
**Montažni betonski izdelki - Preskusna metoda za steklocementni kompozit - 6. del:
Določevanje vpijanja vode s potapljanjem in določevanjem gostote v suhem stanju**

Precast concrete products - Test method for glass-fibre reinforced cement - Part 6:
Determination of the absorption of water by immersion and determination of the dry
density

Vorgefertigte Betonerzeugnisse - Prüfverfahren für Glasfaserbeton - Teil 6: Bestimmung
der Wasseraufnahme mittels Tauchverfahren und der Trockenrohddichte

Produits préfabriqués en béton - Méthode d'essai des composites ciment-verre - Partie
6: Détermination de l'absorption d'eau par immersion et de la masse volumique sèche

Ta slovenski standard je istoveten z: EN 1170-6:1997

ICS:

91.100.30 Beton in betonski izdelki Concrete and concrete
products

SIST EN 1170-6:2001**en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1170-6:2001](#)

<https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-f8a5d2ac108d/sist-en-1170-6-2001>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1170-6

November 1997

ICS 91.100.30

Descriptors: concrete products, prefabricated elements, composite materials, cements, glass, verification, conformity tests, water absorption tests, measurements, density (mass/volume), immersion tests

English version

Precast concrete products - Test method for glass-fibre reinforced cement - Part 6: Determination of the absorption of water by immersion and determination of the dry density

Produits préfabriqués en béton - Méthode d'essai des composites ciment-verre - Partie 6: Détermination de l'absorption d'eau par immersion et de la masse volumique sèche

Vorgefertigte Betonerzeugnisse - Prüfverfahren für Glasfaserbeton - Teil 6: Bestimmung der Wasseraufnahme mittels Tauchverfahren und der Trockenrohddichte

This European Standard was approved by CEN on 29 October 1997.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

[SIST EN 1170-6:2001](https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-882ff431-b8bc-4b1d-b873)

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword	3
1 Scope	4
2 Symbols and abbreviation	4
2.1 Symbols.....	4
2.2 Abbreviation	4
3 Apparatus	4
4 Procedure	5
4.1 Test pieces	5
4.2 Test method	6
5 Expression of results	6
5.1 Water absorption by immersion	6
5.2 Dry density	7
6 Interpreting the test	7
7 Test report sheet	7
Annex A (informative) Example of test report sheet	8

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 1170-6:2001](https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-f8a5d2ac108d/sist-en-1170-6-2001)

<https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-f8a5d2ac108d/sist-en-1170-6-2001>

Foreword

This European Standard 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 May 1998, and conflicting national standards shall be withdrawn at the latest by May 1998.

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

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

[SIST EN 1170-6:2001](https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-f8a5d2ac108d/sist-en-1170-6-2001)

<https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-f8a5d2ac108d/sist-en-1170-6-2001>

1 Scope

This European Standard specifies a test method for determining the dry density and water absorption of a given GRC composition.

2 Symbols and abbreviation

2.1 Symbols

m_d : mass of a test piece after drying, "dry mass", in grammes ;

m_{wj} : mass of a test piece after immersion for "j" days, "wet mass", in grammes ;

V : volume of a test piece, in cm^3 ;

γ : water absorption by immersion, in percentage by mass ;

ρ_d : dry density, in kg/m^3 .

2.2 Abbreviation

GRC : Glassfibre reinforced cement.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3 Apparatus

[SIST EN 1170-6:2001](https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-f8a5d2ac108d/sist-en-1170-6-2001)

The apparatus comprises : <https://standards.iteh.ai/catalog/standards/sist/882ff431-b8bc-4b1d-b873-f8a5d2ac108d/sist-en-1170-6-2001>

- a scale, with a measuring range 0 kg to 2 kg accurate to 0,1 g ;
- a ventilated drying oven adjusted to (105 ± 5) °C ;
- a flat board made of smooth easily cleaned material approximately (500 x 800) mm ;
- a rule accurate to 0,5 mm ;
- a calliper accurate to 0,1 mm ;
- a flat bottomed tank filled with water maintained at (20 ± 2) °C, approximately (300 x 200 x 100) mm equipped with a device allowing the positioning of the samples in conformity with 4.2, for example, non corrodible "rack"-type "comb" as shown in figure 1.

