



SLOVENSKI STANDARD
SIST EN 934-1:2008
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**Kemijski dodatki za beton, malto in injekcijsko maso - Kemijski dodatki za beton -
1. del: Splošne zahteve**

Admixtures for concrete, mortar and grout - Part 1: Common requirements

Zusatzmittel für Beton, Mörtel und Einpressmörtel - Teil 1: Gemeinsame Anforderungen

Adjuvants pour béton, mortier et coulis - Partie 1: Exigences communes

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English Version

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Gemeinsame Anforderungen

This European Standard was approved by CEN on 24 October 2007.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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.

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

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

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Foreword

This document (EN 934-1:2008) 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of an identical text or by endorsement, at the latest by July 2008, and conflicting national standards shall be withdrawn at the latest by July 2008.

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.

This standard is part of the series EN 934 "Admixtures for concrete, mortar and grout", which is comprised of the following additional parts:

- Part 2 *Concrete admixtures – Definitions, requirements, conformity, marking and labelling*
- Part 3 *Admixtures for masonry mortar – Definitions, requirements, conformity, marking and labelling*
- Part 4 *Admixtures for grout for prestressing tendons - Definitions, requirements, conformity, marking and labelling*
- Part 5 *Admixtures for sprayed concrete - Definitions, requirements, conformity, marking and labelling*
- Part 6 *Sampling, conformity control and evaluation of conformity*

This draft European Standard is used with the standards of the EN 480 series which comprises the test methods for admixtures.

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This standard has been prepared under a mandate issued to CEN by the European Commission and the European Free Trade Association and supports essential requirements of the Construction Products Directive.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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 the United Kingdom.

Introduction

This European Standard covers the requirements that are common to all admixtures. The general requirements replace those which were previously included in EN 934 parts 2 to 5. They include the requirements for the effect on corrosion behaviour when admixtures are used in concrete, mortar or grout containing embedded metal.

The requirements for corrosion behaviour in this standard include an approved list and a declared list of active substances used in some admixtures. These lists are based on experience, which shows that the use of admixtures only containing substances on the approved list do not promote the corrosion of embedded steel. Materials on the declared list are subject, in some countries, to national restrictions on their use for certain applications and should be declared on the CE mark.

The specific requirements that characterise the performance of an admixture in a cementitious mix are detailed in EN 934 parts 2 to 5.

The special requirements are new and relate to specific uses of admixtures and/or their effect on the environment. It is anticipated that, in the future, special requirements will result from European legislation and, for example, will be applicable to admixtures used in concrete or mortar in contact with drinking water and to the release of dangerous regulated substances.

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1 Scope

This European Standard specifies the common requirements for all admixtures covered by EN 934-2, EN 934-3, EN 934-4 and EN 934-5, which contain the specific requirements for each type of admixture.

The requirements for corrosion behaviour are not applicable to chloride based admixtures.

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 196-2, *Methods of testing cement - Part 2: Chemical analysis of cement*

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

EN 206-1:2000, *Concrete - Part 1: Specification, performance, production and conformity*

EN 480-6, *Admixtures for concrete, mortar and grout – Test methods – Part 6: Infrared analysis*

EN 480-8, *Admixtures for concrete, mortar and grout – Test methods – Part 8: Determination of the conventional dry material content*

EN 480-10, *Admixtures for concrete, mortar and grout – Test methods – Part 10: Determination of the water soluble chloride content*

EN 480-12, *Admixtures for concrete, mortar and grout – Test methods – Part 12: Determination of the alkali content of admixtures*

EN 480-14, *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*

EN 934-2, *Admixtures for concrete, mortar and grout - Part 2: Concrete admixtures – Definitions, requirements, conformity, marking and labelling*

EN 934-3, *Admixtures for concrete, mortar and grout – Part 3: Admixtures for masonry mortar – Definitions, requirements, conformity, marking and labelling*

EN 934-4, *Admixtures for concrete, mortar and grout – Part 4: Admixtures for grout for prestressing tendons - Definitions, requirements, conformity, marking and labelling*

EN 934-5, *Admixtures for concrete, mortar and grout – Part 5: Admixtures for sprayed concrete - Definitions, requirements, conformity, marking and labelling*

EN ISO 1158, *Plastics - Vinyl chloride homopolymers and copolymers - Determination of chlorine content (ISO 1158:1998)*

ISO 758, *Liquid chemical products for industrial use – Determination of density at 20 degrees C*

ISO 4316, *Surface active agents – Determination of pH of aqueous solutions – Potentiometric method*

3 Terms and Definitions

For the purposes of the document, the following terms and definitions apply.

