Technical Data Sheet

Zinc Layer Anode (ZLA®)

Zinc sacrificial anode for corrosion control

of steel in concrete

Description

Zinc Layer Anode is a zinc foil coated with an ionically conductive adhesive. The adhesive is covered with a liner to help protect it from contamination.
Before application, the protective liner is removed from the adhesive, and the Zinc Layer Anode is adhered to the clean, bare concrete surface. The ionically conductive adhesive enables the anode to be securely adhered to the surface of the concrete structure.

Several typical examples of applications:

- in combination with concrete patch repair.
- bridge deck or beam supports and columns.
- balcony facings and concrete facades.
- concrete slabs.
- ideal for large surface area.

Application

ZLA is a product used in the protection of reinforced concrete constructions against rebar corrosion.
ZLA is a sacrificial galvanic anode specifically designed for giving electrochemical protection, known as cathodic protection, for the prevention of corrosion of the concrete steel reinforcement.

The current required for cathodic protection is provided by the galvanic link of the steel reinforcement and the zinc-layer being part of the ZLA.
No external power source or what so ever is necessary.

The ZLA has been therefore designed to function as an additional anode replacing all the anodic locations of the reinforced concrete construction. It is applied upon the concrete surface. The zinc-layer is electrically linked with the steel reinforcement. In this way the electric-circuit is completed because electric current flows through the adhesive layer and concrete by means of ionic conductance (both materials are so-called electrolytes).

Since zinc has a natural potential which is more electronegative than the steel reinforcement, the zinc becomes the anode after installation and forms a new corrosion cell in which the reinforcement is forced to be the cathode.
In this way the corrosion process of the steel within the concrete is transferred to the zinc-layer avoiding futural spalling and cracking of the concrete.

Typical Features

Typical corrosion defined as galvanic corrosion occurs when two different types of metal are in contact with each other and surrounded totally or partially by an electrolyte.

The metal with the most negative electrochemical potential will corrode or sacrifice itself to protect the other metal with a more positive electrochemical potential. In a similar way the GALVEX hybrid anodes will corrode and sacrificing themselves protecting the steel or reinforcing structure being attached to it.

Each anode will create an extended electric field around itself within the electrolyte which is called “throwing power” which is the protecting zone of the anode.

Composition	Weight g/m2	Thickness Micron
Zinc Sheet 250	**1750**	**250**
Ionically conductive adhesive	1200	900 (+/- 100)
Top Liner	200	PET film
Total	3150 +/- 5%	
Zinc Sheet 450	**3150**	**450**
Ionically conductive adhesive	1200	900 (+/- 100)
Top Liner	200	PET film
Total	4550 +/- 5%	
Adhesive on Concrete*		
10 hours after application	> 0,120 MPa	> 0,120 MPa
48 hours after application	> 0,140 MPa	> 0,140 MPa
Electrical conductivity		
	Volume resistivity	< 10 kOhm.cm
Minimum T for application		4 ºC
Operation temperature ºC		-4 +50 ºC

*This test was done on clean and dry concrete.

Dimensions and Storage

Roll Width : 25cm
Roll Length : 20m (250 & 450 micron zinc sheet)
Shelf Life : ca Six months from date of receipt by customer when
stored in original packaging at 22ºC and 50% R.H.
The zinc may show some self-corrosion over time by discolouring or white deposit.
Because of the purity of the zinc this is completely normal and does not effect the performance.

Performance characteristics

Depolarization of Reinforcing Steel according to the international standard EN/ISO12696 "Cathodic protection of steel in concrete".

Zinc Layer Anode

CE
0100

ISO 12696:2011 § 6.2.6.2 : Adhesive zinc-sheet anode

BASIC CHARACTERISTICS	PERFORMANCE	HARMONISED TECHN. SPEC.
Performance criteria	**a)** Instant off more negative than -720 mV Ag/AgCl 0,5M KCl. **b)** Instant off decay ≥ 100mV within a 24h period. **c)** Instant off decay ≥ 150mV for periods greater than 24hrs.	ISO 12696:2011 • Provided that §4.2 is respected • Critera as per §8.6 a, b or c • Reference to §8.5 NOTE 2 and §8.6 NOTE 8, NOTE 10.
Anode current output	**a)** Open circuit potential of ZLA ≥ 1000mV Ag/AgCl 0,5M KCl. **b)** Anode current > 1 mA/m2 of ZLA	EN 1504-9 Principle 10 Method 10.1
OH- formation at steel	max. 0.0373 mmol OH^-/mA	EN 1504-9 Principle 7, Method 7.3 & 7.5
Increasing Resistivity	Limiting moisture content by surface treatments, coatings or sheltering	EN 1504-9 Principle 8 Method 8.1
Control of Anodic areas	Limiting oxygen content (at the cathode) by surface coating	EN 1504-9 Principle 9 Method 9.1

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Revision Nr. 06
Revision date 01 March 2023
Approved R. Giorgini