भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
BUREAU OF INDIAN STANDARDS
(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India

मानक भवन, 9, बहादुर शाह ज़फर मार्ग, नई दिल्ली – 110002
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व्यापक परिचालन मसौदा

हमारा संदर्भ : सीईडी 06/टी- 47 **10 मई 2025**

तकनीकी समिति: पत्थर विषय समिति, सीईडी - 06

प्राप्तकर्ता :

क) सिविल इंजीनियरी विभाग परिषद्, सीईडीसी के सभी सदस्य
ख) सीईडी 06 के सभी सदस्य
ग) रूचि रखने वाले अन्य निकाय

प्रिय महोदय/महोदया,

निम्नलिखित भारतीय मानक का मसौदा संलग्न हैं:

प्रलेख संख्या	शीर्षक
सीईडी 06 (28162)WC	**इंजीनियर्ड पत्थरों — परीक्षण की बिधियां का भारतीय मानक कार्यकारी मसौदा भाग 3 जल अवशोषण और विशिष्ट गुरुत्व का निर्धारण** ICS 91.100.99

कृपया इस मानक के मसौदे का अवलोकन करें और अपनी सम्मतियॉ यह बताते हुए भेजे कि यदि यह मानक के रूप में प्रकाशित हो तो इस पर अमल करने में आपके व्यवसाय अथवा कारोबार में क्या कठिनाइयाँ आ सकती हैं।

सम्मतियाँ भेजने की अंतिम तिथि: 09/08/2025

टिप्पणियाँ, यदि कोई हों, बीआईएस ई-गवर्नेंस पोर्टल https://www.services.bis.gov.in/php/BIS_2.0/dgdashboard/draft/darftdetail/63/3/CED के माध्यम से ऑनलाइन भेजी जा सकती हैं।

वैकल्पिक रूप से, टिप्पणियाँ संलग्न प्रारूप में भी दर्ज की जा सकती हैं और ced06@bis.gov.in या divya.s@bis.gov.in पर ईमेल की जा सकती हैं।

आपको अपनी टिप्पणियाँ प्रस्तुत करने के लिए लॉगिन करना पड़ सकता है, कृपया लॉगिन बनाएं।

यदि कोई सम्मति प्राप्त नही होती है अथवा सम्मति में केवल भाषा सम्बन्धी त्रुटि हुई तो उपरोक्त प्रलेख को यथावत अंतिम रूप दिया जाएगा। यदि सम्मित तकनीकी प्रकृति की हुई विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रलेख को अंतिम रूप दे दिया जाएगा ।

यह प्रलेख भारतीय मानक ब्यूरो की वैबसाइट www.bis.gov.in पर भी उपलब्ध हैं।

धन्यवाद।

भवदीय
ह/-
(**दिव्या एस.**)
सदस्य सचिव सीईडी 06
वैज्ञानिक 'डी'(सिविल इंजीनियरिंग)
ई-मेल: **divya.s@bis.gov.in**

संलग्न: उपरलिखित

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
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WIDE CIRCULATION DRAFT

Our Reference: CED 06/T- 47 **10 June 2025**

Technical Committee: Stone Sectional Committee, CED 06

Addressed To:

a) All Members of Civil Engineering Division Council, CEDC
b) All Members of CED 06
c) All others interested

Dear Sir/Madam,

Please find enclosed the following document:

Doc No.	*Title*
CED 06 (28162)WC	**Indian Standard on Engineered Stones–Method of tests Part 3 Determination of Water Absorption and Specific Gravity** ICS 91.100.99, 91.100.15

Kindly examine the draft standard and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as National Standard.

Last Date for comments: 09 August 2025

Comments if any, may be sent online through the BIS e-governance portal at https://www.services.bis.gov.in/php/BIS_2.0/dgdashboard/draft/darftdetail/63/3/CED .

Alternatively, comments may also be recorded in the enclosed format and emailed at ced06@bis.gov.in or at divya.s@bis.gov.in.

You may be required to login to submit your comments, kindly create a login.

In case no comments are received or comments received are of editorial nature, you will kindly permit us to presume your approval for the above document as finalized. However, in case of comments of technical in nature are received then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website www.bis.gov.in.

Thanking you,

Sd/-

(**Divya S.**)

Member Secretary CED 06

Scientist 'D' (Civil Engineering)

E-mail: **divya.s@bis.gov.in**

Encl: As above

FORMAT FOR SENDING COMMENTS ON THE DOCUMENT

[Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/sub-clause/ table/figure, etc, be stated on a fresh row. Information/comments should include reasons for comments, technical references and suggestions for modified wordings of the clause. **Comments through https://www.services.bis.gov.in/php/BIS_2.0/WCDraft/comment_pdraft.php shall be appreciated**.]

