

Masonry units — Methods of test

Part 11:

Determination of water absorption of clay and calcium silicate masonry units by cold-water absorption

DKS 2802-11:2019

TECHNICAL COMMITTEE REPRESENTATION

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National Housing Corporation
Kenya Clay Products Ltd
Coast Clay Works Ltd
Consumer Information Network
University of Nairobi
Kenya Industrial Research & Development Institute
Architectural Association of Kenya
M&O Consulting Engineers
Kenya Association of Manufacturers,
Kenya National Federation of Jua Kali Association
Lake Basin Development Authority
Kenya Bureau of Standards — Secretariat

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Foreword

This Kenya Standard was prepared by the Clay and Clay Products Technical Committee under the guidance of the Standards Projects Committee and in accordance with the procedures of the Kenya Bureau of Standards.

During the development of this standard, reference was made to the following documents:

BS EN 772-21:2011 Methods of test for masonry units - Part 21: Determination of water absorption of clay and calcium silicate masonry units by cold water absorption.

Acknowledgement is hereby made for the assistance received from these sources.

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Masonry units — Methods of test

Part 11:

Determination of water absorption of clay and calcium silicate masonry units by cold - water absorption

1. Scope

This Kenyan Standard specifies a method of determining the water absorption of clay and calcium silicate masonry units by immersing them in cold water.

2. Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DKS 2801-1, Specification for masonry units - Part 1: Clay masonry units

EN 771-2, Specification for masonry units - Part 2: Calcium silicate masonry units

EN 771-3, Specification for masonry units - Part 3: Aggregate concrete masonry units (Dense and light-weight aggregates)

EN 771-4, Specification for masonry units - Part 4: Autoclaved aerated concrete masonry units

EN 771-5, Specification for masonry units - Part 5: Manufactured stone masonry units

EN 771-6, Specification for masonry units - Part 6: Natural stone masonry units

3. Principle

After drying to constant mass a masonry unit is immersed in water for 24 h and the increase in mass is determined.

4. Symbols

M_d is the mass of the specimen after drying (g);

M_s is the mass of the specimen after soaking (g);

W_s is the water absorption of the specimen (%).

5. Apparatus

5.1. Water tank large enough to contain all of the samples, supported off the base of the tank so that water is in contact with all the faces of the specimen.

5.2. Ventilated oven capable of maintaining a temperature of $105\text{ °C} \pm 5\text{ °C}$.

5.3. Weighing instrument capable of weighing the specimens to an accuracy of 0, 1 % of their mass when dry.

6. Preparation

6.1. Sampling

The method of sampling shall be in accordance with the relevant part of DKS 2801.

The minimum number of specimens shall be six, but a larger minimum number may be specified in the product specification, in which case that larger number shall be used.

6.2. Drying

Dry the test specimens to constant mass M_d in a ventilated oven (5.2) at a temperature of $105\text{ °C} \pm 5\text{ °C}$. Constant mass is reached if, during the drying process in two subsequent weighings with not less than a 24 h interval, the loss in mass between the two determinations is not more than 0,2 % of the total mass. Allow the specimens to cool to ambient temperature before they are weighed.

7. Test procedure

Place each unit in the tank of water.

Leave clay units submerged for $24\text{ h} \pm 0,5\text{ h}$. Leave calcium silicate units submerged for $48\text{ h} \pm 0,5\text{ h}$. Take the units from the tank and remove any water from their surfaces using a damp cloth or sponge. Weigh the specimens and record their mass, M_5 .

8. Calculation of results

Calculate the water absorption W_s of each of the units to the nearest 1 %.

$$W_s = \frac{M_s - M_d}{M_d} \times 100\%$$

9. Evaluation of results

Calculate the mean water absorption to the nearest 1 %.

10. Test report

The test report shall contain the following information:

- number, title and date of issue of this Kenyan Standard;
- name of the organization that carried out the sampling and the method used;
- date of testing;
- description of the specimens to DKS 2801-1 or EN 771-2 as is relevant;
- number of specimens in the sample;
- mass of each specimen dry and after soaking;
- soaking period in hours;

- h) individual and mean water absorption values to the nearest 1 %;
- i) remarks, if any.

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