



SLOVENSKI STANDARD

SIST EN 934-2:1998

01-maj-1998

Kemijski dodatki za beton, malto in injekcijsko maso - 2. del: Kemijski dodatki za beton - Definicije in zahteve

Admixtures for concrete, mortar and grout - Part 2: Concrete admixtures - Definitions and requirements

Zusatzmittel für Beton, Mörtel und Einpreßmörtel - Teil 2: Betonzusatzmittel - Definitionen und Anforderungen

Adjuvants pour béton, mortier et coulis - Partie 2: Adjuvants pour béton - Définitions et exigences

[SIST EN 934-2:1998](https://standards.iteh.ai/catalog/standards/sist/def613a6-5a9d-4b70-aa07-4d274351dcb7/sist-en-934-2-1998)

<https://standards.iteh.ai/catalog/standards/sist/def613a6-5a9d-4b70-aa07-4d274351dcb7/sist-en-934-2-1998>

Ta slovenski standard je istoveten z: **EN 934-2:1997**

ICS:

91.100.30	Beton in betonski izdelki	Concrete and concrete products
-----------	---------------------------	--------------------------------

SIST EN 934-2:1998

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 934-2:1998](#)

<https://standards.iteh.ai/catalog/standards/sist/def613a6-5a9d-4b70-aa07-4d274351dcb7/sist-en-934-2-1998>

EUROPEAN STANDARD

EN 934-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

October 1997

ICS 91.100.30

Descriptors: construction materials, concrete, mortars : material, grouting, concrete admixtures, definitions, specifications, tests, conformity tests

English version

Admixtures for concrete, mortar and grout - Part 2: Concrete admixtures - Definitions and requirements

Adjuvants pour béton, mortier et coulis - Partie 2: Adjuvants pour béton - Définitions et exigences

Zusatzmittel für Beton, Mörtel und Einpreßmörtel - Teil 2: Betonzusatzmittel - Definitionen und Anforderungen

This European Standard was approved by CEN on 25 December 1996.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/def613a6-5a9d-4b70-aa07-4d274351dcb7/sist-en-934-2-1998>



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
Urad RS za standardizacijo in meroslovje
LJUBLJANA

SIST... EN 934-2

PREVZET PO METODI RAZGLASITVE

-05- 1998



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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword	2
1 Scope	3
2 Normative references	3
3 Definitions	4
4 Requirements	5
5 Sampling	11
6 Conformity control	11
7 Evaluation of conformity	11
8 Marking and labelling	11

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 104 "Concrete (performance, production, placing and compliance criteria)", the secretariat of which is held by DIN.

This standard is a part of the series EN 934 "Admixtures for concrete, mortar and grout" which additionally comprises the following parts

- Part 1 General definitions and general requirements for all the types of admixtures¹⁾
- Part 3 Admixtures for mortar
- Part 4 Admixtures for grout
- Part 5 Admixtures for sprayed concrete
- Part 6 Sampling, conformity control evaluation of conformity, marking and labelling

At the present time all these documents are under preparation by SC 3.

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

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 1998, and conflicting national standards shall be withdrawn at the latest by April 1998.

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

1 Scope

This European Standard specifies definitions and requirements for admixtures for use in concrete.

It covers admixtures for plain, reinforced and prestressed concrete which are used in site mixed, ready mixed concrete and precast concrete.

¹⁾ The work on this part has ceased until the other parts of the series EN 934 are completed and available. Then the general definitions and general requirements which are valid for all types of admixtures will be taken from the other parts and will be compiled in Part 1.



The performance requirements in this Standard apply to admixtures used in concrete of normal consistence. They may not be applicable to admixtures intended for other types of concrete such as semi-dry and earth moist mixes. A definition of multifunction admixtures is included but requirements for these admixtures have not been prepared.

