



# SLOVENSKI STANDARD

## SIST EN 998-2:2004

01-januar-2004

---

### Specifikacija malt za zidanje – 2. del: Malta za zidanje

Specification for mortar for masonry - Part 2: Masonry mortar

Festlegungen für Mörtel im Mauerwerksbau - Teil 2: Mauermörtel

Définitions et spécifications des mortiers pour maçonnerie - Partie 2: Mortiers de montage des éléments de maçonnerie

(standards.iteh.ai)

Ta slovenski standard je istoveten z: **EN 998-2:2003**

<https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-90b2a7ae5e78/sist-en-998-2-2004>

#### **ICS:**

91.100.10      Cement. Mavec. Apno. Malta      Cement. Gypsum. Lime.  
Mortar

**SIST EN 998-2:2004**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 998-2:2004

<https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-90b2a7ae5e78/sist-en-998-2-2004>

English version

## Specification for mortar for masonry - Part 2: Masonry mortar

Spécifications des mortiers pour maçonnerie - Partie 2:  
Mortiers de montage

Festlegungen für Mörtel im Mauerwerksbau - Teil 2:  
Mauermörtel

This European Standard was approved by CEN on 2 October 2002.

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 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 Management Centre 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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

ITEH STANDARD PREVIEW  
(standards.iteh.ai)

SIST EN 998-2:2004

<https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-90b2a7ae5e78/sist-en-998-2-2004>



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
Introduction .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	6
4 Materials .....	8
5 Requirements .....	8
5.1 General .....	8
5.2 Properties of fresh mortar .....	8
5.3 Proportion of constituents .....	8
5.4 Properties of hardened mortar .....	9
5.5 Additional requirements for thin layer mortars .....	10
5.6 Reaction to fire .....	10
5.7 Mixing of mortar on site .....	11
6 Designation of masonry mortar .....	11
7 Marking and labelling .....	12
8 Evaluation of conformity .....	12
8.1 General .....	12
8.2 Initial type tests .....	12
8.3 Factory production control .....	13
Annex A (normative) Sampling for initial type testing and independent testing of consignments	15
Annex B (informative) Use of masonry units and masonry mortar .....	16
Annex C (normative) Characteristic initial shear strength of designed masonry mortars .....	18
Annex ZA (informative) Clauses of this European Standard addressing the provisions of EU Construction Products Directive .....	19

## Foreword

This document (EN 998-2:2003) has been prepared by Technical Committee CEN/TC125 "Masonry", 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 October 2003, and conflicting national standards shall be withdrawn at the latest by January 2005.

This document supersedes EN 998-2:2001.

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

It also takes into account the general rules for reinforced and unreinforced masonry in Eurocode 6.

For relationship with EU Directives, see informative Annex ZA which is an integral part of this standard.

In this European Standard the Annexes A and C are normative and the Annex B is informative.

EN 998 *Specification for mortar for masonry* consists of:

— *Part 1: Rendering and plastering mortar.*

SIST EN 998-2:2004

— *Part 2: Masonry mortar.*

<https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-90b2a7ae5e78/sist-en-998-2-2004>

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

The properties required of a mortar are related to its use.

They are considered in two groups viz.: those relating to the fresh, unhardened mortar and those to the hardened mortar.

To support the aim of achieving a performance-related standard, as far as practicable, the standard refers only to the properties of the product and not to its method of manufacture, except where this is unavoidable in the description of the characteristics of the product.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 998-2:2004](#)

<https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-90b2a7ae5e78/sist-en-998-2-2004>

## 1 Scope

This European Standard specifies requirements for factory made masonry mortars (bedding, jointing and pointing) for use in masonry walls, columns and partitions (e.g. facing and rendered masonry, load bearing or non-load bearing masonry structures for building and civil engineering).

This European Standard defines for fresh mortars the performance related to workable life, chloride content, air content, density and correction time (for thin-layer mortars only). For hardened mortars it defines e.g. performances related to compressive strength, bond strength, density measured according to the corresponding test methods contained in separate European Standards.

This European Standard provides for the evaluation of conformity of the product to this European Standard.

The marking requirement for products covered by this European Standard is included.

This European Standard covers masonry mortars defined in clause 3 with the exception of site made mortars. However, this standard or part of this standard may be used in conjunction with codes of applications and National specifications covering site made mortars.

## 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 (including amendments).

- <https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-0672a7ae5e78/sist-en-998-2-2004>  
 EN 771, *Specification for masonry units*.
- EN 1015-1, *Methods of test for mortar for masonry — Part 1: Determination of particle size distribution (by sieve analysis)*.
- EN 1015-2, *Methods of test for mortar for masonry — Part 2: Bulk sampling of mortars and preparation of test mortars*.
- 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 1015-10, *Methods of test for mortar for masonry — Part 10: Determination of dry bulk density of hardened mortar*.
- EN 1015-11, *Methods of test for mortar for masonry — Part 11: Determination of flexural and compressive strength of hardened mortar*.
- EN 1015-17, *Methods of test for mortar for masonry — Part 17: Determination of water soluble chloride content of fresh mortar*.
- EN 1015-18, *Methods of test for mortar for masonry — Part 18: Determination of water absorption coefficient due to capillary action of hardened mortar*.
- EN 1745:2002, *Masonry and masonry products — Methods for determining design thermal values*.

