IS 6932-8 (1973): Method of test for building limes, Part VIII: Determination of workability [CED 4: Building Limes and Gypsum Products]

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IS : 6932 (Part VIII) - 1973
(Reaffirmed 2000)

Indian Standard

METHODS OF TESTS FOR BUILDING LIMES

PART VIII DETERMINATION OF WORKABILITY

(Second Reprint APRIL 1990)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 1 *February* 1974

Indian Standard

METHODS OF TESTS FOR BUILDING LIMES

PART VIII DETERMINATION OF WORKABILITY

0. FOREWORD

0.1 This Indian Standard (Part VIII) was adopted by the Indian Standards Institution on 22 March 1973, after the draft finalized by the Building Limes Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Hitherto, methods of tests for assessing qualitative requirements of building limes were included in IS : 712-1964. For facilitating the use of these tests it has been decided to print these tests as different parts of a separate Indian Standard. This part covers determination of workability of building limes.

0.3 In reporting the results 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*.

1. SCOPE

1.1 This standard (Part VIII) covers the method of test for determination of workability of building limes.

2. GENERAL

2.1 Preparation of the Sample — The sample shall be prepared in accordance with **7.2** of IS : 712-1973†.

2.2 The distilled water (*see* IS : 1070-1960‡) shall be used where use of water as a reagent is intended.

*Rules for rounding off numerical values (*revised*).

†Specification for building limes (*second revision*).

‡Specification for water, distilled quality (*revised*). (Since revised).

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AMENDMENT NO. 1 MAY 2010
TO
IS 6932 (PART 8) : 1973 METHODS OF TESTS FOR BUILDING LIMES

PART 8 DETERMINATION OF WORKABILITY

(*Page* 1, *clause* **2.1**, *line* 2) — Substitute 'IS 712 : 1984†' *for* 'IS : 712-1973†'.

(*Page* 1, *clause* **2.2**, *line* 1) — Substitute 'IS 1070 : 1992‡' *for* 'IS : 1070-1960‡'.

(*Page* 1, *footnote marked* †) — Substitute the following for the existing:

'†Specification for building limes (*third revision*).'

(*Page* 1, *footnote marked* ‡) — Substitute the following for the existing:

'‡Specification for reagent grade water (*third revision*).'

(*Page* 3, *clause* **3.2.2**, *line* 2) — Substitute 'IS 2250 : 1981*' *for* 'IS : 1625-1971*'.

(*Page* 3, *footnote marked* *) — Substitute the following for the existing:

'*Code of practice for preparation and use of masonry mortars (*first revision*).'

(CED 4)

Reprography Unit, BIS, New Delhi, India

3. TEST FOR WORKABILITY

3.1 Apparatus

3.1.1 The apparatus shall consist of a standard flow table and a truncated conical metallic mould. (*See* Fig. 1)

3.1.1.1 The standard flow table (*see* Fig. 1) shall consist essentially of a horizontal smooth table top made of mild steel, ground and polished on the surface. The table top shall be 30 cm in diameter and 3 mm thick mounted on a vertical shaft, which can be raised and then allowed to fall freely by a cam, the fall being exactly 12·5 mm. A cast iron rim 25 mm square in cross-section and 300 mm external diameter shall be securely fixed under the edge of the table top with 6 rivets spaced symmetrically apart. Three circles having diameters of 70, 110 and 190 mm respectively shall be engraved on the surface of the table and concentric with it. The engraved lines shall be filled with wax polished flush with the surface of the metal. The length of fall shall be as defined by a shoulder on the shaft coming in contact with the top of the cast iron to steel body of the instrument, the contact being, therefore, metal to metal. The total mass of the moving part (table top, loading rim, shaft, etc) free to fall, shall be approximately 7 kg. The mass of the body, with cam shaft and cam handle, etc shall be approximately 19 kg.

3.1.1.2 The flow table shall stand unattached in the centre of a brick, stone or concrete pier at least 35 cm square, built on a firm foundation, and upon which the base of the table shall stand firmly without any trace of rocking or chattering. The height of the pier shall be 80 cm and its top shall consist of 5 cm thick sand-cement mortar (3 : 1) with its surface finished smooth with a steel trowel.

