

ICS 81.060.30
CCS Q 32



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

GB/T 16534-2009

Replacing GB/T 16534-1996

**Fine ceramics (advanced ceramics, advanced technical
ceramics) -- Test method for hardness of monolithic ceramics at
room temperature**

精细陶瓷室温硬度试验方法

(English Translation)

Issued on: May 13, 2009

Implemented on: December 1, 2009

Issued by: Standardization Administration of China

Table of Contents

Introduction

1 Scope

2 Normative references

3 Terms and definitions

Vickers hardness 2

4.1 Principle

Foreword

This revised standard adopts ISO 14705:2008 "Fine ceramics (advanced ceramics, advanced technical ceramics) --- monolithic ceramics at room temperature hardness test Test method "(in English).

This standard adopts ISO 14705:2008, made the following technical corrections.

- Expanding the use of the standard range, allowing "other inorganic non-metallic materials can also refer to use";
- Reference standard ISO 4545-1 ~ 4545-4 and ISO 6507-1 ~ 6507-4 reference to GB/T 18499.1 ~ 18499.3 and GB/T 4340.1 ~ 4340.3;
- Increased 4.1 Principle "after holding a predetermined period of time";
- Delete the note in Table 1;
- 4.4.1 testing machine load range to 196.1N (20kgf) to Table 2 and consistent;
- Increased 5.1 Principle "after holding a predetermined period of time";
- Remove the note in Table 3;
- 5.6.7 clear "the greatest constant test force" hold time.

This standard also made the following editorial changes.

- With a decimal point '. 'Instead of a comma as the decimal point,' ';
- Delete international standards foreword.

This standard replaces GB/T 16534-1996 "ceramic works Vickers hardness test." this standard and GB/T 16534-1996 compared to the main changes are as follows.

- Title "engineering ceramics Vickers hardness test" to "fine ceramics at room temperature hardness test method";

- Added "Terms and definitions" (see Chapter 3);
- Increase the significance and role (see 4.3);
- Remove the result of the calculation;
- Increasing the Knoop hardness test methods;
- Remove Appendix A.

The standard proposed by China Building Materials Federation.

This standard by the National Ceramic Industry Standardization Technical Committee (SAC/TC194) centralized.

This standard was drafted. Shanghai Institute of Ceramics, Chinese Academy of Sciences, China Building Materials Federation, Tsinghua University, China Building Materials Branch Science Research Institute, Shanghai Institute of Ceramics Industry Association.

1 Scope

This standard specifies the principles, instruments, sample and test procedures and other fine ceramics at room temperature Vickers and Knoop hardness testing methods.

This standard applies to fine ceramics, other inorganic non-metallic materials may also be reference.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

Test Method. GB/T 4340.1-1999 Vickers hardness test - Part 1 (eqvISO 6507-1.1997) GB/T 4340.2 Vickers hardness test - Part 2. hardness test (GB/T 4340.2-1999, idtISO 6507-2. 1997)

GB/T 4340.3 Vickers hardness test - Part 3. Calibration standard hardness block (GB/T 4340.3-1999, idtISO 6507-3.1997) Test Method. GB/T 18449.1-2001 metal Knoop hardness test - Part 1 (neqISO 4545.1993) GB/T 18449.2 metal Knoop hardness test - Part 2. hardness test (GB/T 18449.2-2001, idtISO 4546. 1993)

GB/T 18449.3 metal Knoop hardness test - Part 3. Calibration standard hardness block (GB/T 18449.3-2001, idtISO 4547.1993)

3 Terms and Definitions

The following terms and definitions apply to this standard.

Assuming no distortion Vickers indenter indentation formed on the surface of the specimen loading, load divided by the indentation diagonal length calculated based on the average pressure the value of the surface area of the resulting scar is the Vickers hardness.

Note 1: Vickers hardness can use two units. GPa and (Vickers hardness value) dimensionless units, of which the dimensionless units of Vickers hardness values to load (in kgf units) and the indentation surface area (in mm² units) ratio.

Note 2: It is recommended precedence GPa units.

A rectangular cone indenter is made of diamond, the angle between the two opposite faces of 136 °, see Table 1 and Figure 1.

Assuming no distortion Knoop indenter indentation formed on the surface of the specimen loading, load divided by the calculated value based on the indentation diagonal length of the indentation projection the resulting value of the area is the Knoop hardness.

Note 1: Knoop hardness can use two units. GPa and (Knoop hardness value) dimensionless units, of which the dimensionless units of Knoop hardness values to load (in kgf units) and the projected area of the indentation (in units of mm²) ratio.

Note 2: It is recommended precedence GPa units.