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests.*

### 3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

#### 3.1

##### **masonry mortar**

mix of one or more inorganic binders, aggregates, water, and sometimes additions and/or admixtures for bedding, jointing and pointing of masonry

#### 3.1.1

##### **fresh masonry mortar**

mortar completely mixed and ready for use

#### 3.2 Type of masonry mortar, defined according to concept

#### 3.2.1

##### **designed masonry mortar**

mortar whose composition and manufacturing method is chosen by the producer in order to achieve specified properties (performance concept)

#### 3.2.2

##### **prescribed masonry mortar**

mortar made in predetermined proportions, the properties of which are assumed from the stated proportion of the constituents (recipe concept)

#### 3.3 Type of masonry mortar, defined according to properties and/or use

<https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-90b2a7ae5e78/sist-en-998-2-2004>

#### 3.3.1

##### **general purpose masonry mortar (G)**

masonry mortar without special characteristics

#### 3.3.2

##### **thin layer masonry mortar (T)**

designed masonry mortar with a maximum aggregate size less than or equal to a prescribed figure (see 5.5.2)

#### 3.3.3

##### **lightweight masonry mortar (L)**

designed masonry mortar with a dry hardened density below a prescribed figure (see 5.4.5)

#### 3.4 Type of masonry mortar, defined according to the mode of manufacture

#### 3.4.1

##### **factory made masonry mortar**

mortar batched and mixed in a factory. It may be "dry mortar" which is ready-mixed, only requiring the addition of water or "wet mortar" which is supplied ready for use

#### 3.4.2

##### **semi-finished factory made masonry mortar**

mortar described in either 3.4.2.1 or 3.4.2.2



**3.4.2.1****prebatched masonry mortar**

mortar whose constituents are wholly batched in a factory, supplied to the building site and mixed there according to the manufacturer's specification and conditions

**3.4.2.2****premixed lime-sand- masonry mortar**

mortar whose constituents are wholly batched and mixed in a factory, supplied to the building site where further constituents specified or provided by the factory are added (e.g. cement)

**3.4.3****site-made masonry mortar**

mortar composed of individual constituents batched and mixed on the building site

**3.5****binder**

material used to hold solid particles together in a coherent mass, e.g. cement, building lime

**3.6****aggregate**

granular material that does not contribute to the hardening reaction of the mortar

**3.7****admixture**

material added in small quantities to produce specified modifications to the properties

**3.8****addition**

finely divided inorganic material (which is not an aggregate or binder) that may be added to mortar in order to improve or achieve special properties

**3.9****bond strength**

adhesion perpendicular to the bed between the masonry mortar and the masonry unit

**3.10****declared value**

value that a manufacturer is confident in achieving, bearing in mind the precision of test and variability of process

**3.11****masonry subjected to severe exposure**

masonry or elements of masonry which are subjected to saturation with water (driving rain, ground water) combined with frequent freeze/thaw-cycling due to climatic conditions, and absence of protective features

**3.12****masonry subjected to moderate exposure**

masonry or elements of masonry which are exposed to moisture and freeze/thaw-cycling, excluding constructions subjected to severe exposure

**3.13****masonry subjected to passive exposure**

masonry or elements of masonry which are not intended to be exposed to moisture and freezing conditions

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

SIST EN 998-2:2004

<https://standards.iteh.ai/catalog/standards/sist/9078764b-bbc2-46c9-9663-90b2a7ae5e78/sist-en-998-2-2004>

## 4 Materials

Raw materials shall have characteristics permitting the finished product to conform to the requirements of this standard. The manufacturer shall keep records of how suitability of materials is established.

## 5 Requirements

### 5.1 General

The requirements and properties specified in this standard shall be defined in terms of the test methods and other procedures referred to in this standard. The conformity criteria given in the following sub-clauses relate to initial type tests (see 8.2) and consignments testing (in accordance with Annex A). For production evaluation the manufacturer shall define the conformity criteria in the factory production control documentation (see 8.3).

### 5.2 Properties of fresh mortar

#### 5.2.1 Workable life

The workable life shall be declared by the manufacturer. When the masonry mortar is sampled from a consignment in accordance with EN 1015-2 and tested in accordance with EN 1015-9 the workable life shall not be less than the declared value.

#### 5.2.2 Chloride content

When relevant, the chloride content of the mortar as delivered shall be declared by the manufacturer. When sampled from a consignment in accordance with EN 1015-2 and either tested in accordance with EN 1015-17 using the procedure for determining water soluble chloride content or using a calculation based on measured chloride ion content of the constituents of the mortar, the chloride content shall not be higher than the declared value.

NOTE The chloride content should not exceed 0,1 % Cl of the mortar by dry mass.

#### 5.2.3 Air content

When relevant for the use for which the masonry mortar is placed on the market the range in which the air content will fall shall be declared by the manufacturer. When sampled from a consignment in accordance with EN 1015-2 and tested in accordance with EN 1015-7 the air content shall fall within the declared range.

