



Test Method for Determining Moisture Content, Water Absorption and Thickness Swell of Fiberboards, Chipboards, Cardboard, and Similar Rigid Materials

1 Introduction

Note: Nothing in this standard supercedes applicable laws and regulations.

Note: In the event of conflict between the English and domestic language, the English language shall take precedence.

1.1 Purpose. This standard shall be used for the determination of moisture content, water absorption, and thickness swell of fiberboards, chipboards, cardboards and similar materials.

1.2 Applicability. Fiberboard, Chipboard, Cardboard, and similar Rigid Materials.

2 References

Note: Only the latest approved standards are applicable unless otherwise specified.

2.1 External Standards/Specifications.

ISO 5084

2.2 GM Standards/Specifications.

GMW3221

3 Resources

3.1 Facilities.

3.1.1 Calibration. The test facilities and equipment shall be in good working order and shall have a valid calibration label.

3.1.2 Alternatives. Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

3.2 Equipment.

3.2.1 Suitable punching devices, saws etc. for preparation of test pieces.

3.2.2 Suitable vessel for soaking the test pieces.

3.2.3 Glass or stainless-steel rods for supporting test pieces.

3.2.4 Suitable sinkers such as lead, or other suitable dense metal, sinkers shown in Figure 1.

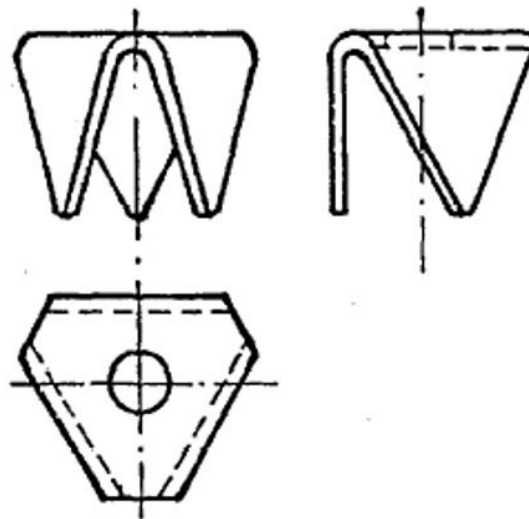
3.2.5 Balance accurate to ± 1 mg.

3.2.6 Desiccator.

3.2.7 Textile Thickness Gauge in accordance with ISO 5084.

3.2.8 Mechanical Convection Oven capable of maintaining the required temperature ± 3 °C

Figure 1: Suitable Sinkers



3.3 Test Vehicle/Test Piece. From the material to be tested, square test pieces of (100 ± 1) mm side length shall be taken from various points, if possible equally distributed over the whole area. The test pieces shall be taken parallel to an outer edge where possible. For initial sample approval and arbitration purposes at least 5 test pieces, and for routine quality control at least 3 test pieces shall be tested.

3.4 Test Time.

Calendar time: 3 d

Test time: 3 h

Coordination time: 3 h

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Personnel trained in accordance with the laboratory accreditation and Standard Operating Procedure requirements.

4 Procedure

4.1 Preparation. The test shall be carried out immediately after cutting test pieces and without conditioning, in the as received condition (i.e., no special preconditioning).

4.2 Conditions.

4.2.1 Environmental Conditions. See 4.3.

4.2.2 Test Conditions. Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

4.3 Instructions.

4.3.1 Determination of the Moisture Content.

4.3.1.1 The test pieces shall be weighed to the nearest 1 mg. If immediate weighing is not possible, the test pieces shall be protected against any change of the moisture content (e.g., by storing in airtight containers, polyethylene bags, wrapping in aluminum foil) prior to weighing.

4.3.1.2 After weighing, the test pieces shall be dried for 24 h at $(+105 \pm 3)$ °C in the oven.

4.3.1.3 After removal from the oven, the test pieces shall be cooled in the desiccator for $1 \text{ h} \pm 5$ minutes at $(+23 \pm 5)$ °C and subsequently be weighed to the nearest 1 mg.

4.3.2 Determination of Water Absorption and Thickness Swell.

4.3.2.1 The tests shall be performed immediately after conditioning in accordance with GMW3221 Code A. The test pieces shall be weighed to the nearest 1 mg.