



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 1927.10-2021

**Test methods for physical and mechanical properties of small
clear wood specimens - Part 10: Determination of modulus of
elasticity in bending**

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Table of Contents

foreword

Introduction

1 Scope

2 Normative references

3 Terms and Definitions

4 Principles

5 Test equipment

6 samples

foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents"

drafted:

This document is part 10 of GB/T 1927 "Test Methods for Physical and Mechanical Properties of Small Specimens of Wood without Defects": GB/T 1927 has been issued

The following parts are distributed:

- Part 1: Collection of test materials;
- Part 2: Sampling methods and general requirements;
- Part 3: Determination of growth ring width and latewood rate;
- Part 4: Determination of moisture content;
- Part 5: Density determination;
- Part 6: Determination of dry shrinkage;
- Part 7: Determination of water absorption;
- Part 8: Determination of swelling properties;
- Part 9: Determination of flexural strength;
- Part 10: Determination of flexural modulus of elasticity;
- Part 12: Determination of transverse grain compressive strength;
- Part 17: Determination of impact toughness;

--- Part 18: Determination of impact indentation;

--- Part 19: Determination of hardness;

--- Part 20: Determination of splitting resistance:

This document replaces GB/T 1936:2-2009 "Determination of flexural modulus of elasticity of wood", compared with GB/T 1936:2-2009, except

In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) terms and definitions are added (see Chapter 3);
- b) Added the requirement for moisture content of the sample (see 6:2);
- c) Changed the schematic diagram of flexural elastic modulus test (see Figure 1, Figure 1 of the:2009 edition);
- d) Changed the applicable moisture content range for the flexural modulus of elasticity when the air-dried wood sample is converted to a moisture content of 12% (see 8:2,:2009): version 7:3);
- e) The calculation accuracy requirements for the mean and standard deviation of the flexural modulus of elasticity have been added (see 8:3);
- f) Added the test result record requirements (see 9:1), and changed the test report content requirements (see 9:2, Chapter 8 of the:2009 edition):

This document is modified to adopt ISO 13061-4:2014 "Test methods for the physical and mechanical properties of wood with defect-free small specimens - Part 4: Static bending

Determination of Flexural Modulus of Elasticity:

Compared with ISO 13061-4:2014, this document has made the following structural adjustments:

---5:2 corresponds to 5:2 and 5:3 in ISO 13061-4:2014, 5:3~5:5 corresponds to 5:4~5:6 in ISO 13061-4:2014;

---7:1 corresponds to 7:1, 7:2 in ISO 13061-4:2014, 7:2~7:5 corresponds to 7:3~7:6 in ISO 13061-4:2014;

--- Added 9:1, 9:2 corresponding to Chapter 9 in ISO 13061-4:2014:

The technical differences between this document and ISO 13061-4:2014 and their reasons are as follows:

--- Regarding normative reference documents, this document has made adjustments with technical differences to adapt to the technical conditions of our country and the

circumstances of the adjustment:

The situation is reflected in Chapter 2 "Normative References", and the specific adjustments are as follows:

- * Replace ISO 3129 with GB/T 1927:2-2021 which is modified to adopt international standard;
- * Replace ISO 13061-1 with GB/T 1927:4 which is modified to adopt international standard;
- * Replaced ISO 24294 with LY/T 1788:
 - Changed the requirements for testing machines, testing devices, indenters, measuring instruments, and displacement measuring devices in International Standards 5:1~5:5;
 - Changed the sample size requirements in International Standard 6:1:2;
 - Changed the requirements for adjustment of moisture content of air-dried wood samples in International Standard 6:2:3;
 - Changed the test procedure in Chapter 7 of the International Standard;
 - Modified the calculation method of flexural modulus of elasticity and the accuracy requirements of calculation results in International Standard 8:1;
 - Changed the calculation requirements for flexural modulus of elasticity when the moisture content is 12% in International Standard 8:2;
 - Changed the accuracy requirements for the calculation results of the mean value and standard deviation of the flexural modulus of elasticity in International Standard 8:3;
 - Added 9:1 test result record;
 - Delete the content of the method and coefficient used to adjust the sample density and results to 12% moisture content in the test report in Chapter 9 of the International Standard

Require:

The following editorial changes have been made to this document:

- In order to harmonize with the existing standards, the name of the standard is changed to "Test methods for physical and mechanical properties of wood with small samples without defects - Part 10: Resistance to

Determination of Flexural Modulus of Elasticity";

- Added Appendix A (Informative) Determination Record Table of Timber Flexural Modulus of Elasticity:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

The standard of test methods for physical and mechanical properties of wood is used in wood scientific research, teaching, wood inspection, wood structure design, wood processing and production, etc:

It is widely used and is an important basic standard in the wood industry: In 1980, my country issued the first edition of the test methods for physical and mechanical properties of wood:

The domestic standard (GB/T 1927~GB/T 1943) was revised twice in:1991 and:2009 respectively: In recent years, with the development of wood science and technology

The development of technology, ISO 3129:2012 "Sampling methods for wood physical and mechanical tests of small samples of wood without defects and

"General Requirements" has been revised, ISO 3130:1975 "Determination of moisture content by physical and mechanical tests of wood", ISO 3131:1975 "Wood

15 international standards for test methods such as "Determination of Density in Physical and Mechanical Tests" have been integrated and revised: Based on this, in order to be in line with international standards, this time

The third revision was made to the national standard for test methods for physical and mechanical properties of wood in my country, and the 22 scattered test methods were integrated and adjusted to

The sub-part document of GB/T 1927 adopts the latest version of the international standard in the revision:

GB/T 1927 aims to establish a test method for the physical and mechanical properties of small sample wood without flaws, and is intended to be composed of 21 parts:

--- Part 1: Collection of test materials: The purpose is to describe the sample collection method for testing the physical and mechanical properties of wood with small samples without defects:

--- Part 2: Sampling methods and general requirements: The purpose is to establish a suitable test for the physical and mechanical properties of small wood samples without defects:

Specimen sawing, interception methods and general requirements to be observed when testing methods:

--- Part 3: Determination of growth ring width and latewood rate: The purpose is to characterize the growth ring width and latewood rate of small samples of clear wood

method of measurement: