

**Vector™**

**Norcure® Chloride Extraction**

Electrochemical chloride extraction process for chloride-contaminated structures

**Description**

Norcure electrochemical chloride extraction (ECE) is a treatment which a) extracts chloride ions from contaminated concrete and b) reinstates the passivity of steel reinforcement. Chloride extraction is carried out by temporarily applying an electric field between the reinforcement in the concrete and an externally mounted anode mesh. During the process chloride ions are transported out of the concrete. At the same time, electrolysis at the reinforcement surface produces a high pH environment. This process returns the steel reinforcement to a passive condition.

**Advantages**

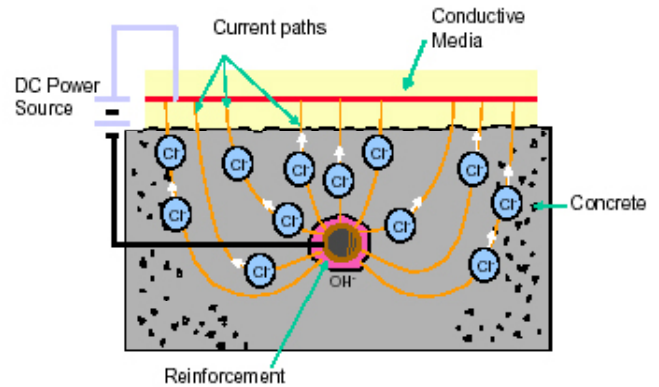
Norcure chloride extraction offers major advantages over other methods of concrete repair.

- 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 Chloride Extraction 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 Chloride Extraction 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.

<b>Anode</b>	Metallic mesh temporarily mounted on concrete surface
<b>Cathode</b>	Existing steel reinforcement
<b>Electrolyte</b>	Fresh water (calcium hydroxide may be added)
<b>Current density</b>	1 A/m <sup>2</sup> of concrete surface
<b>Treatment time</b>	Four to eight weeks
<b>Applied voltage</b>	Between 10 to 40 V DC



*Norcure Chloride Extraction process mitigates corrosion in chloride contaminated structures*

**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 electrolyte 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).
- A voltage shall be adjusted to give approximately 1 A/m<sup>2</sup> of concrete surface.
- Current, voltage and efficiency of the anode system shall be controlled and, if necessary, adjusted throughout the treatment.

**Post-treatment**

- When the process is complete, 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.

4001 - 2009Apr01

Vector Corrosion Technologies Ltd. 474 Dovercourt Drive Winnipeg, MB R3Y 1G4  
 Vector Corrosion Technologies, Inc. 13312 N. 56th Street, #102 Tampa, FL 33617  
 Vector products are provided with a standard limited warranty against defects for a period of 12 months from the date of the sale. To obtain a complete copy of Vector's limited warranty, contact Vector or visit [www.vector-corrosion.com/warranty.pdf](http://www.vector-corrosion.com/warranty.pdf).  
 User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. For professional use only; not for sale to or use by the general public.

Vector is a trademark. Norcure and the Vector logo are registered trademarks.

Patents: US 4832803, 4865702, 5015351, 5198082, 5228959, 5320722, 5407543, 5538619, 6027633, 6183624, 6254752, 6258236, 6322691

Printed in Canada

© 2009 Vector Corrosion Technologies

**VECTOR CORROSION TECHNOLOGIES**  
[www.vector-corrosion.com](http://www.vector-corrosion.com)

CAN: Phone: (204) 489-6300 Fax: (204) 489-6033  
 USA: Phone: (813) 830-7566 Fax: (813) 830-7565

Email: [info@vector-corrosion.com](mailto:info@vector-corrosion.com)