5 separate pouches
Appearance / Colour	Cylindrical zinc core covered in an activated coating, separate white spacers and an integral titanium connecting wire.

CHARACTERISTICS / ADVANTAGES

- Anodes corrode preferentially to the surrounding reinforcement, offering protection from further corrosion damage
 - No long-term maintenance costs
 - Option to deliver an electrical charge to the reinforcement any time during the treatment
 - Conforms to the latest EN 12696 standard for impressed current cathodic protection, when designed appropriately
 - Large charge capacity of up to 500 kC with option of sizes*
 - Lifetime of up to 20 years*
 - Rapid and targeted installation
 - Performance can be monitored
 - Pre-packaged cartridge of embedding mortar available separately
 - No need to break out large areas of sound contaminated concrete
- * Dependent on local conditions, including chloride concentration, concrete properties, humidity and temperature.

Shelf Life	5 years from the date of production.
Storage Conditions	Product must be stored in original, unopened and undamaged packaging in dry conditions at temperatures between +5 °C and +30 °C. Always refer to packaging. Do not allow contact with oxidizing materials. Pouches must only be opened when product is required. Any part used pouches must be re-sealed.
Length	~42 mm
Diameter	~18 mm
Zinc Weight	~65 g

TECHNICAL INFORMATION

Current Density	> 0.2–2 mA/m ² in corrosive environment. This value is dependent on local conditions, including chloride concentration, concrete properties, humidity and temperature.
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APPLICATION INFORMATION

Ambient Air Temperature	<u>Minimum</u>	+5 °C
Substrate Temperature	<u>Minimum</u>	+5 °C
Hole Dimension	<u>Depth</u>	~72 mm
	<u>Diameter</u>	~25 mm

SYSTEM INFORMATION

System Structure	The installation mortar is Sika® FerroGard®-500 Crete for the following anodes:		
	Product	Length	Zinc content
	Sika® FerroGard®-410 Patch CC	~42 mm	~65 g
	Sika® FerroGard®-415 Patch CC	~77 mm	~120 g
	Sika® FerroGard®-420 Patch CC	~115 mm	~198 g

BASIS OF PRODUCT DATA

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.

FURTHER DOCUMENTS

- Sika Method Statement: Corrosion Control using Discrete Galvanic Anodes Sika® FerroGard®-400s Patch CC

LIMITATIONS

In order that suitable current flow and lifetime be achieved from the Sika® FerroGard®-410 Patch CC anode, certain practical considerations must be taken into account.

- The patch repair material cover for Sika® FerroGard®-410 Patch CC unit must have a minimum thickness of 20 mm.
- Concrete repairs must be undertaken in accordance to an acknowledged national standard such as EN 1504.
- Any cracks or delamination in the concrete which affect ionic current flow will affect performance of the Sika® FerroGard®-410 Patch CC unit and must be pre-treated before anode installation.
- Design of the galvanic protection system must be undertaken by an experienced qualified corrosion design engineer.
- Installation must be carried out in accordance with engineers design and specification.

ECOLOGY HEALTH AND SAFETY

This product is an article as defined in article 3 of regulation (EC) No 1907/2006 (REACH). It contains no substances which are intended to be released from the article under normal or reasonably foreseeable conditions of use. A safety data sheet following article 31 of the same regulation is not needed to bring the product to the market, to transport or to use it. For safe use follow the instructions given in this product data sheet. Based on our current knowledge, this product does not contain SVHC (substances of very high concern) as listed in Annex XIV of the REACH regulation or on the candidate list published by the European Chemicals Agency in concentrations above 0.1 % (w/w)

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

Concrete repairs must be undertaken in accordance to an acknowledged national standard such as EN 1504. Any cracks or delamination in the concrete which affect ionic current flow will affect the performance of the Sika® FerroGard®-410 Patch CC unit. Pre-treat cracks and delamination before anode installation.

APPLICATION

IMPORTANT

Strictly follow installation and maintenance procedures

Strictly follow installation and maintenance procedures as defined in Method Statements, application manuals and working instructions which must always be adjusted to the actual site conditions.

Sika® FerroGard®-410 Patch CC anodes are installed following guidelines in EN 12696:2012 and CEN/TS 14038-1:2004.

Reference must be made to the Sika Method Statement: Corrosion Control using Discrete Galvanic Anodes Sika® FerroGard®-400s Patch CC. The following is a summary.

1. Position the anodes at a density of 4–9 per m² of surface concrete. The spacing between the anodes is 280–600 mm.
2. Drill the holes with a diameter and depth according to the Hole dimensions in Application information.
3. Fill the holes with Sika® FerroGard®-500 Crete embedding mortar to completely encapsulate the anode.
4. Insert the anodes into the embedding mortar.

5. Electrically connect each anode to a titanium feeder wire which is connected to the reinforcement. Note This allows an option to deliver an electrical charge to the reinforcement at any point in the future should a change in environmental conditions demand greater protection of the reinforcement.
6. Use a Sika low-shrink repair mortar to cover the patch to a minimum thickness of 20 mm. When installed in an existing concrete repaired area, the resistivity of the repair mortar must be in the range of 50–200 % of the parent concrete.

The installed Sika® FerroGard®-410 Patch CC anode can be monitored using half-cell potential surveys, current outputs and reinforcement corrosion rate measurements.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

LEGAL NOTES

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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Product Data Sheet

Sika® FerroGard®-410 Patch CC
August 2026, Version 04.01
020303090020000007

SikaFerroGard-410PatchCC-en-ZA-(08-2026)-4-1.1.pdf