Dimensions in millimetres

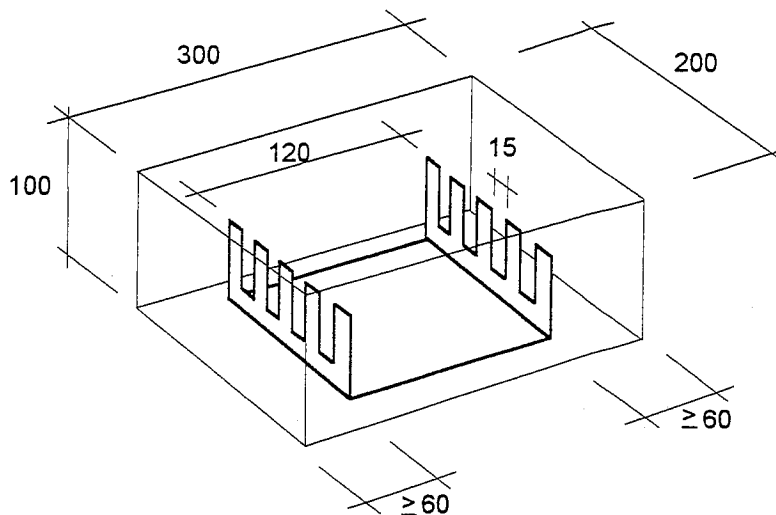


Figure 1 : Example of a device for positioning the test pieces

4 Procedure

4.1 Test pieces

On the flat board, make a sample panel with no facing layer (i.e. made entirely of GRC) under the same conditions as the actual production it represents : spray or premix.

After 24 h, demould and store the sample panel until the age of 6 days, under the same conditions as for the actual production it represents.

Cut out by sawing, at (50 ± 1) mm from the edges, four test pieces from the positions illustrated in figure 2.

NOTE : The test pieces may also be cut out on the day of demoulding.

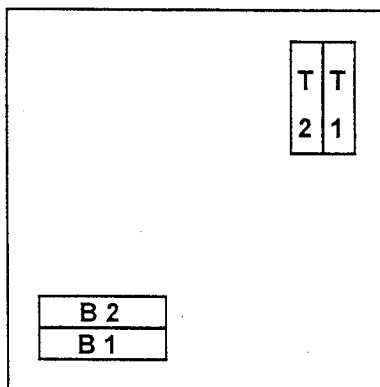


Figure 2 : Position and identification of test pieces

Dimensions of the test pieces :

- width : (50 ± 2) mm ;
- length : (225 ± 2) mm ;

When the four test pieces have been aged for six days, store them in the test room at a temperature of (20 ± 3) °C for approximately 24 h so that they have been aged for 7 days at the time of the tests.

4.2 Test method

Measure the dimensions of each sample to the nearest millimetre and calculate the volume, expressed in cm^3 , for each sample.

NOTE : It is also possible to determine the volume by the hydrostatic weighing method.

Place the four test pieces in the flat bottomed tank filled with water at (20 ± 2) °C. The test pieces are held in place vertically by the combs and resting on one of their lengthwise edges. The depth of covering by water shall be (20 ± 4) mm..

The duration of immersion, depending on the GRC composition, shall be :

- 24 h for compositions with no polymer content ;
- 7 days, with an intermediary measurement at 24 h.

After removal from the water and before weighing, wipe the test pieces with a damp cloth to remove any surface water.

Weigh the test pieces :

m_{w1} is the mass after immersion for 24 h, in grammes ;

m_{w7} is the mass after immersion for 7 days, in grammes.

Then place the test pieces in the ventilated drying oven until they reach constant mass " m_d ", i.e. when the difference between two weighing results 24 h apart is less than 0,1 %.

5 Expression of results

5.1 Water absorption by immersion

The water absorption by immersion γ , expressed as a percentage by mass, is determined by the equation :

$$\gamma = \frac{m_w - m_d}{m_d} \times 100$$

For formulations with polymer content γ is calculated at 24 h with m_{w1} and γ at 7 days with m_{w7} .

5.2 Dry density

The dry density ρ_d , expressed in kg/m^3 , is determined by the following equation :

$$\rho_d = \frac{m_d - 10^3}{V \times 10^6}$$

6 Interpreting the test

The results depend on the characteristics of the GRC composition (granulometry of the sand, polymer content, etc.) and its workmanship (compaction).

7 Test report sheet

The test report sheet shall comprise the following information :

- the date of test ;
- the identification of manufacture ;
- the dimensions of test pieces ;
- the intermediate results : wet mass, dry mass ;
- the results : water absorption at 24 h, at 7 days in the case of compositions with polymer content, dry density.

NOTE : An example of the test report sheet is given in annex A.