

**Tests for thermal and weathering properties of aggregates - Part 7: Determination of resistance to freezing and thawing of Lightweight aggregates**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 1367-7:2014 sisaldab Euroopa standardi EN 1367-7:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 1367-7:2014 consists of the English text of the European standard EN 1367-7:2014.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.04.2014.	Date of Availability of the European standard is 02.04.2014.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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ICS 91.100.15

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ICS 91.100.15

English Version

## Tests for thermal and weathering properties of aggregates - Part 7: Determination of resistance to freezing and thawing of Lightweight aggregates

Essais pour déterminer les propriétés thermiques et  
l'altérabilité des granulats - Partie 7: Détermination de la  
résistance au gel-dégel des granulats légers

Prüfverfahren für thermische Eigenschaften und  
Verwitterungsbeständigkeit von Gesteinskörnungen - Teil 7:  
Bestimmung des Widerstandes von leichten  
Gesteinskörnungen gegen Frost-Tau-Wechsel

This European Standard was approved by CEN on 16 February 2014.

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.

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

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## Foreword

This document (EN 1367-7:2014) has been prepared by Technical Committee CEN/TC 154 "Aggregates", 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 2014, and conflicting national standards shall be withdrawn at the latest by October 2014.

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.

EN 1367 "Tests for thermal and weathering properties of aggregates" consists of the following parts:

- *Part 1: Determination of resistance to freezing and thawing*
- *Part 2: Magnesium sulfate test*
- *Part 3: Boiling test for "Sonnenbrand Basalt"*
- *Part 4: Determination of drying shrinkage*
- *Part 5: Determination of resistance to thermal shock*
- *Part 6: Determination of resistance to freezing and thawing in the presence of salt (NaCl)*
- *Part 7: Determination of resistance to freezing and thawing of Lightweight Aggregates (the present document)*
- *Part 8: Determination of resistance to disintegration of Lightweight Aggregates*

Test methods for other properties of aggregates are covered by parts of the following European Standards:

- EN 932, *Tests for general properties of aggregates*
- EN 933, *Tests for geometrical properties of aggregates*
- EN 1097, *Tests for mechanical and physical properties of aggregates*
- EN 1744, *Tests for chemical properties of aggregates*
- EN 13179, *Tests for filler aggregate used in bituminous mixtures*

NOTE This document supersedes the test methods described in EN 13055-1:2002, Annex C and EN 13055-2:2004, Annex B.

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.

## 1 Scope

This European Standard specifies the reference test method used for type testing, and in case of dispute, for determining the resistance to freezing and thawing of lightweight aggregates (LWA) in accordance with EN 13055. For other purposes, in particular for factory production control, other methods may be used provided that an appropriate working relationship with the reference method has been established. The test is applicable to LWA with particle size not less than 4 mm and up to a maximum size of 32 mm.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 932-1, *Tests for general properties of aggregates - Part 1: Methods for sampling*

EN 932-2, *Tests for general properties of aggregates - Part 2: Methods for reducing laboratory samples*

EN 932-5, *Tests for general properties of aggregates - Part 5: Common equipment and calibration*

EN 933-2, *Tests for geometrical properties of aggregates - Part 2: Determination of particle size distribution - Test sieves, nominal size of apertures*

EN 13055-1, *Lightweight aggregates - Part 1: Lightweight aggregates for concrete, mortar and grout*

EN 13055-2, *Lightweight aggregates - Part 2: Lightweight aggregates for bituminous mixtures and surface treatments and for unbound and bound applications*

## 3 Terms and definitions

For the purpose of this document, the terms and definitions given in EN 13055-1, EN 13055-2 and the following apply.

**3.1**  
**test specimen**  
sample used as in single determination when a test method requires more than one determination of a property

**3.2**  
**constant mass**  
mass determined by successive weighings performed 1 h apart and not differing by more than 0,1 %

Note 1 to entry: In many cases constant mass can be achieved after a test portion has been dried for a pre-determined period in a specified oven at  $(110 \pm 5)$  °C. Test laboratories can determine the time required to achieve constant mass for specific types and sizes of sample dependent upon the drying capacity of the oven used.

## 4 Principle

Three test specimens of lightweight aggregates, having been soaked in water at atmospheric pressure, are subjected to 20 freeze–thaw cycles. This involves cooling down to  $-17,5$  °C in air and then thawing in a water bath at about 20 °C. After completion of the freeze–thaw cycles, the loss of mass of the lightweight aggregates is recorded.