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(Reaffirmed 1995)

Indian Standard

METHODS OF TESTS FOR BUILDING LIMES

PART III DETERMINATION OF RESIDUE ON SLAKING OF QUICKLIME

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BUREAU OF INDIAN STANDARDS
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0. FOREWORD

0.1 This Indian Standard (Part III) 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 residue on slaking of quicklime.

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 III) covers the method of test for determination of residue on slaking of quicklime including isothermal slaking of the sample.

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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2.3 Isothermal Slaking of Sample and Preparation of Putty

2.3.1 The sample of quicklime shall be sieved through 2·36-mm IS Sieve (conforming to IS : 460-1962*) and the residue, if any, shall be broken in a manner so as to avoid undue production of fines and again sieved through 2·36-mm IS Sieve until the whole quantity passes through that sieve. This sample of lime shall be slaked isothermally by immersing in hot water maintained at a substantially uniform temperature during the actual slaking process in accordance with method specified in **2.3.1.1**. The quantity of water required for slaking shall be equal to 4 times the mass of quicklime for the majority of limes. However, with certain high calcium limes of high volume yield it may be found necessary to use 8 times the mass of the lime in order to obtain a product which could be conveniently handled.

2.3.1.1 When a slaking temperature has been specified by the vendor, place a sufficient quantity of water as specified in **2.3.1** in a large clean metal vessel (for example, a large circular bin approximately 45 cm in diameter and 50 cm deep) equipped with a thermometer, reading to 1°C and with means for heating. Adjust the temperature of water to within ±2°C of the specified temperature, add 5 kg of the crushed quicklime sample in small quantities at a time, and then stir constantly and thoroughly at such a rate that not less than 5 minutes are required to introduce the whole quantity. During this process and a total period of 1 hour, control the temperature of the mixture to within ±2°C of the specified isothermal temperature by the addition of cold water or by the application of heat. Spray through a rose, whilst stirring rapidly, any such additional water so as to avoid excessive local chilling of the mixture. Allow the product to stand for 24 hours from the time the quicklime was added to water and allow to cool gradually to room temperature during this period. Thoroughly stir it with a wooden stirrer at least twice during this period. The last stirring shall, however, be done within one hour before the expiration of the 24 hours.

Where a slaking temperature has not been specified by the vendor, carry out slaking on two separate quantities, each of 5 kg of crushed quicklime, but with the temperature of water adjusted to and maintained at 50°C in one case and 100 ± 2°C in the other case.

2.4 Procedure — The product obtained after slaking on expiry of 24 hours shall be used. Sieve first the supernatant liquid and then the remainder after stirring thoroughly with a wooden stirrer through 850-micron IS Sieve and then through 300-micron IS Sieve into a vessel similar to that used for the slaking. Fit the vessel with a temporary filter cloth such as a rectangular sheet of close woven unbleached calico of size about 1·0 × 1·5 m which has been previously washed free from dressing. Take special care to see that the

*Specification for test sieves (*revised*).

contents of the slaking vessel are completely transferred on to the sieves by washing out the slaking vessel with a jet of water. Wash the residues on both the sieves with a moderate jet of water from a flexible tube, the whole operation taking not more than 30 minutes. The residue shall not be rubbed through the sieves. Dry the residue at 100 $\pm$10 °C to constant mass. Weigh separately the residue on each of the sieves.

2.5 Report of Test Results — The residues on the respective sieves shall be reported as the percentage of mass of quicklime taken for the test.

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