

भारतीय मानक
Indian Standard

IS 3495 (Part 3) : 2019

**निर्माण के लिए पक्की मिट्टी की ईंट —
परीक्षण पद्धति**

भाग 3 उत्फुल्लन ज्ञात करना
(चौथा पुनरीक्षण)

**Burnt Clay Building Bricks —
Methods of Tests**

Part 3 Determination of Efflorescence
(*Fourth Revision*)

ICS 91.100.25

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Price Group 2

Clay and Stabilized Soil Products for Construction Sectional Committee, CED 30

FOREWORD

This Indian Standard (Part 3) (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Clay and Stabilized Soil Products for Construction Sectional Committee had been approved by the Civil Engineering Division Council.

Standard methods of testing burnt clay bricks are essential adjunct to the various burnt clay brick specifications. This standard (Part 3) was first published in 1966 and subsequently revised in 1973, 1976 and 1992. This standard in different parts lays down the procedure for the tests to evaluate the physical properties of different types of burnt clay bricks. Earlier, all the tests to evaluate the physical properties of burnt clay bricks were covered in one standard but for facilitating the use of this standard and future revisions, the revised standard has been brought out in different parts, each part covering different tests.

This standard is published in four parts. The other parts in this series are:

- Part 1 Determination of compressive strength
- Part 2 Determination of water absorption
- Part 4 Determination of warpage

This standard (Part 3) covers determination of efflorescence in burnt clay bricks. The provision relating to removing any adhering dirt prior to testing has been incorporated in the standard. Efforts have also been made to update the other contents.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

In reporting the result of a test or analysis made in accordance with this standard, if the final value observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard
**BURNT CLAY BUILDING BRICKS —
METHODS OF TESTS**
PART 3 DETERMINATION OF EFFLORESCENCE
(Fourth Revision)

1 SCOPE

This standard (Part 3) covers the method of determination of efflorescence of burnt clay building bricks.

2 REFERENCE

The following standard contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
5454 : 1978	Methods of sampling of clay building bricks (<i>first revision</i>)

3 GENERAL

3.1 The dimensions shall be measured to the nearest 1 mm.

3.2 All apparatus and testing equipment shall be calibrated at frequent intervals, as applicable to the respective testing equipment.

3.3 The number of specimens for the test shall be selected according to IS 5454.

4 METHOD

4.1 Apparatus

A shallow flat bottom dish containing sufficient distilled water to completely saturate the specimens and a soft bristle brush. The dish shall be made of glass, porcelain or glazed stoneware and of size 180 mm × 180 mm × 40 mm depth for square shaped and 200 mm dia × 40 mm depth for cylindrical shaped.

4.2 Procedure

Remove by brushing any adhering dirt that might be mistaken for efflorescence. Place the end of the bricks in the dish, the depth of immersion in water being 25 mm. Place the whole arrangement in a warm $27 \pm 2^\circ\text{C}$ well ventilated room until all the water in the dish is absorbed by the specimens and the surplus water evaporates. Cover the dish containing the brick with suitable glass cylinder so that excessive evaporation from the dish may not occur. When the water has been absorbed and bricks appear to be dry, place a similar quantity of water in the dish and allow it to evaporate as before. Examine the bricks for efflorescence after the second evaporation and report the results.

4.3 Report

The liability to efflorescence shall be reported as 'nil', 'slight', 'moderate', 'heavy' or 'serious' in accordance with the following definitions:

- a) *Nil* — When there is no perceptible deposit of efflorescence.
- b) *Slight* — When not more than 10 percent of the exposed area of the brick is covered with a thin deposit of salts.
- c) *Moderate* — When there is a heavier deposit than under 'slight' and covering up to 50 percent of the exposed area of the brick surface but unaccompanied by powdering or flaking of the surface.
- d) *Heavy* — When there is a heavy deposit of salts covering 50 percent or more of the exposed area of the brick surface but unaccompanied by powdering or flaking of the surface.
- e) *Serious* — When there is a heavy deposit of salts accompanied by powdering and/or flaking of the exposed surfaces.

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ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Clay and Stabilized Soil Products for Construction Sectional Committee, CED 30

<i>Organization</i>	<i>Representative(s)</i>
CSIR-Central Building Research Institute, Roorkee	SHRI A. K. MINOCHA (<i>Chairman</i>)
All India Brick & Tile Manufacturers Federation, New Delhi	SHRI R. P. S. CHANDEL SHRI R. K. VERMA (<i>Alternate</i>)
Auroville Earth Institute, Auroville	REPRESENTATIVE
Building Materials & Technology Promotion Council, New Delhi	SHRI SHARAD GUPTA SHRI PANKAJ GUPTA (<i>Alternate</i>)
Central Pollution Control Board, New Delhi	SHRI B. VINOD BABU
Central Power Research Institute, Bengaluru	REPRESENTATIVE
Central Public Works Department, New Delhi	CHIEF ENGINEER (CSQ) SHRI MATHURA PRASAD (<i>Alternate</i>)
Central Soil and Materials Research Station, New Delhi	SHRI U. S. VIDYARTHI SHRI RAJ KUMAR (<i>Alternate</i>)
CSIR-Advanced Materials & Processes Research Institute, Bhopal	DR R. K. MORCHHALE DR MANISH MUDGAL (<i>Alternate</i>)
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CSIR-Central Glass & Ceramic Research Institute, Kolkata	DR PARVESH AGRAWAL SHRIMATI ASHA T. ANIL (<i>Alternate</i>)
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Delhi Metro Rail Corporation, Delhi	SHRIMATI PAPIYA SARKAR
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Housing and Urban Development Corporation Limited, New Delhi	SHRI AKHILESH KUMAR SHRI SURENDRA KUMAR (<i>Alternate</i>)
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Int Nirmata Parishad, Varanasi	REPRESENTATIVE
Military Engineer Services, Engineer-in-Chief's Branch, Integrated HQ of MoD (Army), New Delhi	SHRIMATI UPINDER KAUR SHRI M. A. RUPEREE (<i>Alternate</i>)
Ministry of Science & Technology, New Delhi	SHRI RAJ KUMAR JOSHI SHRI PAWAN KUMAR (<i>Alternate</i>)
National Building Construction Corporation, New Delhi	SHRI ANIL MALLA SHRI M. K. CHAWLA (<i>Alternate</i>)

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<i>Organization</i>	<i>Representative(s)</i>
National Test House, Kolkata	SHRI D. V. S. PRASAD SHRI NARESH GUPTA (<i>Alternate</i>)
NTPC Ltd, Noida	SHRI JITENDRA KUMAR SHRI MOHIT JHALANI (<i>Alternate</i>)
Public Works Department, Chennai	SUPERINTENDING ENGINEER EXECUTIVE ENGINEER (<i>Alternate</i>)
Punjab State Council for Science and Technology, Chandigarh	SHRI PRITPAL SINGH SHRI MAGANBIR SINGH (<i>Alternate</i>)
Shriram Institute of Industrial Research, Delhi	DR MUKESH GARG SHRI RABINDRA KUMAR JENA (<i>Alternate</i>)
The Energy and Resources Institute, New Delhi	SHRI SACHIN KUMAR SHRIMATI SUDIPTA SINGH (<i>Alternate</i>)
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Member Secretary

SHRI MILIND GUPTA
SCIENTIST 'C' (CIVIL ENGINEERING), BIS

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