INTERNATIONAL STANDARD 3130

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION · МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ · ORGANISATION INTERNATIONALE DE NORMALISATION

Wood — Determination of moisture content for physical and mechanical tests

Bois — Détermination de l'humidité en vue des essais physiques et mécaniques

First edition — 1975-11-01

UDC 674.03 : 543.812

Ref. No. ISO 3130-1975 (E)

Descriptors : wood, tests, determination of content, humidity, physical tests, mechanical tests.

Price based on 2 pages

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 caried 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 3130 was drawn up by Technical Committee ISO/TC 55, *Sawn timber and sawlogs*, and circulated to the Member Bodies in June 1973.

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

Australia	Germany	Poland
Austria	Hungary	Romania
Belgium	India	South Africa, Rep. of
Bulgaria	Ireland	Sweden
Canada	Italy	Thailand
Chile	Japan	Turkey
Czechoslovakia	Mexico	United Kingdom
Egypt, Arab Rep. of	Netherlands	U.S.S.R.
France	Norway	Yugoslavia

No Member Body expressed disapproval of the document.

Printed in Switzerland

Wood — Determination of moisture content for physical and mechanical tests

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for determining the moisture content of wood for physical and mechanical tests.

2 REFERENCE

ISO 3129, *Wood — Sampling methods and general requirements for physical and mechanical tests.*

3 PRINCIPLE

Determination, by weighing, of the loss in mass of the test piece on drying to constant mass. Calculation of the loss in mass as a percentage of the mass of the test piece after drying.

4 APPARATUS

4.1 Balance capable of weighing to an accuracy of 0,01 g (or 0,001 g for testing under 6.5).

4.2 Equipment capable of drying wood to absolutely dry condition.

4.3 Flasks with ground glass necks, and **stoppers** or other equipment, for ensuring the retention of moisture in the test pieces.

4.4 Desiccator containing an absorbent for drying air as completely possible.

5 PREPARATION OF TEST PIECES

5.1 Test pieces for determination of moisture content shall be prepared from material selected in accordance with ISO 3129, and made preferably in the form of right prisms having a square cross-section of side 20 mm and length along the grain of 25 ± 5 mm. After preparation, the test pieces shall be conditioned in accordance with 4.6 of ISO 3129 and stored under conditions which ensure that their moisture content remains unchanged.

5.2 It is recommended that the moisture content be determined on the test pieces made for other tests or on samples cut from them. The form, dimensions and method of taking samples from test pieces as well as the minimum number of test pieces for the determination of the mean moisture content of the test pieces are specified in ISO 3129.

6 PROCEDURE

6.1 Weigh the test piece to an accuracy of 0,5 % of its mass in the absolutely dry condition.

6.2 Dry the test piece to constant mass at a temperature of 103 ± 2 °C.

Constant mass is considered to be reached if the loss in mass between two successive weighings carried out at an interval of 6 h is equal to or less than 0,5 % of the mass of the test piece.

6.3 Test pieces of wood species containing volatile organic substances (resins, gums, etc.) in quantities exceeding the error of the determination shall be vacuum-dried.

6.4 After cooling the test piece in a desiccator, weigh it rapidly enough to avoid an increase in moisture content by more than 0,1 %. The accuracy of weighing shall be at least 0,5 % of the mass of the test piece.

6.5 If it is necessary (special types of tests) to determine the moisture content to an accuracy of 0,1 %, dry the test pieces in flasks according to 6.2. Determine the masses of the flasks containing the test pieces to the nearest 0,005 g.

7 CALCULATION AND EXPRESSION OF RESULTS

7.1 The moisture content, W, of each test piece, as a percentage by mass, shall be calculated to an accuracy of 1 % from the formula :

$$W = \frac{m_1 - m_2}{m_2} \times 100$$

where

m_1 is the mass, in grams, of the test piece before drying;

m_2 is the mass, in grams, of the test piece after drying.

7.2 If it is necessary to determine the moisture content to an accuracy of 0,1 % using flasks, the following formula shall be used :

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

where

m_0 is the mass, in grams, of the flask;

m_1 is the mass, in grams, of the flask containing the test piece before drying;

m_2 is the mass, in grams, of the flask containing the test piece after drying.

7.3 Calculate the arithmetic mean of the results obtained for the individual test pieces and report this as the average value for the moisture content of the test pieces.

8 TEST REPORT

The test report shall include the following particulars :

a) a reference to this International Standard;

b) details concerning sampling of the test pieces;

c) details in accordance with clause 7 of ISO 3129;

d) the test results, calculated as specified in clause 7, and their statistical values.