

---

---

**Masonry cement –**

**Part 1: Composition, specifications and  
conformity criteria**

ICS 91.100.10

---

---



**Mauritius Standards Bureau  
Moka**

Gr 13

This national standard is the identical implementation of EN 413-1:2011 and is adopted with the permission of CEN, Avenue Marnix 17, B-1000 Brussels, Belgium.



**COPYRIGHT PROTECTED DOCUMENT**

© MSB 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Mauritius Standards Bureau at the address below

*Mauritius Standards Bureau  
Villa Road  
Moka  
Mauritius*

<i>Telephone</i>	+ (230) 433 3648
<i>Fax</i>	+ (230) 433 5051/ 433 5150
<i>E-mail</i>	<i>msb@intnet.mu</i>
<i>Website</i>	<a href="http://msb.intnet.mu">http://msb.intnet.mu</a>

## National foreword

This Mauritian Standard is identical with the European Standard **EN 413-1:2011**, *Masonry cement - Part 1: Composition, specifications and conformity criteria*. It was adopted by the Mauritius Standards Bureau in 2012 on the recommendation of the **Building and Construction Standards Committee** and approval of the **Standards Council** on 20 July 2012. It was notified in the Government Gazette on **13 October 2012\***.

For the purposes of this Mauritian Standard the following changes should be made:

- (i) the words 'European Standard' should be read as 'Mauritian Standard';
- (ii) the 'decimal comma' should be replaced by the 'decimal point';
- (iii) in Mauritius, only masonry cement of class strength 22.5 is allowed to be used;
- (iv) referring to clause 5.2, the hydrated and/or hydraulic building limes shall have a free water content not exceeding 0.5%;
- (v) National annex NA (normative) gives information on marking and labelling of packages;
- (vi) attention is drawn to National annex NB (informative), which provides guidance on the general use of masonry cement, including health and safety aspects.

\* **General Notice No. 2127 of 2012.**

English Version

## Masonry cement - Part 1: Composition, specifications and conformity criteria

Putz- und Mauerbinder - Teil 1: Zusammensetzung, Anforderungen und Konformitätskriterien

This European Standard was approved by CEN on 10 March 2011.

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-CENELEC 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-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, 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: Avenue Marnix 17, B-1000 Brussels**

## Contents

page

Foreword.....	4
Introduction .....	5
1 Scope.....	6
2 Normative references .....	6
3 Terms and definitions.....	7
4 Notation.....	8
5 Requirements .....	8
5.1 General.....	8
5.2 Constituents and composition .....	8
5.3 Physical and mechanical requirements.....	9
5.3.1 Fineness (sieve residue) .....	9
5.3.2 Initial setting time.....	9
5.3.3 Final setting time.....	9
5.3.4 Soundness .....	9
5.3.5 Fresh mortar requirements .....	9
5.3.6 Compressive strength .....	10
5.4 Chemical requirements .....	10
5.5 Durability requirements.....	11
6 Standard designation .....	11
7 Conformity criteria .....	11
7.1 General requirements.....	11
7.2 Conformity criteria for physical, mechanical and chemical properties and evaluation procedure.....	12
7.2.1 General.....	12
7.2.2 Statistical conformity criteria .....	12
7.2.3 Single result conformity criteria.....	16
7.3 Conformity criteria for masonry cement composition.....	17
Annex A (informative) Water-soluble hexavalent chromium.....	18
Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive .....	19
Bibliography .....	26
<b>Tables</b>	
Table 1 — Composition of masonry cements.....	9
Table 2 — Fresh mortar requirements given as characteristic values.....	10
Table 3 — Compressive strength requirements given as characteristic values.....	10
Table 4 — Chemical requirements given as characteristic values .....	11
Table 5 — Properties, test methods and minimum testing frequencies for the autocontrol testing by the manufacturer, and the statistical assessment procedure.....	13
Table 6 — Required values of $P_k$ and CR .....	14
Table 7 — Acceptability constant.....	15

Table 8 — Values of $c_A$ .....	16
Table 9 — Limit values for single results .....	17
Table ZA.1— Harmonised clauses .....	20
Table ZA.2— System of attestation of conformity.....	21
Table ZA.3— Assignment of evaluation of conformity tasks for masonry cement under system 1+.....	22

PREVIEW

## Foreword

This document (EN 413-1:2011) has been prepared by Technical Committee CEN/TC 51 "Cement and building limes", the secretariat of which is held by NBN.

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 2011, and conflicting national standards shall be withdrawn at the latest by October 2011.

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 EN 413-1:2004.

The European Standard, EN 413, "Masonry cement", consists of the following parts:

Part 1: Composition, specifications and conformity criteria;

Part 2: Test methods.

This document 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(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

EN 413-1 has been prepared to provide a range of materials from which users of EN 998-1, EN 998-2 and EN 1996-1-1 (Eurocode 6) can select with confidence to achieve the level of strength and durability required of masonry and rendering.

The main changes from EN 413-1:2004 are as follows:

- introduction of a class MC 22,5 (air-entrained) cement;
- removal of references to EN 459-2 for compressive strength testing;
- the upper limit for SO<sub>3</sub> content is increased.

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, Croatia, 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.

## Introduction

Masonry cement should be defined and specified precisely with sufficiently stringent requirements to satisfy those who are responsible for the design and construction of buildings and other structures for maximum safety and durability.

This European Standard is a carefully balanced document that has been thoroughly discussed, taking into account the need to provide clear definitions and specifications and to arrive at a usable standard.

The requirements of this European Standard are, where appropriate, based on the results from tests on masonry cement in accordance with EN 196 'Methods of testing cement'. Strength is measured on a standard mortar prepared in accordance with EN 196-1 with a fixed water/cement ratio and compacted using the equipment described in EN 196-1. However, some additional tests have been found necessary and these tests are described in EN 413-2.

CEN/TC 51 recognises the importance of workability (cohesivity at standard consistence) of mortars prepared from masonry cements. A test method is available in CR 13933, and in which results of a test programme are also given. This test method was not found valid for standard requirement purposes due to its lack of reproducibility, however it provides valuable information for the manufacturers and users on the property in use of masonry cements.

The properties of bond and durability (resistance to frost and/or chemical attack) of mortars are very important and appropriate mortar tests are being developed by CEN/TC 125, Masonry. In many applications, particularly in severe environmental conditions, the choice of the type/class of masonry cement from EN 413-1 can influence the durability of mortar, e.g. in respect of frost and chemical resistance.

## 1 Scope

This European Standard specifies the definition and composition of masonry cements as commonly used in Europe for the production of mortar for bricklaying and blocklaying and for rendering and plastering. It includes physical, mechanical and chemical requirements and defines strength classes. EN 413-1 also states the conformity criteria and the related rules. Necessary durability requirements are also given.

NOTE For normal applications the information given in EN 413-1, in EN 998-1 and in EN 998-2 is generally sufficient. However, in special cases, an exchange of additional information between the masonry cement producer and user can be helpful. The details of such an exchange are not within the scope of EN 413-1 but should be dealt with in accordance with national standards or other regulations or can be agreed between the parties concerned.

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

EN 196-3, *Methods of testing cement — Part 3: Determination of setting time and soundness*

EN 196-6, *Methods of testing cement — Part 6: Determination of fineness*

EN 196-7, *Methods of testing cement — Part 7: Methods of taking and preparing samples of cement*

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

EN 413-2, *Masonry cement — Part 2: Test methods*

EN 459-1, *Building lime - Part 1: Definitions, specifications and conformity criteria*

EN 12878, *Pigments for the colouring of building materials based on cement and/or lime - Specifications and methods of test*