



SLOVENSKI STANDARD
SIST EN 934-3:2009+A1:2012
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Nadomešča:
SIST EN 934-3:2009

Kemijski dodatki za beton, malto in injekcijsko maso - 3. del: Kemijski dodatki za malto za zidanje - Definicije, zahteve, skladnost, označevanje in etiketiranje

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

Zusatzmittel für Beton, Mörtel und Einpressmörtel - Teil 3: Zusatzmittel für Mauermörtel - Definitionen, Anforderungen, Konformität, Kennzeichnung und Beschriftung

Adjuvants pour béton, mortier et coulis - Partie 3: Adjuvants pour mortier de montage - Définitions, exigences, conformité, marquage et étiquetage

Ta slovenski standard je istoveten z: EN 934-3:2009+A1:2012

ICS:

91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar
91.100.30	Beton in betonski izdelki	Concrete and concrete products

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EUROPEAN STANDARD
NORME EUROPÉENNE
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English Version

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

Adjuvants pour béton, mortier et coulis - Partie 3: Adjuvants
pour mortier de montage - Définitions, exigences,
conformité, marquage et étiquetage

Zusatzmittel für Beton, Mörtel und Einpressmörtel - Teil 3:
Zusatzmittel für Mauermörtel - Definitionen, Anforderungen,
Konformität, Kennzeichnung und Beschriftung

This European Standard was approved by CEN on 16 July 2009 and includes Amendment 1 approved by CEN on 25 May 2012.

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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-CENELEC Management Centre has the same status as the official versions.

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



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Foreword

This document (EN 934-3:2009+A1:2012) 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 January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

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 document supersedes A1 EN 934-3:2009 A1.

This document includes Amendment 1 approved by CEN on 2012-05-25.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 89/106/EEC.

For relationship with EU Directive 89/106/EEC, see informative Annex ZA, which is an integral part of this document.

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

- Part 1: Common requirements [SIST EN 934-3:2009+A1:2012
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- Part 2: Concrete admixtures — 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, evaluation of conformity

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

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

EN 934-3:2009+A1:2012 (E)**1 Scope**

This European Standard defines and specifies the requirements and conformity criteria for admixtures for use in cement based masonry mortar.

It covers two types of admixtures, long term retarding and air entraining/plasticising which are used in ready-mixed and site made masonry mortars.

Provisions for the use of admixtures for masonry mortar are not part of this European Standard but are covered by EN 998-1 and EN 998-2.

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 480-13:2009, *Admixtures for concrete, mortar and grout — Test methods — Part 13: Reference masonry mortar for testing mortar admixtures*

EN 934-1:2008, *Admixtures for concrete, mortar and grout — Part 1: Common requirements*

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

EN 934-6:2001, *Admixtures for concrete, mortar and grout - Part 6: Sampling, conformity control and evaluation of conformity*

EN 934-6:2001/A1:2005, *Admixtures for concrete, mortar and grout — Part 6: Sampling, conformity control and evaluation of conformity*

EN 1015-4, *Methods of test for mortar for masonry — Part 4: Determination of consistence of fresh mortar (by plunger penetration)*

EN 1015-7, *Methods of test for mortar for masonry — Part 7: Determination of air content of fresh mortar*

EN 1015-9, *Methods of test for mortar for masonry — Part 9: Determination of workable life and correction time of fresh mortar*

EN 1015-11, *Methods of test for mortar for masonry — Part 11: Determination of flexural and compressive strength of hardened mortar*

3 Terms and definitions

For the purposes of this document, the definitions in EN 934-1:2008 and the following apply.

3.1**air entraining/plasticizing admixture**

admixture which increases workability, or allows water reduction, by incorporating during mixing a controlled quantity of small, uniformly distributed air bubbles which remain after hardening

3.2**set retarding admixture for long term retarded masonry mortar**

set retarding admixture as defined in EN 934-2 but specifically intended for use in long term retarded mortar incorporating entrained air

3.3**performance**

ability of an admixture to be effective in its intended use without detrimental effect

3.4**compliance dosage**

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

3.5**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 achieved 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.

3.6**maximum recommended dosage**

upper limit of the recommended range of dosage

4 Requirements

Masonry mortar admixtures, when sampled in accordance with ^{A1}EN 934-6:2001 and EN 934-6/A1:2005 ^{A1}, shall comply with the requirements in EN 934-1:2008, Table 1 using the test methods listed therein and the additional requirements specific to different types of admixture listed in Table 1 ^{A1} below ^{A1}.

NOTE 1 Tests should be carried out with the admixtures and other materials intended to be used in the mortar to check whether the desired effect can be obtained.

For content of substances and release of substances from the hardened mortar which are dangerous to health, hygiene and the environment see Annex A (informative).

