

PRODUCT DATA SHEET

Sika® FerroGard®-510 Patch

Discrete anode for corrosion mitigation of incipient anode adjacent to concrete repaired areas; containing 65 g zinc

DESCRIPTION

Sika® FerroGard®-510 Patch is a zinc-based discrete sacrificial anode placed inside a repaired area in a reinforced concrete structure which is corroding as a result of chloride ingress and/or carbonation.

Sika® FerroGard®-510 Patch anodes are placed along the perimeter of the repair area and fixed to the reinforcement prior to the application of a concrete repair system. The reinforcement outside the repaired area is at greatest corrosion risk owing to the passive condition of the reinforcement within the repaired area.

Sika® FerroGard®-510 Patch anodes corrode preferentially to the surrounding reinforcement, offering protection against incipient corrosion damage.

Standard repair mortars, bonding primers and reinforcement corrosion protection coatings can be used as Sika® FerroGard®-510 Patch is placed in the parent concrete and not within the repair mortar.

USES

Sika® FerroGard®-510 Patch may only be used by experienced professionals.

Sika® FerroGard®-510 Patch is used for:

- Controlling the incipient anode effect by electrically balancing the anodic and cathodic areas of reinforcement
- Targeted treatment applied to concrete repaired areas to prevent incipient corrosion damage

- 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.

CHARACTERISTICS / ADVANTAGES

- Anodes corrode preferentially to the surrounding reinforcement, protecting it from further corrosion damage
- Protects against incipient anode effect outside of repaired area
- No long-term maintenance costs
- Strengthens passive film on reinforcement
- No rapid dissolution of activating components
- Quick installation—no additional concrete break out
- Bonding primers for concrete and reinforcement corrosion protection coatings can be used
- High resistivity repair mortars can be used
- Performance can be monitored
- Cost-effective corrosion control solution

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.
Shelf Life	5 years from 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 should only be opened when product is required. Any part used pouches should be re-sealed.

Length ~42 mm

Diameter ~18 mm

Zinc Weight ~65 g

TECHNICAL INFORMATION

Current Density >0.2–2 mA/m² in corrosive environment
This value is dependent on local conditions, including chloride concentration, concrete properties, humidity and temperature.

APPLICATION INFORMATION

Ambient Air Temperature Minimum +5 °C

Substrate Temperature Minimum +5 °C

Hole Dimension

Depth	~47 mm
Diameter	~25 mm

SYSTEM INFORMATION

System Structure The installation mortar is Sika® FerroGard®-500 Crete for the following anodes:

Product	Length	Zinc content
Sika® FerroGard®-510 Patch	~42 mm	~65 g
Sika® FerroGard®-515 Patch	~77 mm	~120 g
Sika® FerroGard®-520 Patch	~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: Application of Discrete Galvanic Anode using Sika® FerroGard®-500s Patch

LIMITATIONS

In order that suitable current flow and longevity can be achieved from the Sika® FerroGard®-510 Patch anodes, certain practical considerations should be taken into account.

- The patch repair material cover for Sika® FerroGard®-510 Patch 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 discontinuous reinforcement must be either electrically bonded to or electrically isolated from the system negative.
- The time to achieve passivity will be dependent on site conditions. Depolarisation of treated reinforcement will be slower in moist conditions.
- Design of the galvanic protection system must be undertaken by an experienced qualified corrosion design engineer.
- Installation should be carried out in accordance with engineer's 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

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.

Concrete repairs must be undertaken in accordance to an acknowledged national standard such as EN 1504. Reference must be made to the Sika Method Statement: Application of Discrete Galvanic Anode using Sika® FerroGard®-500s Patch. The following is a summary.

Preconditions

The design engineer has determined the spacings of the anodes based on steel density.

Any discontinuous reinforcement has been either electrically bonded to or electrically isolated from the system negative.

1. Within the repair area where the concrete has been removed, place the Sika® FerroGard®-510 Patch anodes along the perimeter edges of the repair.
2. Drill the holes with a diameter and depth according to the Hole dimensions in Application information. Remove the dust.
3. Pre-wet the drilled holes with water for a minimum of 15 minutes.
4. Remove any excess water from the bottom of the holes.
5. Fill the holes with Sika® FerroGard®-500 Crete embedding mortar ensuring no air is entrapped.

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6. Insert the anodes into the embedding mortar and ensure the anode bodies are completely encapsulated.
7. Remove excess embedding mortar from around the top of the anode and integrated wire.
8. Directly connect the integrated titanium wire from the anode to an adjacent cleaned area of reinforcement within the repair area by winding at least twice around the reinforcement and fixing the tail with the supplied plastic cable tie.
9. Confirm electrical continuity of the anode conducting wire and the reinforcement
10. Fill and finish the patch repair area using a suitable Sika® repair mortar within 2 hours of inserting the Sika® FerroGard®-510 Patch anode. The patch repair material cover for the Sika® FerroGard®-510 Patch unit must have a minimum thickness of 20 mm.
11. Alternatively, cap the hole within 2 hours with the Sika® repair mortar until the final reinstatement is undertaken. Ensure the anode is not disturbed.

The time to achieve passivity will be dependent on site conditions. Depolarisation of treated reinforcement will be slower in moist conditions.

The installed Sika® FerroGard®-510 Patch 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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