Provisions governing the practical application of admixtures in the production of concrete, i. e. requirements concerning composition, mixing, placing, curing etc. of concrete containing admixtures are not part of this standard.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 480-1	Admixtures for concrete, mortar and grout - Test methods - Part 1: Reference concrete and reference mortar for testing
EN 480-2	Admixtures for concrete, mortar and grout - Test methods - Part 2: Determination of setting time
EN 480-4	Admixtures for concrete, mortar and grout - Test methods - Part 4: Determination of bleeding of concrete
EN 480-5	Admixtures for concrete, mortar and grout - Test methods - Part 5: Determination of capillary absorption
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
prEN 480-11	Admixtures for concrete, mortar and grout - Test methods - Part 11: Determination of air void characteristics in hardened concrete
EN 480-12	Admixtures for concrete, mortar and grout - Test methods - Part 12: Determination of the alkali content
prEN 934-6	Admixtures for concrete, mortar and grout - Part 6: Sampling, conformity control, evaluation of conformity, marking and labelling
prEN 1015-13	Methods of test for mortar for masonry - Part 13: Determination of the dimensional stability of hardened mortars
prEN 12358	Testing concrete - Determination of consistency - Flow table test
prEN 12382	Testing concrete - Determination of the consistency - Slump test
prEN 12394	Testing concrete - Determination of compressive strength of test specimens
prEN 12395	Testing concrete - Determination of air content of fresh concrete - Pressure method
ISO 758	Liquid chemical products for industrial use - Determination of density at 20 °C
ISO 1158	Plastics - Vinyl chloride homopolymers and copolymers - Determination of chlorine

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 General definitions

3.1.1 performance

Ability of an admixture to be effective in its intended use without detrimental effects.

3.1.2 compliance dosage

The dosage of an admixture, expressed in % by mass of cement, stated by the manufacturer which will meet the requirements of this standard. The compliance dosage is within the recommended range of dosage.

3.1.3 recommended range of dosage

Dosages between limits expressed in % by mass of cement which the manufacturer recommends for the product based on experience on site.

NOTE: The use of the recommended dosage does not imply that compliance with this standard will be met over the whole range. Trial tests should be carried out with the materials to be used on site to find the dosage necessary to achieve the required result.

3.1.4 maximum recommended dosage

Upper limit of the recommended range of dosage.

3.1.5 reference concrete and mortar

Concrete and mortar as specified in EN 480-1 for testing admixtures for conformity with this standard.

3.2 Specific definitions

3.2.1 admixtures for concrete

Material added during the mixing process of concrete in a quantity not more than 5 % by mass of the cement content of the concrete, to modify the properties of the mix in the fresh and /or hardened state.

3.2.2 water reducing/plasticizing admixture

Admixture which without affecting the consistence, permits a reduction in the water content of a given concrete mix, or which, without affecting the water content increases the slump/flow or produces both effects simultaneously.

3.2.3 high range water reducing/superplasticizing admixture

Admixture which, without affecting the consistence, permits a high reduction in the water content of a given concrete mix, or which, without affecting the water content increases the slump/flow considerably, or produces both effects simultaneously.

3.2.4 water retaining admixture

Admixture which reduces the loss of water by a reduction of bleeding.

3.2.5 air entraining admixture

ITEh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 934-2:1998

4d274351dcb7/sist-en-934-2-1998

Admixture which allows a controlled quantity of small, uniformly distributed air bubbles to be incorporated during mixing which remain after hardening.

3.2.6 set accelerating admixture

Admixture which decreases the time to commencement of transition of the mix from the plastic to the rigid state.

3.2.7 hardening accelerating admixture

Admixture which increases the rate of development of early strength in the concrete, with or without affecting the setting time.

3.2.8 set retarding admixture

Admixture which extends the time to commencement of transition of the mix from the plastic to the rigid state.

3.2.9 water resisting admixture

Admixture which reduces the capillary absorption of hardened concrete.

3.2.10 multifunction admixture

Admixture which affects several properties of fresh and/or hardened concrete by performing more than one of the main functions defined in 3.2.2 to 3.2.9.

