

KENYA STANDARD

KS 2177: 2017

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KS 2769-8:2018

**Admixtures for concrete, mortar and grout
—Test methods Part 8: Determination of the
conventional dry material content**

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The following organizations were represented on the Technical Committee:

1. Architectural Association of Kenya
2. Bamburi Cement
3. CHRYSO Eastern Africa Limited
4. Concrete Products (K)Ltd
5. Consumer Information Network
6. Howards Humpreys East Africa LTD
7. Institute of quantity surveyors of Kenya
8. Kenya Industrial Research and Development Institute (KIRDI)
9. Kenya Institute of Highways and Building Technology (KIHBT)
10. Ministry of Transport, Infrastructure, Housing and Urban Development.
11. National Environment Management Authority
12. National Housing Corporation
13. Technical University of Kenya
14. University of Nairobi
15. Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

In order to keep abreast of progress in industry, Kenya Standards shall be regularly reviewed. Suggestions for improvements to published standards, addressed to the Managing Director, Kenya Bureau of Standards, are welcome.

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Admixtures for concrete, mortar and grout —Test methods Part 8: Determination of the conventional dry material content

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Foreword

This Kenya Standard was revised by the Concrete Technical Committee, under the guidance of the standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

This Kenya Standard is part of the series KS 2769 Admixtures for concrete, mortar and grout — Test methods which comprise the following:

- Part 1: Reference concrete and reference mortar for testing
- Part 2: Determination of setting time
- Part 4: Determination of bleeding of concrete
- Part 5: Determination of capillary absorption
- Part 6: Infrared analysis
- Part 8: Determination of the conventional dry material content
- Part 10: Determination of water soluble chloride content
- Part 11: Determination of air void characteristics in hardened concrete
- Part 12: Determination of the alkali content of admixtures
- Part 13: Reference masonry mortar for testing mortar admixtures
- Part 14: Determination of the effect on corrosion susceptibility of reinforcing steel by potentiostatic Electro-chemical test
- Part 15: Reference concrete and method for testing viscosity modifying admixtures

This standard is applicable together with the standards of the series KS 2770 Admixtures for concrete, mortar and grout.

Admixtures for concrete, mortar and grout — Test methods Part 8: Determination of the conventional dry material content

1. Scope

This Standard describes a method for determining the conventional dry material content of an admixture.

2. Principle

A sample of admixture is dried in an oven at $(105 + 3)$ °C until a constant weight is reached.

In the case of a liquid admixture this method shall be used to characterize the dry material content. For a powder admixture this method shall be used to determine the actual mass of the dried powder.

NOTE This method is not suitable for determining the absolute solids content.

3. Apparatus

- 3.1. Weighing bottle, squat form, wide-mouthed with ground glass stopper or evaporating basin with a flat bottom and approximately 75 mm diameter X 45 mm depth.
- 3.2. Desiccator, containing an efficient desiccant.
- 3.3. Drying Oven with forced ventilation, thermostatically controlled at $(105 + 3)$ °C, fitted with a temperature indicating device.

The required temperature range shall be maintained throughout all parts of the oven used for this test.

NOTE Forced ventilation is necessary to ensure uniform temperature throughout the oven.

- 3.4. Balance, with a resolution of 0.5 mg.

4. Procedure

Heat the weighing bottle with the stopper removed, or the evaporating basin, for at least one hour in a drying oven at $(105 + 3)$ °C. After cooling for 30 min in a desiccator weigh the weighing bottles with stopper inserted, or the evaporating basin. Repeat this procedure until the mass of the vessel is constant within a range of 1 mg.

Spread $(2.0 + 0.2)$ g of the sample in a uniform layer on the bottom of the vessel and weigh to the nearest 1 mg).

NOTE 1 In order to obtain reproducible results it is essential that the mass of the dried residue or of the dried powder will be significant in relation to the mass of the vessel and the mass of the sample.

Heat the weighing bottle and contents and the stopper with stopper removed, or the evaporating basin and contents, in the oven at $(105 + 3)$ °C for a minimum of 1 h. Insert the stopper and transfer the weighing bottle, or evaporating basin, to the desiccator. Allow to cool in the desiccator with the stopper removed. Insert the stopper and weigh the weighing bottle, or evaporating basin, to the nearest 1 mg. Repeat the heating for at least 30 min, allow to cool in the desiccator and again weigh to the nearest 1 mg. Repeat the heating and cooling until two successive weighings differ by no more than 2 mg. Record the lower mass.

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Repeat the weighing and drying procedure using a fresh specimen from the same sample in order to obtain duplicate results.

Note 2 If this test method is not suitable; the manufacturer should specify a documented alternative test method (see KS 2770-1)

5. Results

The following formula shall be used to calculate the results:

$$\text{Dry material content} = \frac{R}{M} \times 100 \%$$

R is the mass of the residue in grams;

M is the mass of admixture in grams;

X is the dry material content in percent by mass.

For an average dry material content $\leq 20 \%$ the difference between the two results shall not exceed average dry material content multiplied by 0.04. For an average dry material content $> 20 \%$ the difference between the two results shall not exceed 0.80 % by mass.

If these differences are exceeded duplicate tests shall be repeated until the results agree within the maximum permitted difference.

6. Test report

This shall include at least the following:

- a) a reference to this document (KS 2769 -8);
- b) name or code of admixture tested (with information related to its marking);
- c) date of the test;
- d) name of the laboratory;
- e) name of the operator;
- f) type of vessel in which specimens dried;
- g) origin of the sample and date when taken;
- h) dry material content as mean of duplicate test results to 0.1 % by mass.