



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

GB/T 1927.9-2021

**Test methods for physical and mechanical properties of small
clear wood specimens - Part 9: Determination of bending
strength**

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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 9 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 1936:1-2009 "Test method for flexural strength of wood":
Compared with GB/T 1936:1-2009, except for structural adjustment

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

- a) terms and definitions are added (see Chapter 3);
- b) The schematic diagram of the bending strength test including the test equipment and sample requirements has been added (see Figure 1);
- c) Added requirements for moisture content of samples (see 6:2);
- d) Modified the moisture content range for the flexural strength conversion of air-dried wood samples (see 8:2, 7:2 of the:2009 edition);
- e) The calculation accuracy requirements for the mean and standard deviation of the flexural strength 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 13061-3:2014 "Test methods for the physical and mechanical properties of wood with small specimens without defects - Part 3: Static bending

Determination of ultimate bending strength:

This document has the following structural adjustments compared to ISO 13061-3:2014:

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

5:5 in ISO 13061-3:2014;

--- Added 9:1, 9:2 corresponding to Chapter 9 in ISO 13061-3:2014:

The technical differences between this document and ISO 13061-3:2014 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, and measuring instruments in International Standards 5:1~5:4;
 - Changed the sample size requirements in International Standard 6:1:2;
 - Changed the adjustment requirements for moisture content of air-dried wood samples in International Standard 6:2:3;
 - Changed the test procedure in Chapter 7 of the International Standard;
 - Changed the accuracy requirements for the calculation results of flexural strength in International Standard 8:1;
 - Changed the calculation requirements for flexural strength 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 strength 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 9: Resistance to

Bending Strength Measurement";

- Added Appendix A (Informative) Timber Flexural Strength Determination Record Table:

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 method for wood physical and mechanical testing of small samples of wood without defects"

Law and General Requirements" was revised to ISO 3130:1975 "Determination of moisture content by physical and mechanical tests of wood", ISO 3131:

In 1975, 15 international standards for test methods such as "Determination of Density in Physical and Mechanical Tests of Wood" were integrated and revised: Based on this, for the

In line with the standard, this time, the third revision of the national standard for test methods for physical and mechanical properties of wood in my country will be carried out, and 22 test methods will be scattered:

The integration is adjusted to the sub-part document of GB/T 1927, and the latest version of the international standard is adopted 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:

--- Part 4: Determination of moisture content: The purpose is to describe a method for the determination of the moisture content of small wood samples without defects:

--- Part 5: Density determination: The purpose is to describe the density, air-dry density,