

**Admixtures for concrete, mortar and
grout - Test methods - Part 14:
Determination of the effect on corrosion
susceptibility of reinforcing steel by
potentiostatic electro-chemical test**

Admixtures for concrete, mortar and grout - Test
methods - Part 14: Determination of the effect on
corrosion susceptibility of reinforcing steel by
potentiostatic electro-chemical test

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 480-14:2006 sisaldab Euroopa standardi EN 480-14:2006 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 24.11.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 480-14:2006 consists of the English text of the European standard EN 480-14:2006.</p> <p>This document is endorsed on 24.11.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>Käsitlusala: A test method for determining the influence of an admixture on the corrosion of a steel bar embedded in a mortar sample held at an increased potential in an electrochemical cell. The method can be used to determine the harmlessness of admixtures with regard to corrosion of reinforcing but not stressed steel. It applies to all admixtures for concrete, mortar and grout in contact with reinforcing steel.</p>	<p>Scope: A test method for determining the influence of an admixture on the corrosion of a steel bar embedded in a mortar sample held at an increased potential in an electrochemical cell. The method can be used to determine the harmlessness of admixtures with regard to corrosion of reinforcing but not stressed steel. It applies to all admixtures for concrete, mortar and grout in contact with reinforcing steel.</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

ICS 91.100.30

Võtmesõnad:

ICS 91.100.30

English Version

Admixtures for concrete, mortar and grout - Test methods - Part
14: Determination of the effect on corrosion susceptibility of
reinforcing steel by potentiostatic electro-chemical test

Adjuvants pour béton, mortier et coulis - Méthodes d'essai -
Partie 14 : Détermination de l'effet sur la tendance à la
corrosion de l'acier pour armature au moyen d'un essai
électrochimique potentiostatique

Zusatzmittel für Beton, Mörtel und Einpressmörtel -
Prüfverfahren - Teil 14: Bestimmung des
Korrosionsverhaltens von Stahl in Beton -
Elektrochemische Prüfung bei gleich bleibendem Potential

This European Standard was approved by CEN on 19 August 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword.....3

1 Scope4

2 Normative references4

3 Test principle.....4

4 Equipment, materials and test specimens5

4.1 Equipment and materials5

4.1.1 Electrodes5

4.1.2 Reference mortar5

4.1.3 Moulds5

4.1.4 Test cell solution.....5

4.1.5 Polarisation circuit.....5

4.2 Preparation of test specimens6

4.2.1 General.....6

4.2.2 Preparation of the working electrode6

4.2.3 Preparation of the mortar specimens6

5 Testing6

5.1 Preparation for testing6

5.2 Test procedure7

5.3 Test result.....7

6 Test report7

Bibliography10

Foreword

This document (EN 480-14:2006) has been prepared by Technical Committee CEN/TC 104 "Concrete and related products", the secretariat of which is held by DIN.

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 April 2007, and conflicting national standards shall be withdrawn at the latest by April 2007.

This document has been prepared by Subcommittee 3 (SC 3) of TC 104 "Admixtures of concrete."

This document is part of the series EN 480 "Admixtures for concrete, mortar and grout - Test methods" which include the following:

Part 1: Reference concrete and reference mortar for testing

Part 2: Determination of setting time

Part 4: Determination of bleeding of concrete

Part 5: Determination of capillary absorption

Part 6: Infrared analysis

Part 8: Determination of the conventional dry material content

Part 10: Determination of water soluble chloride content

Part 11: Determination of air void characteristics in hardened concrete

Part 12: Determination of the alkali content of admixtures

Part 13: Reference masonry mortar for testing mortar admixtures

Part 14: Determination of the effect on corrosion susceptibility of reinforcing steel by potentiostatic electrochemical test

This document is applicable together with the standards of the series EN 934 "Admixtures for concrete, mortar and grout."

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard defines:

A test method for determining the influence of an admixture on the corrosion of a steel bar embedded in a mortar sample held at an increased potential in an electrochemical cell. The method can be used to determine the harmlessness of admixtures with regard to corrosion of reinforcing but not stressed steel. It applies to all admixtures for concrete, mortar and grout in contact with reinforcing steel.

NOTE 1 This test method does not apply to assessing corrosion behaviour of admixtures when used with high tensile steel.

NOTE 2 This test method does not assess the efficacy of admixtures defined as corrosion inhibitors.

NOTE 3 The quantity of chloride ion present in admixtures is covered by a separate requirement in the relevant parts of the EN 934 series.

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 196-1, *Methods of testing cement – Part 1: Determination of strength*

EN 197-1, *Cement – Part 1: Composition, specifications and conformity criteria for common cements*

3 Test principle

During the test, a steel bar, embedded in a cement mortar containing the admixture, is maintained at a constant potential relative to a reference electrode. The potential chosen is close to the higher level of the passive state for steel in plain concrete. Any detrimental effect from the addition of the admixture will be immediately obvious as the passive state will change, leading to increased anodic dissolution rates and corrosion currents above those of the control. The test specimen containing the admixture, is compared with a control specimen without admixture, to assess the effect that the admixture has on the corrosion process.