4 Requirements

iTeh STANDARD PREVIEW (standards.iteh.ai)

The requirements in this standard assume that admixtures are uniformly dispersed in concrete; special attention shall be given to the dispersion of powder admixtures with retarding effects.

All the admixtures defined in this standard shall conform to the general requirements in Table 1.

The admixtures defined in 3.2.1 to 3.2.9 shall conform to the corresponding performance requirements in tables 2 to 9 which cover the main functions and limit some secondary effects. High range water reducing/superplastizising admixtures shall conform to the requirements in table 3.1 and table 3.2.

Where manufacturer's stated values are required, this shall be provided in writing on request.

NOTE: Admixtures should not lead to a significant change in the shrinkage or expansion of hardened concrete. To measure this the procedure for determining dimensional stability in prEN 1015-13 can be used with reference mortar according to EN 480-1.

4.1 General requirements

Table 1: General Requirements

Property	Test method	Requirements
Homogeneity	Visual	Homogeneous when used. Segregation shall not exceed the limit stated by the manufacturer
Colour	Visual	Uniform and similar to the description provided by the manufacturer
Effective component	EN 480-6	IR spectra to show no change with respect to the effective component when compared to reference spectrum provided by the manufacturer
Relative density	ISO 758	$D \pm 0,03$ if $D > 1,10$ $D \pm 0,02$ if $D \leq 1,10$ where D is manufacturer's stated value
Conventional dry material content	EN 480-8 ¹⁾	$0,95 T \leq X < 1,05 T$ for $T \geq 20 \%$ $0,90 T \leq X < 1,10 T$ for $T < 20 \%$ T is manufacturer's stated value % m/m; X is test result % m/m
pH value	ISO 4316	Manufacturer's stated value ± 1 or within manufacturer's stated range
Effect on setting at maximum recommended dosage	EN 480-2 using maximum recommended dosage in reference mortar with 4 different cements as EN 934-2:1998 EN 480-1	Report results
Total chlorine ²⁾	ISO 1158	Either $\leq 0,10 \%$ m/m or not above the manufacturer's stated value
Water soluble chloride (Cl ⁻)	EN 480-10	Either $\leq 0,10 \%$ m/m or not above the manufacturer's stated value
Alkali content (Na ₂ O equivalent)	EN 480-12	Not above the manufacturer's stated maximum
Corrosion behaviour	^{3) 4)}	No corrosion promoting effects on steel embedded in concrete
¹⁾ If the method in EN 480-8 is not suitable the manufacturer shall recommend an alternative test method. ²⁾ If there is no significant difference between total chlorine content and water soluble chloride content, it is permitted in subsequent tests on the admixtures involved to determine only the water soluble chloride content. ³⁾ For testing, cement CEM I with C ₃ A content less than 5 % m/m shall be used. ⁴⁾ CEN standards for test method not yet available.		

4.2 Specific requirements

Table 2: Additional requirements for water reducing/plasticizing admixtures
(at equal consistence)

Property	Reference concrete	Test method	Requirements
Water reduction	EN 480-1 mix I	slump prEN 12382 or flow prEN 12358	In test mix $\geq 5\%$ compared with control mix
Compressive strength	EN 480-1 mix I	prEN 12394	At 7 and 28 days: Test mix $\geq 110\%$ of control mix
Air content in fresh concrete	EN 480-1 mix I	prEN 12395	Test mix $\leq 2\%$ V/V above control mix unless stated otherwise by the manufacturer

Table 3.1: Additional requirements for high range water reducing/super plasticizing admixtures (at equal consistence)

Property	Reference concrete	Test method	Requirements
Water reduction	EN 480-1 mix I	slump prEN 12382 or flow prEN 12358	In test mix $\geq 12\%$ compared with control mix
Compressive strength	EN 480-1 mix I	prEN 12394	At 1 day: Test mix $\geq 140\%$ of control mix At 28 days: Test mix $\geq 115\%$ of control mix
Air content in fresh concrete	EN 480-1 mix I	prEN 12395	Test mix $\leq 2\%$ V/V above control mix unless otherwise stated by the manufacturer