THORO® CP ANODE 30

Durable Anodic Conductive Coating For Reinforced Concrete Cathodic Protection (CP)

Description of Product

THORO® CP ANODE 30 is a unique, water based, one component anode coating specifically designed for steel reinforced concrete structures which are suffering ongoing corrosion damage, or require protection against future corrosion initiation. The material contains highly conductive coated fibres which provide superior current distribution and mechanical properties resulting in an enhanced anode life.

Fields of Application

Suitable applications include the control of active corrosion or the prevention of the onset of corrosion in:

- Bridges
- Highway structures
- Car parks
- Buildings

Features and Benefits

- Efficient electrical current distribution and high conductivity
- High adhesion
- Concrete compatibility
- Good vapour permeability
- Single component, ready to use
- Brush, roller or spray application
- No primer required
- Water-based, solvent free

Technical Data/Typical Properties

Anode Characteristics	
Maximum current density **(concrete structure surface area), mA/m²**	20
Bulk resistivity, ohm.cm	<1
Typical physical properties [(a)]	
Wet density, kg/l	1.05
Solids content (by volume), % approximately	50
Water vapour permeability, μ	274
Bond strength (concrete substrate in-service value at 20 mA/m²), N/mm²	>1

[(a)] Typical values: all tests carried out at 21°C unless otherwise stated

Tests and approvals

THORO® CP ANODE 30 has been tested by Taywood Engineering Limited, UK:
Evaluation Report 1303/94/7613

Application Procedure

Preparation of Substrate

Preparation of the concrete substrate is vital to achieve optimum performance and long service life from the cathodic protection installation. Remove all surface coatings, defective renders, foreign matter, formwork treatments, laitance, algae and other contaminants that may adversely affect the bond. Use abrasive blasting or high pressure water jetting. *Do not use vibrating or high impact methods*; such methods increase the risk of inducing micro cracks that may affect the adhesion and long-term durability of the anode system.

Spalled or delaminated areas and cracks should be repaired with approved THORO® cathodic protection concrete repair products. Hairline cracks may be left untreated. Under no circumstances should any cracks be injected with materials, which will insulate areas from the CP system. Areas of low cover and exposed steel must be treated or the cover built up to that required.

Primary Anode[(b)]

A primary anode is an essential requirement for a THORO® CP ANODE 30 system. The required number and configuration for correct current distribution will be project specific and is, therefore, a CP design decision. As a guide for a plane surface, primary anodes should be placed at 1.5m centres (maximum) with a 0.5m clearance from the edges of the anode zone.

The primary anode may be embedded in the THORO® CP ANODE 30 using an appropriate open gauze tape, which is laid over the primary anode and held in position with THORO® CP ANODE 30. Alternatively, the primary anode may be fixed directly to the prepared substrate by an appropriate method, such as a series of individual dots of a fast setting adhesive. To protect the primary anode, overlay with a suitable non-woven fabric.

The configuration should allow the connection to the rectifier to be made outside the anodic zone and in duplicate as a minimum. Suitable primary anode materials include platinum/niobium-clad copper wire (0.8mm diameter)

[(b)] Contact your Degussa Construction Chemicals (UK) office for advice.

Mixing

THORO® CP ANODE 30 is supplied as a ready-to-use product and must not be diluted or altered in any way. Stir the material with a paddle mixer before application to ensure uniform dispersion of the solid content throughout the mixture.

For optimum results mixing should be carried out between 20 and 30ºC.

Application

THORO® CP ANODE 30 may be applied using a brush, roller or suitable spray application technique [(c).] Roller and spray applications are recommended as they ensure optimum tridimensional distribution of the fibres throughout the anode coating.

Application should be carried out at ambient temperature, which should be a minimum of 10ºC, and should not be undertaken when the ambient temperature is expected to fall below 5ºC during the next 24hour period. The temperature of the substrate should be at least 3°C above the dew point to prevent condensation on the concrete surface.

Apply a first coat of THORO® CP ANODE 30 at the rate of at least 525 g/m² of concrete surface area. Whilst the first coat is still wet, embed the primary anode using the open gauze tape.

Alternatively, if the primary anode has been fixed directly to the concrete, apply the protective non-woven fabric to the primary anode using a little extra THORO® CP ANODE 30.

Do not apply the second coat until the first is completely dry. In any case, it should not be applied within 24 hours to allow the first coat to cure adequately.

The second coat of THORO® CP ANODE 30 should be applied at the rate of at least 525g/m² of concrete surface area.

THORO® CP ANODE 30 is not intended for applications involving continuous immersion in water or in tidal situations.

[(c)] Contact your Degussa Construction Chemicals (UK) office for advice.

Curing

Drying times primarily depend upon prevailing conditions such as wind, humidity and temperature. The recommended drying time is a minimum of 24 hours.

Overcoating

THORO® CP ANODE 30 can be overcoated with approved THORO® CP coating products to enhance performance in aggressive environments or for aesthetic purposes.

Operation maintenance of CP installation

To achieve cathodic protection of the reinforcement and optimise the service life of the CP system, especially the anode, it is essential that suitable design, commissioning, monitoring, control and maintenance procedures are followed. Reference should be made to the draft CEN Standard TC262/SC2/WG2.

Clean up

Clean equipment and spillages immediately with water. Dried material can be removed with xylene.

Coverage

Coverage is dependent upon various factors, including the method of working and substrate condition. The recommended dry-film thickness is 500µm, which is normally achieved in two layers and results in a theoretical coverage rate of 1.05kg/m² or 1litre/m² for a two-coat application.

Packaging

THORO® CP ANODE 30 is supplied pre-packed in 20 litre plastic pails.

Storage

THORO® CP ANODE 30 should be stored under cover and clear of the ground at a minimum temperature of 5ºC. Do not stack more than 2 pails high. Once opened the material should be used immediately.

Shelf Life

Under normal conditions in unopened packaging the shelf life is 12 months.