

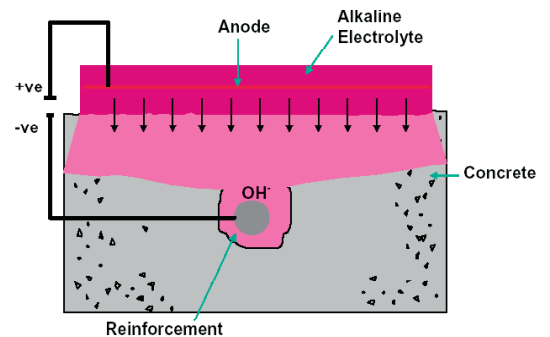


Norcure® Re-alkalization

Electrochemical Re-alkalization Process for
Carbonated Concrete Structures

DESCRIPTION

Norcure re-alkalization is a treatment which restores the alkalinity of carbonated concrete and reinstates the passivity of steel reinforcement. Re-alkalization is carried out by temporarily applying an electric field between the reinforcement in the concrete and an externally mounted anode mesh. During the process an alkaline electrolyte, such as sodium or potassium carbonate solution, is transported into the concrete, increasing the alkalinity of the cover zone. At the same time, electrolysis at the reinforcement surface produces a high pH environment. This process returns the steel reinforcement to a passive condition.



Norcure Re-alkalization process mitigates corrosion in carbonated concrete structures

ADVANTAGES

Norcure re-alkalization offers major advantages over other methods of concrete repair.

- The cause of corrosion is addressed and removed.
- The success of the treatment is documented on-site.
- The rebars are passivated throughout the treated area, not just in isolated areas.
- The non-destructive nature of the treatment results in vastly reduced concrete break-out, which means:
 - Major time-savings
 - Less noise, dust and environmental pollution
 - No need for expensive structural support
 - Reduced risk of inducing micro-cracks
- The Norcure re-alkalization process is silent.
- The need for permanent electronic monitoring is eliminated.
- Architectural and exposed aggregate finishes can be maintained.
- Fixed prices can frequently be offered.

GENERAL TECHNICAL SPECIFICATION

The Norcure re-alkalization treatment is carried out in full accordance with the Operators' Manual. To obtain a comprehensive guideline specification for the Norcure Chloride Extraction process, contact Vector Corrosion Technologies.

Anode	Metallic mesh temporarily mounted on concrete surface
Cathode	Existing steel reinforcement
Electrolyte	Sodium or potassium carbonate solution
Current density	1 A/m ² of concrete surface
Treatment time	Three to seven days
Applied voltage	Between 10 to 40 V DC

PREPARATION PRIOR TO TREATMENT

- Any existing surface finishes shall be removed.
- Any cracks, spalls and delaminations shall be located and repaired using an approved cementitious mortar.
- All metallic features on the concrete surface shall be located and insulated, or removed.
- The thickness of the concrete cover shall be determined and built up to a minimum of 10 mm if necessary.
- Reinforcement continuity shall be examined and, if necessary, improved to give full continuity.

TREATMENT

- Treatment sections shall be identified to ensure even current distribution within each section.
- Electrical connections to the reinforcement shall be established.
- Test locations for concrete sampling shall be determined and marked.
- The chosen anode system, consisting of an anode mesh and an alkaline reservoir, shall be installed.
- Electrical connections to the anode mesh shall be established.
- The leads from the reinforcement shall be connected to the negative pole of the rectifier unit(s).
- The leads from the anode mesh shall be connected to the positive pole of the rectifier unit(s).



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- The voltage shall be adjusted to give approximately 1 A/m² of concrete surface.
- Current, voltage and efficiency of the anode system shall be controlled and, if necessary, adjusted throughout the treatment.

POST-TREATMENT

- When sufficient re-alkalization is achieved, the anode system shall be removed and the concrete surface cleaned and allowed to dry.
- If required, the concrete surface shall be treated with an approved protective/decorative coating system.

ABOUT VECTOR

Vector Corrosion Technologies takes pride in offering technically advanced, cost effective corrosion protection solutions to extend the service life and improve the durability of concrete and masonry structures around the world. Vector has earned numerous project awards and patents for product innovation and is committed to a safe, healthy and sustainable environment.

For additional information on concrete preservation and sustainability, visit **WeSaveStructures.Info**. For additional information or technical support, please contact any Vector office or our extensive network of international distributors.

Vector Corrosion Technologies Ltd.

474B Dovercourt Drive
Winnipeg, MB R3Y 1G4
Phone: (204) 489-9611
Fax: (204) 489-6033

info@vector-corrosion.com
www.vector-corrosion.com

Vector Corrosion Technologies, Inc.

8413 Laurel Fair Circle, Suite 200A
Tampa, FL 33610
Phone: (813) 830-7566
Fax: (813) 830-7565

info@vector-corrosion.com
www.vector-corrosion.com

Vector Corrosion Technologies Limited

27A Upper High Street
Cradley Heath, UK B64 5HX
Phone: (44) 1384 671 400

infoEU@vector-corrosion.com
www.vector-corrosion.eu