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NSAI Standards

Irish Standard
I.S. EN 14038-1:2016

Electrochemical realkalization and chloride extraction treatments for reinforced concrete - Part 1: Realkalization

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National Foreword

I.S. EN 14038-1:2016 is the adopted Irish version of the European Document EN 14038-1:2016, Electrochemical realkalization and chloride extraction treatments for reinforced concrete - Part 1: Realkalization

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14038-1

March 2016

ICS 91.080.40

Supersedes CEN/TS 14038-1:2004

English Version

Electrochemical realkalization and chloride extraction treatments for reinforced concrete - Part 1: Realkalization

Réalcalinisation électrochimique et traitements d'extraction des chlorures applicables au béton armé - Partie 1: Réalcalinisation

Elektrochemische Realkalisierung und Chloridextraktionsbehandlungen für Stahlbeton - Teil 1: Realkalisierung

This European Standard was approved by CEN on 15 January 2016.

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European foreword

This document (EN 14038-1:2016) has been prepared by Technical Committee CEN/TC 219 "Cathodic protection", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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 realkalization is to provide long-term corrosion protection of steel reinforcement in concrete, which has become carbonated.

There are other electrochemical procedures, which can be used to provide corrosion protection of steel in concrete structures. These include cathodic protection and chloride extraction. There are a European Standard for cathodic protection of steel in concrete (EN ISO 12696) and a Technical Specification for electrochemical chloride extraction (CEN/TS 14038-2).

The execution of the provisions of this standard should be carried out by appropriately qualified and competent people, for whose use it has been prepared.

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1 Scope

This European Standard specifies a procedure for carrying out impressed current electrochemical realkalization (ER) of carbonated reinforced concrete in existing structures. It is applicable to atmospherically exposed parts of structures with ordinary reinforcement embedded in concrete.

This European Standard does not apply to concrete containing prestressing steel which can suffer hydrogen embrittlement during realkalization, or to concrete containing epoxy-coated or galvanized reinforcement, or if chloride contamination is contributing to reinforcement corrosion.

NOTE In case of post-tensioned prestressing concrete, the endangered tendon strands may be shielded by the tendon ducts from unwanted and/ or exceeded polarization into the cathodic range and respective water reduction.

2 Normative references

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

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 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*

CEN/TS 14038-2, *Electrochemical re-alkalization and chloride extraction treatments for rein-forced concrete - Part 2: Chloride extraction*

EN ISO 8044, *Corrosion of metals and alloys - Basic terms and definitions (ISO 8044)*

EN ISO 12696:2012, *Cathodic protection of steel in concrete (ISO 12696:2012)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 8044 and the following apply.

3.1
realkalization
electrochemical treatment for restoring alkalinity to concrete which surrounds reinforcing bars with a high pH pore solution corresponding to sound and non-carbonated concrete

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