NOTE 2 For requirements necessary for CE-marking see Annex ZA.

Table 1 — Additional requirements for specific types of admixture

Definition	Name of admixture	Additional requirements
3.1	Air entraining/plasticizing mixture	Table 2
3.2	Set retarding admixture for long term retarded masonry mortar	Table 3

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Table 2 — Additional requirements for air entraining/plasticizing admixtures at equal consistence

	Property	Reference mortar	Test method	Requirement ^a
1	Air content after standard mixing	EN 480-13	EN 1015-7 method A	Total air content $A_1 = (17 \pm 3) \%$ by volume
2	Air content after 1 h standing	EN 480-13	EN 1015-7 method A	$\geq A_1 - 3 \%$
3	Air content after extended mixing	EN 480-13	EN 1015-7 method A	$\leq A_1 + 5 \%$ and $\geq A_1 - 5 \%$
4	Reduction in water requirement for standard consistence	EN 480-13	EN 480-13	$\geq 8 \%$ by mass
5	Compressive strength at 28 days	EN 480-13	EN 1015-11	Test mix $\geq 70 \%$ of control mix

^a All requirements apply to the same test mix.

Table 3 — Additional requirements for admixtures for long term retarded, ready to use mortar at equal consistence ^d

	Property	Reference mortar	Test method	Requirement ^a
1	Air content after standard mixing	EN 480-13	EN 1015-7 method A	Total air content $A_2 = (17 \pm 3) \%$ by volume
2	Air content after extended mixing	EN 480-13	EN 1015-7 method A	$\leq A_2 + 5 \%$ and $\geq A_2 - 5 \%$
3	Consistence after 28 h standing ^b	EN 480-13	EN 1015-4	Within 15 mm of initial value
4	Air content after 28 h standing	EN 480-13	EN 1015-7 method A	$\geq 0,70A_2 \%$
5	Resistance to penetration after 72 h ^c	EN 480-13	EN 1015-9	Test mix $\geq 1,0 \text{ N/mm}^2$
6	Compressive strength at 28 days	EN 480-13	EN 1015-11	Test mix $\geq 70 \%$ of control mix

^a All requirements apply to the same test mix.

^b When stored and remixed in accordance with EN 480-13:2009, 5.3, as for determination of air content, after 28 h standing.

^c When stored in a covered mould for 28 h to prevent evaporation of water and then stored in an uncovered penetration resistance mould for further 44 h at $(65 \pm 5) \%$ RH.

^d The air entrainment may be as a result of the admixture containing both retarding and air entraining properties or by the separate addition of an air entraining admixture complying with Table 2.

5 Sampling

^{A1} Requirements for sampling are given in EN 934-6:2001 and EN 934-6:2001/A1:2005, Clause 4. ^{A1}

6 Conformity control

Requirements for conformity control are given in EN 934-6:2001/A1:2005, 5.3 and 5.4 ~~Ⓐ~~ deleted text ~~Ⓐ~~. The frequency of testing in connection with the factory production control is given in Table 4.

Table 4 — Minimum frequency of test for factory production control

Tests	Air entraining/ plasticizing admixture	Admixture for long term retarded, ready to use mortar
Homogeneity, colour	B	B
Relative density (for liquids only)	B	B
Conventional dry material content	B	B
pH value (for liquids only)	B	B
Chloride content (Cl) ^a	4	4
Compressive strength at 28 days	1	1
Air content after standard mixing	A	A
Air content after extended mixing	A	A
Air content after 1 h standing	A	—
Air content after 28 h standing	—	A
Reduction in water requirement for standard consistence	A	—
Consistence after 28 h standing	A	A
Resistance to penetration after 72 h	A	A
<p>Numbers in this table denote minimum frequency of test per year, spread according to production; if the production is less frequent every batch has to be tested</p> <p>A: means test for every 500 t with a minimum of 2 times a year</p> <p>B: means test for each batch</p> <p>NOTE The effective component (infrared analysis) need not be included in the programme of factory production control. It Ⓐ has to be Ⓐ included in initial type testing.</p>		
<p>^a Total chlorine content also has to be tested at this frequency if it is significantly different from the chloride content.</p>		

For Factory Production Control, the reference cement required by EN 480-13 may be replaced by an alternative cement provided that the:

- alternative cement has been tested in the EN 480-13 reference mortar in parallel with the reference cement to EN 480-13 for Initial Type Testing with the same admixture type;
- admixture type so tested showed compliance with the appropriate table of requirements in this European Standard with both the EN 480-13 reference cement and the alternative cement.

7 Evaluation of conformity

Requirements for evaluation of conformity are given in ~~Ⓐ~~ EN 934-6:2001 and EN 934-6:2001/A1:2005 ~~Ⓐ~~.