3.1

common requirements

requirements that apply to all admixtures within the scope of EN 934-2, EN 934-3, EN 934-4 and EN 934-5

3.2

general requirements

requirements that characterise the admixture by physical and chemical measurements and that apply to all admixtures within the scope of EN 934-2, EN 934-3, EN 934-4 and EN 934-5

3.3

specific requirements

requirements detailed in EN 934-2, EN 934-3, EN 934-4 or EN 934-5, which characterise the performance of the admixture in a cementitious mix

3.4

special requirements

requirements which apply to admixtures within the scope of EN 934-2, EN 934-3, EN 934-4 and EN 934-5 in relation to their effect on the environment or when used for specific applications

3.5

approved list

list of substances used as ingredients in admixtures that are accepted for use without the need for further testing in relation to the property stated in the list

NOTE Approved lists are specific to a requirement detailed in this standard.

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3.6

declared list

list of substances used as ingredients in admixtures that do not have to be tested in relation to the property stated in the list but have to be declared because, in some countries, they are subject to national restrictions on their use for certain applications

4 General requirements

All admixtures within the scope of EN 934-2, EN 934-3, EN 934-4 and EN 934-5 shall conform to the requirements of Table 1.

Table 1 — General requirements

	Property	Test method	Requirements
1	Homogeneity ^a	Visual	Homogeneous when used. Segregation shall not exceed the limit stated by the manufacturer.
2	Colour ^a	Visual	Uniform and similar to the description declared by the manufacturer.
3	Effective component ^a	EN 480-6 ^b	Infra red spectra to show no significant change with respect to the effective component when compared to the reference spectrum provided by the manufacturer.
4	Absolute density ^a (for liquid admixtures only)	ISO 758 ^c	$D \pm 0,03$ if $D > 1,10$ kg/l $D \pm 0,02$ if $D \leq 1,10$ kg/l where D is manufacturer's stated value of density.
5	Conventional dry material content ^a	EN 480-8 ^d	$0,95T \leq X \leq 1,05T$ if $T \geq 20$ % $0,90T \leq X \leq 1,10T$ if $T < 20$ % T is manufacturer's stated value % by mass; X is test result % by mass.
6	pH value ^a (for liquid admixtures only)	ISO 4316	Manufacturer's stated value ± 1 or within manufacturer's stated range.
7	Total chlorine ^{a†}	EN ISO 1158 ^g	Either $\leq 0,10$ % by mass ^e or not above manufacturer's stated value.
8	Water soluble chloride ^a	EN 480-10	Either $\leq 0,10$ % by mass ^e or not above manufacturer's stated value.
9	Alkali content (Na ₂ O equivalent) ^a	EN 480-12	Not above manufacturer's stated maximum value in % by mass.
10	Corrosion behaviour	EN 480-14	See clause 5.
11	Silicon dioxide SiO ₂ content ^{a h1}	EN 196-2 (procedure 13)	Not above manufacturer's stated maximum value in % by mass. 0

^a Manufacturer's stated values and characteristics shall be provided in writing to the user upon request.

^b If the method in EN 480-6 is not suitable, the manufacturer shall specify a documented alternative test method.

^c ISO 758 is the reference method. Another method may be used provided that it can show essentially the same results as the method in ISO 758.

^d If the method in EN 480-8 is not suitable, the manufacturer shall specify a documented alternative test method.

^e Where the chloride content is $\leq 0,10$ % by mass the admixture may be described as "chloride free".

^f If there is no significant difference between the total chlorine and the water soluble chloride content, only the water soluble chloride content should be determined in subsequent tests on the admixture involved.

^g The procedure in EN ISO 1158 shall be modified as follows:

- Increase the sample size in method B to 0,1 g of dry admixture;
- Use silver nitrate and ammonium thiocyanate solutions at 0,01 N.

^h The silicon dioxide content is only required when silica (see A.1) is a constituent intended to exceed 5 % by mass of the admixture.

ⁱ This requirement does not apply to natural sand.