



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

GB/T 1927.19-2021

**Test methods for physical and mechanical properties of small
clear wood specimens - Part 19: Determination of static
hardness**

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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 19 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 1941-2009 "Wood Hardness Test Method": Compared with GB/T 1941-2009, except for structural adjustment and compilation

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

- a) terms and definitions are added (see Chapter 3);
- b) The principle part clarifies that the hardness is expressed by the resistance during pressing (see Chapter 4, Chapter 3 of the:2009 edition);
- c) Changed the requirements for sample size (see 6:2, 5:2 of the:2009 edition);
- d) The requirements for the density measurement equipment for hardness measurement samples are added (see 5:3);
- e) Added the description and requirements that the moisture content of the sample can be wet wood (see 6:3);
- f) Deleted "6:1 Before the test, the accuracy of the measurement and display of the indentation depth of the test equipment should be checked:" (See the:2009 edition of 6:1);
- g) Deleted "6:2 Each specimen shall be tested on two chord surfaces, two radial surfaces and two end surfaces respectively:" (see:2009 version 6:2);
- h) The requirements for the accuracy of load readings have been changed (see 7:1, 6:3 of the:2009 edition);
- i) Added the sampling requirements for the samples used for the measurement of moisture content and density after the hardness test (see 7:2);
- j) Deleted "The average value of the test results of the two chord surfaces, the two radial surfaces and the two end surfaces of the sample is taken as the hardness of each surface of the sample:
degrees" (see:2009 edition 7:2);
- k) Changed the accuracy requirements for hardness results (see 8:1 and 8:2, 7:1 and 7:3 of the:2009 edition);
- l) Added the specific content of the test result record and report (see Chapter 9);
- m) The sample size, steel ball depth, density sample, etc: have been added to the wood hardness test record table, and changed from the normative appendix

It is an informative appendix (see Appendix A, Appendix A of the:2009 edition):

This document is modified to adopt ISO 13061-12:2017 "Test methods for the physical and mechanical properties of wood with flawless small specimens - Part 12: Hardness

Measurement":

The technical differences between this document and ISO 13061-12:2017 and the main reasons are as follows:

a) Normative references, using the corresponding national standards: Because of normative references listed in ISO 13061-12:2017

ISO 3129, ISO 13061-1 and ISO 13061-2 have been adopted by national standards; ISO 13061-12:2017 related inclusions

In the vocabulary of ISO 24294, LY/T 1788 has been included:

b) Added a schematic diagram of the equipment (see Figure 1): Continue to use the schematic diagram of the:2009 version, which is conducive to understanding the test equipment and operation

step:

c) The water content correction coefficient of formula (2) is specified as 0.03: The moisture content correction coefficient of the:2009 version of the national standard is used, which is convenient for

Conversion of hardness for different moisture contents:

d) The method of converting the result to a moisture content of 12% has been deleted from the recording and reporting of test results (see Chapter 9): Because of the ISO standard

No correction factor for water cut is given, and this document has made it clear that the correction factor for water cut is 0.03:

The following editorial changes have been made to this document:

--- In order to harmonize with 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 19: Hard

degree measurement":

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 in:1991 and:2009 respectively: In recent years, with the development of wood science and technology

Development, International Organization for Standardization (ISO) on ISO 3129:2012 "Sampling methods and general

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

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

The third revision of the national standard for test methods for physical and mechanical properties of wood, the integration of 22 scattered test methods into GB/T 1927

Part of the document, in revision to adopt the latest edition of the International Standard:

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,