

CCS B 68



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

GB/T 1927.8-2021

**Test methods for physical and mechanical properties of small
clear wood specimens - Part 8: Determination of swelling**

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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 8 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 1934.2-2009 "Wood Swelling Determination Method":
Compared with GB/T 1934.2-2009, the main technical

The changes are as follows:

- a) the chapter "Terms and Definitions" was added (Chapter 3);
- b) Changed the principle (see Chapter 4, Chapter 3 of the:2009 edition);
- c) Changed the provisions on the size of the sample (see 6:1, 5:2 of the:2009 edition);
- d) Added "Sample growth wheel tilt limit" (see 6:3);
- e) Added "measurement point mark" (see 6:4);
- f) Changed the criterion for reaching the air-dry state (see 7:1:2, 6:2 of the:2009 edition);
- g) Changed the criterion for reaching the saturated state (see 7:1:3, 6:3 of the:2009 edition);
- h) Changed the "result calculation formula" (see Chapter 7 of 8:2,:2009 edition);
- i) Changed the requirements for the preparation of test report content (see 9:2, 8:2 of the:2009 edition);
- j) Appendix A is changed to "Informative":

This document is modified to adopt ISO 13061-15:2017 "Test methods for the physical and mechanical properties of wood with small defect-free specimens - Part 15: Radial

Determination of Chordal Swelling" and ISO 13061-16:2017 "Test methods for small unblemished specimens for physical and mechanical properties of wood - Part 16: Volume Swelling Determination":

This document has the following structural adjustments compared to ISO 13061-15:2017 and ISO 13061-16:2017:

- a) Chapter 5 corresponds to Chapter 5 of ISO 13061-15 and 5:1 of ISO 13061-16;
- b) Chapter 6 corresponds to Chapter 6 of ISO 13061-15 and 5:2 of ISO 13061-16;
- c) 7:1 corresponds to Chapter 7 of ISO 13061-15;
- d) 7:2 corresponds to Chapter 8 of ISO 13061-15;
- e) 8:1 corresponds to 5:3 of ISO 13061-16;
- f) 8:1 corresponds to 5:4 of ISO 13061-16;

g) Clause 9 corresponds to Clause 9 of ISO 13061-15 and Clause 7 of ISO 13061-16:

The technical differences between this document and ISO 13061-15:2017 and ISO 13061-16:2017 and the main reasons are as follows:

- a) changed the source of terminology (see Chapter 3) to ensure professionalism and uniformity of terminology;
- b) Modified the drying step in the fully dry state (see 7:1:1) to improve scientificity;
- c) This document adds the provisions for the radial, chordwise and volumetric swellability of the specimen from the fully dry state to the air-dry state, because I

The historical version of the national standard has this test method, which has application value;

d) The drainage method in Chapter 6 of ISO 13061-16 is deleted, because the specific measurement method is not specified in the ISO standard:

The following editorial changes have been made to this document:

a) In order to harmonize with the existing standards, the name of the standard is changed to "Test methods for the physical and mechanical properties of wood with small samples without defects - Part 8: Wet

Expansion Determination";

b) Added Appendix A (informative):

Please note that some content of this document may involve patents, and the issuing authority of this document does not assume 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:

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

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

Methods for the determination of density and basic density:

--- Part 6: Determination of dry shrinkage: The purpose is to describe the measurement of radial, chordwise and volume drying shrinkage of unblemished small sample wood: determined method:

--- Part 7: Determination of water absorption: The purpose is to describe the determination method of 6h, 24h and the maximum water absorption rate of small sample wood without defect:

--- Part 8: Determination of swelling: The purpose is to describe the measurement of radial, chordwise and volumetric swell of unblemished small wood samples: