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Part X: Determination of Popping and Pitting of Hydrated  
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*Indian Standard*

**METHODS OF TESTS FOR BUILDING LIMES**

**PART X DETERMINATION OF POPPING AND  
PITTING OF HYDRATED LIME**

( Third Reprint MARCH 1993 )

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**BUREAU OF INDIAN STANDARDS**  
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**NEW DELHI 110002**

# *Indian Standard*

## METHODS OF TESTS FOR BUILDING LIMES

### PART X DETERMINATION OF POPPING AND PITTING OF HYDRATED LIME

## 0. FOREWORD

**0.1** This Indian Standard ( Part X ) 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 popping and pitting 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\*.

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## 1. SCOPE

**1.1** This standard ( Part X ) covers the method of test for determination of popping and pitting of hydrated lime.

## 2. GENERAL

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

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

†Specification for building limes ( second revision ).

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

### **3.3 TEST FOR POPPING AND PITTING**

**3.1 Gauging Plaster** — The gauging plaster used for popping and pitting test when gauged with 50 percent of its own mass of distilled water and tested by the Vicat needle in accordance with IS: 4031-1968† shall have an initial setting time of not less than 15 minutes. The gauging plaster shall be free from pops and pits. Fresh, fine, white and good quality plaster of Paris which shows no pops or pits when tested without lime may be used.

### **3.2 Procedure**

**3.2.1** Four test specimens shall be separately prepared in the manner described under **3.2.1.1** to **3.2.1.8**.

**3.2.1.1** Mix thoroughly 70 g of the hydrated lime under test with 70 ml of clean water at a temperature  $27 \pm 3^{\circ}\text{C}$  and allow to soak for 2 hours.

**3.2.1.2** At the expiration of 2 hours, the lime putty thus obtained shall be thoroughly mixed and 'knocked up' with a trowel, if necessary, with a small additional amount of clean water, so as to obtain a plastic mass; it shall then be spread out on a non-porous surface, 10 g of approved grade plaster of Paris shall then be added, the plaster being scattered evenly over the putty, and the whole shall be mixed with the trowel rapidly and thoroughly for 2 minutes.

**3.2.1.3** A flat pat shall then be formed by pressing the gauged material into a ring mould 10.0 cm in diameter and 0.5 cm deep, greased inside and resting on a well-greased non-porous plate. One gram of petroleum jelly per pat is suitable for greasing when renewed each time.

**3.2.1.4** The gauged putty shall be pressed in small quantities at a time, with the aid of a broad palette knife or spatula, in such a manner as to avoid air bubbles. It shall then be smoothed off in level with the top edge of the ring with not more than 12 strokes of the knife, any excess material being removed in this process. The total time shall not exceed 5 minutes from the time of adding the plaster of Paris to the last stroke of the knife for any one pat.

**3.2.1.5** The 4 pats thus formed shall be left to set for half an hour. They shall then be transferred on their base-plates with or without their ring mould to a well ventilated drying-oven maintained at a temperature between 35 and 45°C to be well dried. A period or periods amounting to a total of 16 hours should be ample for this purpose but a minimum of 4 hours suffices in many cases.

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

†Methods of physical tests for hydraulic cement.

**3.2.1.6** The pats may be left in the oven either before drying or between the periods of drying.

**3.2.1.7** Any test pats which show shrinkage cracks before steaming shall be rejected and replaced by fresh pats.

**3.2.1.8** The 4 pats, still on their base-plates, shall be placed horizontally in a suitable steam boiler in which the water is already boiling, and subjected to the action of saturated steam at atmospheric pressure for a period of 3 hours. The steaming vessel shall be so arranged that condensed water cannot drip back on to the face of the pats.

**3.2.2** The pats shall then be examined in a good light for disintegration, popping or pitting.

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