



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

**GB/T 1927.17-2021**

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**Test methods for physical and mechanical properties of small  
clear wood specimens - Part 17: Determination of impact  
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 17 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 1940-2009 "Test method for impact toughness of wood":  
Compared with GB/T 1940-2009, except for structural adjustment

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

- a) Changed the distance between the two supports of the sample to (240 $\pm$ 1) mm (see 5:1, 4:1 of the:2009 edition);
- b) It is added that the sample can be tested under the condition of green wood or air-dried wood (see 6:2);
- c) Added requirements for sample preservation after preparation (see 6:3);
- d) Deleted the value when the impact toughness of the specimen was adjusted to 12% moisture content (7:2 of the:2009 edition):

This document is modified to adopt ISO 13061-10:2017 "Test methods for the physical and mechanical properties of wood with small unblemished specimens - Part 10: Impact

Determination of Flexural Strength":

Compared with ISO 13061-10:2017, this document has the following structural adjustments:

---6:1 corresponds to 6:1, 6:2 in ISO 13061-10:2017; 6:2 corresponds to 6:3:1~6:3:3 in ISO 13061-10:2017; 6:3

Corresponds to 6:3:4 in ISO 13061-10:2017;

---7:1 corresponds to 7:1, 7:2 in ISO 13061-10:2017; 7:2 corresponds to 7:2, 7:3 in ISO 13061-10:2017; 7:3 corresponds to

7:4 in ISO 13061-10:2017;

--- Chapter 8 corresponds to 8:1 in ISO 13061-10:2017:

The technical differences between this document and ISO 13061-10:2017 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 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;
- \* Deleted ISO 13061-2, which has no relevant analysis or description with impact toughness:

--- Deleted the energy range requirements in International Standard 5:1, the test is highly maneuverable, and "should be broken once" is used in this document to achieve

Scope provisions:

--- Delete the equipment requirements for measuring density in International Standard 5:3, because there is no correlation between the measurement of density and impact toughness

analysis or description:

--- Changed the humidity requirements for air-drying samples in the environment in 6:3:3 of the international standard to be consistent with GB/T 1927:2-2021

The content of Chapter 5 remains the same:

--- Deleted the requirements for the recording of fracture forms and the requirements for conchoidal fractures in the test report in International Standard 7:3:

--- Delete the value of the impact toughness of the sample adjusted to the moisture content of 12% in International Standards 8:2 and 8:3, because the moisture content modification cannot be obtained:

positive coefficient, and the effect of moisture content on impact toughness is negligible:

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 17: Crush

Hit Toughness Test";

--- Added Appendix A (Informative) Wood Impact Toughness Test 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 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 determination:

--- 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, absolute dry