Doc. No.: CED 06(28162)WC **BIS Letter Ref**: CED 06/T- 47

Title: Engineered Stones– Method of tests Part 3 Determination of Water Absorption and Specific Gravity

ICS 91.100.99, 91.100.15

Last date of comments: **09 August 2025**

Name of the Commentator/ Organization: _____

Clause/ Para/ Table/ Figure No. commented	Comments/Modified Wordings	Justification of Proposed Change

NOTE- Kindly insert more rows as necessary for each clause/table, etc

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY
(*Not to be reproduced without the permission of BIS or used as an Indian Standard*)

Draft Indian Standard

ENGINEERED STONES–METHOD OF TESTS PART 3 DETERMINATION OF WATER ABSORPTION AND SPECIFIC GRAVITY

ICS 91.100.99, 91.100.15

Stones Sectional Committee, CED 06 Last date of comments
09 August 2025

FORWARD

Formal clause will be added later.

Engineered stones are increasingly utilized in construction and decorative applications. To ensure their performance and suitability, it is necessary to ascertain their mechanical properties. This standard has been formulated to provide a standardized method for determining relevant properties of engineered stones.

This Part 3 of the standard specifically covers the determination of water absorption and specific gravity of engineered stones. The standard outlines key aspects of the test procedure, including the principle of the test, requirements for sampling and test specimens (including dimensions and tolerances), specimen conditioning (drying to constant mass and cooling), necessary apparatus, the detailed test procedure (including measurement of specimens and application of load at a constant stress rate), and the evaluation and reporting of test results.

In the preparation of this standard, significant assistance has been derived from BS EN 14617-1:2013 ‘Agglomerated stone — Test methods — Part 1: Determination of apparent density and water absorption’.

This standard contributes to the United Nations Sustainable Development Goal 11 ‘Sustainable cities and communities’ towards strengthening the efforts to protect and safeguard the world’s cultural and natural heritage.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a measurement shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (second revision)’. The number of significant places

retained in the rounded off value should be the same as that of the specified value in this standard.

Draft Indian Standard

ENGINEERED STONES – METHODS OF TEST
Part 3 Determination of Water Absorption and Specific Gravity

(*Proposed new standard*)

1. SCOPE

This standard lays down the procedure for determination of water absorption and apparent specific gravity of engineered stones.

2. SELECTION OF SAMPLES

2.1 The sample chosen shall be representative of the engineered stone under consideration.

2.2 The sampling is done either from manufacturing unit or from the working site by owner or his consultant/engineer and send to laboratory. In such case testing laboratory is not responsible for the sampling.

3. TEST SPECIMENS AND CONDITIONING

3.1 At least Three specimens selected from a homogeneous batch consisting of the same material mixture should be tested. The specimen shall be finished in the same procedure (sand blasted, gauged, or polished surface) as the final product, but without chemical surface treatment. The dimensions of the sample are 100 × 100 mm length and width and 10 ±2 mm thickness.

3.2 The specimens should be dried at 65 ± 5 °C until the difference between two successive weighing at an interval of 4 hours do not differ by more than 0.1 percent of the later sample mass. The specimens shall be kept in a desiccator until room temperature (27 ± 2)°C is attained.

4. APPARATUS

4.1 Desiccator : A desiccator which can easily accommodate the three samples on noncontact position with moisture absorbent.

4.2 Oven : A well-ventilated oven, thermostatically controlled, to maintain a temperature of 65°C ± 5°C.

4.3 Balance A balance or scale of capacity not less than 3 kg, readable and accurate to 0.5 g and of such a type and shape as to permit the basket containing the sample to be suspended from the beam and weighed in water.

4.4 Thermometer : A thermometer to measure up to 50° C with 0.5° C accuracy.

4.5 A covered tank with a flat base comprising small non-oxidising and non-absorbent supports for the specimens.

5. PROCEDURE

5.1 After drying and weighing (M_o), place the specimens in a water tank having temperature 27 ± 2 ℃ on two supports to reduce the support contact surface to a minimum and no-contact between the specimens.

5.2 The specimens shall be completely immersed and covered by 5 cm of water all around. After 24 ± 1 h, the specimens shall be taken out of the water, wiped with a damp cloth and weighed in air(M_t). Continue to immerse the specimens in water and repeat the tests until the weight variation in specimens in two successive weighing is less than 0.1 percent.

5.3 Immediately after the final weighing of each sample, determine the apparent mass (M_a) by weighing the sample in water having temperature 27 ± 2 ℃.

6. EVALUATION AND REPORT OF TEST RESULTS

6.1 The apparent specific gravity M_v, in kg/ m^3 is given by:

$$M_v = \frac{M_o \times w}{M_t - M_a - (M_t - M_o)}$$

where

M_o= sample mass weighed in air after drying, in kg,

M_t=sample mass soaked in water, wiped by a damp cloth, and weighed in air, in kg,

M_a=sample mass soaked in water and weighed in water, in kg,

w = true density of water at the measuring temperature, in kg/m^3

6.2 Water absorption C in percentage is given by:

$$C = \frac{100 \times (M_t - M_o)}{M_o}$$

6.3 Identification of the sample, date when sample was taken, and type of stone shall be reported.

6.4 The size and shape of test pieces used in the tests shall be indicated.

6.5 A description of the way in which the test pieces were prepared shall be included.

6.6 Individual results shall be reported in four significant figures. Individual results shall fall within ± 20 kg/m^3 of the average result. The average result shall be reported in four significant figure in kg/m^3, nearest to multiple of 10.

6.7 Water absorption result shall be reported in three significant figures in percent.