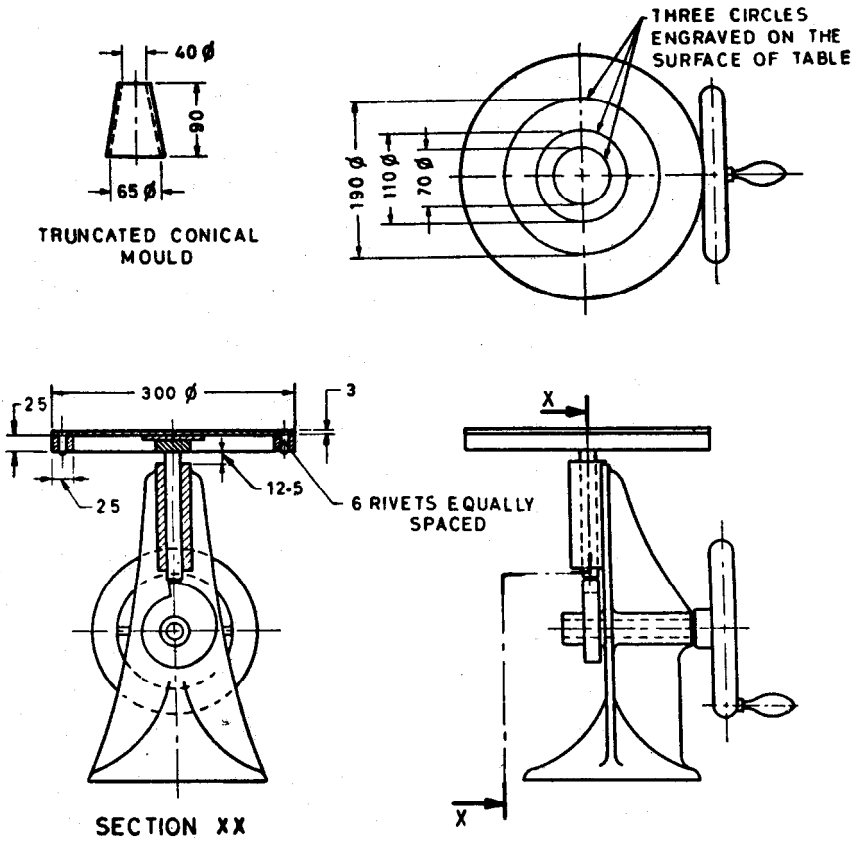
3.1.1.3 The mould for preparing the test specimen shall consist of a truncated conical mould of sheet metal with internal diameter of 4·0 cm at its narrower end, an internal diameter of 6·5 cm at its wider end and 9·0 cm in height. Its inside and the ends shall be smooth. In addition, the ends shall be plane.

3.2 Preparation of Sample

3.2.1 In case of quicklime the putty shall be prepared in accordance with **3.2** of IS : 6932 (Part VI) - 1973*.

3.2.2 In the case of hydrated lime, the lime putty shall be prepared by thoroughly mixing the hydrated lime with an equal mass of clean water at a temperature of 27 ± 2°C, 24 hours before the subsequent operations. A convenient quantity of hydrated lime to be taken for this purpose shall be 500 g. At the expiry of 24 hours the soaked material shall be thoroughly

*Methods of tests for building limes: Part VI Determination of volume yield of quicklime.



All dimensions in millimetres.

FIG. 1 STANDARD FLOW TABLE AND TRUNCATED CONICAL MOULD

mixed and knocked up to produce a plastic putty. A mixer of the type given in IS : 1625-1971* shall be used for the 'knocking up', the material being passed twice through this mixer.

3.2.3 The specimen of material for testing shall be prepared by filling the metallic mould specified under **3.1.1.3** such that no air bubbles or voids are retained inside. Before each test the mould shall be rinsed out with clean water, allowed to drain and shaken to remove superfluous water.

*Code of practice for preparation of lime mortar for use in buildings (*first revision*).

3.2.4 The lime putty prepared in accordance with **3.2.1** or **3.2.2**, shall be adjusted to standard plastering consistency, which shall be that indicated by an average spread of the lower part of the lime putty to 11·0 cm with a permissible deviation of not more than 0·1 cm, when subjected to one bump on the standard flow table. When first tested if the consistency is too stiff, more water shall be added, and if too wet, a small portion of the water shall be withdrawn by placing the material for a short period on a clean absorbent surface. The test for workability shall then be carried out immediately as described in **3.4**.

3.3 Temperature for Testing — The temperature of the material under test and of the flow table and immediate surroundings shall be maintained at 27 ± 2°C during the test.

3.4 Procedure

3.4.1 The shaft and shoulder of the standard flow table shall be carefully wiped clean and the shaft oiled with a few drops of thin mineral oil. The top of the table shall be clean and completely dry. The cone of material prepared in accordance with **3.2.3** shall be applied to the centre of the table with the aid of the mould and the mould carefully withdrawn. No substantial amount of the material under test shall remain adhering to the interior of the mould after removal. Otherwise the test shall be invalidated and shall be repeated.

3.4.2 The handle of the flow table shall be turned steadily and evenly at the rate of approximately one turn per second, without jerking or lingering at any point in a revolution. The average spread of the material shall be determined by measuring three diameters at approximately 60° apart and taking the average. Care shall be taken to avoid any undue exposure of the material.

3.5 Evaluation — The workability shall be estimated by noting the number of bumps required to attain an average spread to 190 mm, the material having been already adjusted to standard consistency as indicated under **3.2.4** by the spread after one bump to 110 mm.

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