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English Version

**Electrochemical re-alkalization and chloride extraction
treatments for rein-forced concrete - Part 2: Chloride extraction**

Traitements électrochimiques de réalcalinisation et
d'extraction de chlorures applicables au béton armé - Partie
2: Extraction de chlorures

Elektrochemische Realkalisierung und
Chloridextraktionsbehandlungen für Stahlbeton - Teil 2:
Chloridextraktion

This Technical Specification (CEN/TS) was approved by CEN on 15 May 2010 for provisional application.

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Foreword

This document (CEN/TS 14038-2:2011) has been prepared by Technical Committee CEN/TC 219 “Cathodic protection”, the secretariat of which is held by BSI.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Introduction

The purpose of chloride extraction is to rehabilitate a reinforced concrete part from corrosion activity and to provide long term corrosion protection of steel reinforcement in concrete which has been affected by chloride and to re-establish self protection ability. The duration of treatment is from several weeks up to as much as several months, depending on the amount of accumulated chloride, the permeability of the concrete, the layout of the reinforcement and other factors. The decision to terminate the application should be made according to the specific requirements detailed in this technical specification.

There are other electrochemical procedures that can be used to provide corrosion protection of steel in concrete structures. These include cathodic protection and re-alkalisation. There is a European standard for cathodic protection of steel in concrete (EN 12696) and a European Technical Specification for the re-alkalisation of carbonated concrete (TS 14038-1).

It has been assumed in the drafting of this Technical Specification that the execution of its provisions will be entrusted to appropriately qualified and competent people, for whose use it has been prepared.

1 Scope

This Technical Specification specifies a procedure for carrying out impressed current electrochemical chloride extraction from chloride bearing concrete in existing structures. It is applicable to atmospherically exposed parts of structures with ordinary reinforcement and/ or post-tensioned tendon ducts embedded in concrete. In the latter case, it is essential to verify that there is no risk of hydrogen embrittlement, if necessary by conducting trials and installing monitoring during the treatment.

This Technical Specification does not apply to pretensioned concrete, which may suffer hydrogen embrittlement on the stressing bars during chloride extraction, or to concrete containing epoxy-coated or galvanised reinforcement.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1504-2:2004, *Products and systems for the protection and repair of concrete structures: Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems for concrete*

EN 1504-9, *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 9: General principles for the use of products and systems*

EN 12696, *Cathodic protection of steel in concrete*

EN 14629, *Products and systems for the protection and repair of concrete structures - Test methods - Determination of chloride content in hardened concrete*

EN 14630, *Products and systems for the protection and repair of concrete structures - Test methods - Determination of carbonation depth in hardened concrete by the phenolphthalein method*

EN ISO 8044:1999, *Corrosion of metals and alloys — Basic terms and definitions (ISO 8044:1999)*

3 Terms and definitions

For the purposes of this Technical Specification, the terms and definitions given in EN ISO 8044:1999 and EN 1504-2:2004 and the following apply.

3.1

chloride extraction

electrochemical treatment for providing a low chloride content and developing a high pH value to concrete, which surrounds reinforcing bars, corresponding to sound, carbonated or non-carbonated concrete.