

PatchGuard™ Sacrificial Anode

Description

PatchGuard is a discrete sacrificial anode applied into patch repairs on reinforced concrete structures resulting from attack by chloride salts and carbon dioxide.

Many structures suffer corrosion damage due to incipient anode corrosion damage resulting after concrete repairs. Although the fresh mortar in patch repairs offers a passive environment for the steel within, it does not deal with chloride contaminated concrete outside the patch repair. This leads to further corrosion damage at the periphery of the repair.

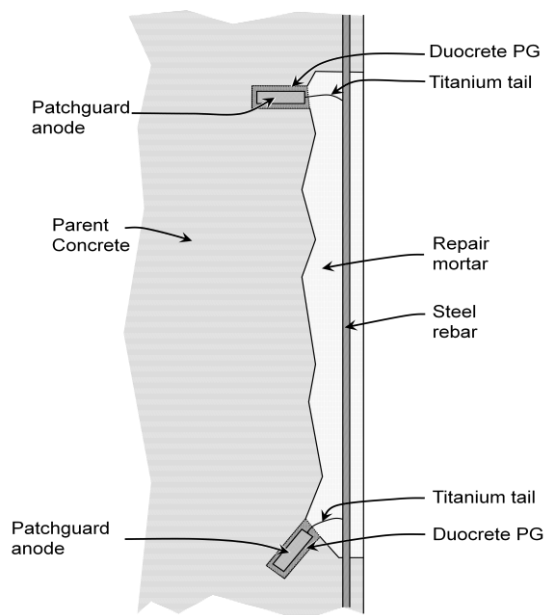
PatchGuard anodes redress the electrochemical imbalance induced through removal of the previously corroding steel in the patch. PatchGuard anodes corrode preferentially to the surrounding steel protecting it from further corrosion damage.

PatchGuard anodes are located within the parent concrete. Protective current is thus delivered directly to the steel outside the patch which is at greatest future corrosion risk as opposed to clean steel within the patch repair. In addition, there is no compromise in the quality of the concrete repair material used in reinstatement, as is typically the case for sacrificial anodes placed within patch repairs. The insulating properties of bonding primers prevents their use with traditional patch anodes – however, as PatchGuard is placed in the parent concrete primers may be used which leads to an enhanced repair bond.



Features

- Simple, single small volume unit
- Corrosion resistant attachment system
- Rapid installation – no additional break out
- Bonding primers can be used
- High resistivity repair mortars can be used
- Targetted application
- Pre-packaged application mortar
- Large charge capacity > 150kC*



Application

A location for the discrete anodes as close as practical to the edge of the broken out repair shall be selected and holes drilled into the parent concrete within the patch at locations identified by the engineer. A hole of dimensions 25mm diameter by 45mm long shall be drilled to take the PatchGuard anode unit.

*dependent on local site conditions, including chloride concentration, concrete properties, humidity and temperature



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Pre-wet the drilled hole with water for a minimum of 15 minutes. Once the excess water has been removed from the bottom of the hole, Duocrete PG mortar shall be applied into the hole with a nozzle to ensure no entrapment of air voids within the mortar matrix. The PatchGuard anode shall be placed into the hole and inserted such that the Duocrete PG mortar surrounds the whole unit.

The protruding titanium wire from the anode shall be directly connected to the clean reinforcing steel within the patch repair by winding at least twice around the rebar and fixing the tail with the supplied wire and twisting tool.

Electrical continuity of the PatchGuard anode conductors and the reinforcing steel shall be confirmed. The patch repairs shall be immediately reinstated.

The PatchGuard anode installation can be monitored using half-cell potential surveys, current outputs and reinforcing steel corrosion rate measurements

Product Data

Packaging : 25 units per box, vacuum packed in 5 separate pouches.

Storage : Store dry. Do not allow contact with oxidizing materials. Pouches should only be opened when product is required. Any part used pouches should be re-sealed.

Specification Clause

The discrete anode shall be PatchGuard, a sacrificial alloy anode with an integral electrical connection which allows fixing of the anode at a range of distances from the reinforcing steel and which is formed of a material more noble than steel, the anode unit being embedded within a hole within the patch using a pliable viscous backfill mortar of pH <12.4.

Ancillary Material

The following ancillary materials are also available from CPT Ltd;

- DuoGuard™ 1000/750/500/350/175 anodes for treatment of chloride contaminated concrete outside patch repairs
- Manganese dioxide reference electrodes
- Monitoring equipment to monitor steel corrosion activity

Application

Concrete repair material cover to the PatchGuard unit must be a minimum of 20mm. Concrete repairs must be undertaken in accordance with EN 1504. Any discontinuous steel should be electrically bonded to ensure continuity.

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

Health and Safety

Protective clothing must be worn. Wear gloves and eye protection at all times.

Design of the PatchGuard system should be undertaken by a competent design engineer.

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