INTERNATIONAL STANDARD 3340

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Fibre building boards — Determination of sand content

Panneaux de fibres — Détermination de la teneur en sable

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3340 was drawn up by Technical Committee ISO/TC 89, *Fibre building boards,* and circulated to the Member Bodies in February 1974.

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It has been approved by the Member Bodies of the following countries :

Austria	India	South Africa, Rep. of
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Bulgaria	Ireland	Sweden
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Chile	Netherlands	Thailand
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The Member Body of the following country expressed disapproval of the document on technical grounds :

Germany

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Fibre building boards — Determination of sand content

1 SCOPE

This International Standard specifies a method for determining the sand content in fibre building boards, to obtain an indication of their machinability by cutting tools.

NOTE — The origin of sand is from extraneous sources. Only siliceous particles greater than 40 μm are considered to be damaging.

2 FIELD OF APPLICATION

This International Standard applies to hard and medium fibre building boards.

3 REFERENCES

ISO 818, *Fibre building boards — Definition — Classification.*

ISO . . . , *Fibre building boards — Sampling, cutting and inspection.*[1)]

4 DEFINITION

See ISO 818.

5 PRINCIPLE

Complete combustion of test pieces and determination of the sand content by weighing.

6 REAGENTS

6.1 Hydrochloric acid, concentrated, ρ 1,18 g/ml, about 36 % (*m/m*).

6.2 Distilled water.

7 APPARATUS

Ordinary laboratory apparatus and :

7.1 Balance, accurate to 0,001 g.

7.2 Tubular hearth, in accordance with the figure.

7.3 Muffle furnace regulated at a temperature between 500 and 600 °C, with an arrangement for ventilation.

7.4 Desiccator, containing silica gel.

7.5 Oven, regulated at 103 ± 2 °C.

7.6 Bunsen burner.

7.7 Water bath at 75 °C.

7.8 Evaporating dish, capacity 400 ml.

7.9 Glass beaker, capacity 250 ml.

7.10 Measuring cylinder, capacity 100 ml.

7.11 Nylon mesh, 40 μm mesh (35 μm is acceptable).

7.12 Sintered glass filter crucible, porosity 4.

7.13 Glass rod.

7.14 Crucible tongs.

7.15 Bottle with spout.

8 SAMPLING

Determine the number of samples in accordance with the method given in ISO . . .

Take at random, by drawing lots, strips each 10 mm wide, across the full width of the boards.

1) In preparation.

9 PROCEDURE

Condition the test pieces to constant mass[1] in standard atmospheric conditions, i.e. temperature 20 ± 2 °C and relative humidity 65 ± 5 %.

Break the test pieces into pieces not more than 20 mm long and mix them. Under standard atmospheric conditions, weigh 200 ± 2 g of board, place in the tubular hearth (7.2) and ignite.

Collect the ash and charred remains in the evaporating dish (7.8), placed under the hearth, and burn completely in the muffle furnace (7.3) between 500 and 600 °C for about 3 h, after which no carbonaceous matter should remain. Transfer the dry ash to the glass beaker (7.9). Clean the evaporating dish carefully with 50 ml of the hydrochloric acid (6.1) and pour the acid into the beaker. Heat the beaker in the water bath (7.7) to 75 °C and then add 100 ml of the distilled water (6.2). Stir the remaining solids (the sand) and then allow to settle for 10 min. Pour off the hydrochloric acid carefully from the sand, leaving only a few millilitres. Add 150 ml of the distilled water and filter the stirred mixture through the nylon sieve (7.11).

Particles below 40 μm size which are washed through the nylon sieve are not relevant to the sand content and the blunting effect on saws.

Stir the sand with the glass rod (7.13) and rinse with distilled water from the wash bottle. Heat an empty sintered glass filter crucible (7.12) in the oven (7.5) to 103 ± 2 °C. Allow it to cool for 30 min in the desiccator (7.4), and weigh. Flush the sand into the crucible and remove the water by suction. Allow the crucible containing the sand to dry for 1 h in the oven (7.5) at 103 ± 2 °C, cool for 10 min in the desiccator and weigh.

10 EXPRESSION OF RESULTS

The sand content, expressed as a percentage of the dry mass of the board, is given by the formula

$$\frac{m_2 - m_1}{m_0} \times 100$$

where

m_0 is the mass, in grams, of the conditioned board;

m_1 is the mass, in grams, of the empty crucible;

m_2 is the mass, in grams, of the crucible and the collected sand.

11 TEST REPORT

The test report shall include the following particulars :

a) the sand content for each board and the total mean quantity for each batch;

b) the size of the test batch and the number of sample boards;

c) all necessary information for the complete identification of the sample;

d) all operational details not mentioned in this International Standard or optional, as well as any incidents likely to have had an influence on the result.

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1) Constant mass is considered to be reached when the results of two successive weighing operations, carried out at an interval of 24 h, do not differ by more than 0,1 % of the mass of the test piece.