

**Test method for glass-fibre reinforced cement -  
Part 8: Cyclic weathering type test**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1170-8:2008 sisaldab Euroopa standardi EN 1170-8:2008 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 10.11.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 22.10.2008.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 1170-8:2008 consists of the English text of the European standard EN 1170-8:2008.

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Võtmesõnad:

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English Version

Test method for glass-fibre reinforced cement - Part 8: Cyclic  
weathering type test

Méthode d'essai des composites ciment-verre - Partie 8 :  
Essai type de durabilité par cycle

Prüfverfahren für Glasfaserbeton - Teil 8: Prüfung der  
Dauerhaftigkeit im Klimazyklus- Test

This European Standard was approved by CEN on 6 September 2008.

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 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 Management Centre has the same status as the official versions.

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## Foreword

This document (EN 1170-8:2008) has been prepared by Technical Committee CEN/TC 229 "Precast concrete products", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by April 2009, and conflicting national standards shall be withdrawn at the latest by April 2009.

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 1170-8:1996.

From the previous edition, modifications deal with the status of the standard and the scope.

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, 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 the United Kingdom.

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## Introduction

This European Standard prescribes a cyclic wetting and drying test for glass-fibre reinforced concrete.

This test incorporates the main ageing parameters to which a glass-fibre reinforced concrete will be subjected under natural exposure conditions: humidity, drying, temperature.

However, it should be noted that at the end of 50 cycles (humidity/drying /temperature), there is some change of properties for normal GRC formulations. The results correspond to natural weathering during 10 to 20 years.

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## 1 Scope

This European Standard specifies a test method for identifying, for a given GRC formulation (constituents and their proportions in the formulation), the effect of environmental factors such as water and temperature on the change of mechanical characteristics. For other conditions of exposure, e.g. where freezing, thawing and action of thawing salt occurs, the test will be adapted.

## 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 1170-5, *Precast concrete products — Test method for glass-fibre reinforced cement — Part 5: Measuring bending strength, "Complete bending test" method*

## 3 Symbols and abbreviations

### 3.1 Symbols

$L$  estimate of the loss of resistance:  $L = \frac{a_p}{c_p}$ ;

where

$a_p$  = "after ageing" performance; and

$c_p$  = "control" performance;

$L_C$  lower limit of the one-sided 95 % confidence interval of the mean of the analysed parameter after ageing;

$L_R$  lower limit of the one-sided 95 % confidence interval of the mean of the reference sample analysed parameter;

$M_C$  mean of the individual values of  $\sigma_{LOP}$ ,  $\epsilon_{LOP}$ ,  $\sigma_{MOR}$  and  $\epsilon_{MOR}$  obtained from the sample evaluated after 50 ageing cycles;

$M_R$  mean of the individual values of  $\epsilon_{LOP}$ ,  $\sigma_{MOR}$  and  $\epsilon_{MOR}$  obtained from the reference sample;

$S_C$  standard deviation of the individual values of  $\epsilon_{LOP}$ ,  $\sigma_{MOR}$  and  $\epsilon_{MOR}$  obtained from the sample evaluated after 50 ageing cycles;

$S_R$  standard deviation of the individual values of  $\epsilon_{LOP}$ ,  $\sigma_{MOR}$  and  $\epsilon_{MOR}$  obtained from the reference sample;

$\epsilon_{LOP}$  deformation at the limit of proportionality;

$\epsilon_{MOR}$  deformation at the limit of rupture;

$\sigma_{LOP}$  stress at the limit of proportionality, in MPa;

$\sigma_{MOR}$  stress at the limit (Modulus) of rupture, in MPa.