For masonry mortar where porous aggregates are used the air content may alternatively be determined by testing the fresh mortar density according to EN 1015-6.

### 5.3 Proportion of constituents

For prescribed mortars the mix proportions by volume or by weight of all the constituents shall be declared by the manufacturer. In addition, the compressive strength shall be declared using publicly available references establishing relationship between mix proportions and compressive strength.

## 5.4 Properties of hardened mortar

### 5.4.1 Compressive strength

For designed mortars the compressive strength of masonry mortar shall be declared by the manufacturer. The manufacturer may declare the compressive strength class in accordance with Table 1, where the compressive strength is designated by an 'M' followed by the compressive strength class in N/mm<sup>2</sup>, which it exceeds.

**Table 1 — Mortar classes**

Class	M 1	M 2,5	M 5	M 10	M 15	M 20	M d
Compressive strength N/mm <sup>2</sup>	1	2,5	5	10	15	20	d
d is a compressive strength greater than 25 N/mm <sup>2</sup> declared by the manufacturer.							

When the masonry mortar is sampled from a consignment in accordance with EN 1015-2 and tested in accordance with EN 1015-11 the compressive strength shall not be less than the declared compressive strength or the declared compressive strength class. It shall be declared if the air-lime content calculated as calcium hydroxide Ca(OH)<sub>2</sub> is equal to or higher than 50 % of the total amount of binder mass.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

### 5.4.2 Bond strength

For designed masonry mortars intended to be used in elements subjected to structural requirements the bond strength of the mortar in combination with a masonry unit shall be declared in terms of the characteristic initial shear strength. The declaration may be made either on the basis of tests as a) below or tabulated values as b) below. The manufacturer shall declare the basis for his declaration.

#### a) Declaration based on tests

The characteristic initial shear strength of the mortar in combination with a specific type of unit in accordance with EN 771 may be based on tests on mortar sampled from a consignment in accordance with EN 1015-2 and tested with the relevant unit in accordance with EN 1052-3. The characteristic initial shear strength shall not be less than the declared value;

#### b) Declaration based on tabulated values

When no declaration is made under a) the characteristic initial shear strength of the mortar in combination with a range of unit types shall be declared by reference to Annex C.

NOTE 1 Bond strength depends on the mortar, the masonry unit, its moisture content and the workmanship.

NOTE 2 Until a direct method of test for bond strength is available the test for initial shear strength is to be used.

### 5.4.3 Water absorption

For masonry mortars intended to be used in external elements and exposed directly to the weather, the water absorption shall be declared by the manufacturer. When sampled from a consignment in accordance with EN 1015-2 and tested in accordance with EN 1015-18, the water absorption shall not be higher than the declared value.

#### 5.4.4 Water vapour permeability

For masonry mortars intended to be used in external elements, the water vapour permeability shall be declared by the manufacturer by reference to EN 1745:2002, Table A.12 giving tabulated values for water vapour diffusion coefficient for mortar.

#### 5.4.5 Density (dry hardened mortar)

When relevant for the use for which the masonry mortar is placed on the market the range in which the density of dry hardened mortar will fall shall be declared by the manufacturer. When the masonry mortar is sampled from a consignment in accordance with EN 1015-2 and tested in accordance with EN 1015-10 the density shall fall within the declared range.

For lightweight masonry mortars the density shall be equal to or less than 1 300 kg/m<sup>3</sup>.

#### 5.4.6 Thermal conductivity

For masonry mortars intended to be used in elements subject to thermal requirements the manufacturer shall give design values for the thermal conductivity of the masonry mortar by reference to EN 1745:2002, Table A.12. Especially for lightweight masonry mortars, measured values according to EN 1745:2002, 4.2.2 may alternatively be declared. The manufacturer shall declare the basis for his declaration. When the masonry mortar is sampled from a consignment in accordance with EN 1015-2 and tested in accordance with EN 1745 the thermal conductivity shall be less than the declared value.

#### 5.4.7 Durability

Until a European Standard method of test is available, the freeze/thaw resistance shall be evaluated and declared to the provisions valid in the intended place of use of the mortar.

### 5.5 Additional requirements for thin layer mortars

#### 5.5.1 General

Thin layer mortars shall comply with the requirements described in 5.2 and 5.4 and with the following additional requirements.

#### 5.5.2 Aggregates

The aggregate size shall be not greater than 2 mm when the masonry mortar is sampled from a consignment in accordance with EN 1015-2 and tested in accordance with EN 1015-1. The manufacturer shall declare the maximum grain size.

#### 5.5.3 Correction time

The correction time shall be declared. When the masonry mortar is sampled from a consignment in accordance with EN 1015-2 and tested according to EN 1015-9, the correction time shall be greater than the declared value.

#### 5.6 Reaction to fire

The manufacturer shall declare the reaction to fire classification of the masonry mortar.

Masonry mortars containing a mass or volume fraction of  $\leq 1,0$  % (whichever is the most onerous) of homogeneously distributed organic materials are classified as reaction to fire Class A1 without the need to test.