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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 13465.11-2025

Test method of impermeable graphite materials - Part 11:Penetration coefficient

不透性石墨材料试验方法 第11部分：渗透系数

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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 for standardization documents" Drafting. This document is Part 11 of GB/T 13465.GB/T 13465 has been published in the following parts.

--- GB/T 13465.1 Test methods for impermeable graphite materials - Part

--- GB/T 13465.2 Test methods for impermeable graphite materials - Part

2.Flexural strength;

--- GB/T 13465.3 Test methods for impermeable graphite materials - Part

3.Compressive strength;

--- GB/T 13465.4 Test methods for impermeable graphite materials - Part

4.Impact strength;

--- GB/T 13465.5 Test method for shrinkage of impermeable graphite phenolic adhesive;

--- GB/T 13465.6 Impermeable graphite tube hydraulic burst test method;

--- GB/T 13465.7 Test method for weight gain and pore filling rate of impermeable graphite;

--- GB/T 13465.8 Test method for bond shear strength of impermeable graphite adhesive;

--- GB/T 13465.9 Test method for tensile strength of impermeable graphite adhesive bonds;

1 Scope

GB/T 13465.11-2025 is the Chinese national standard on test method of impermeable

graphite materials - part 11:penetration coefficient, in the field of chemical technology. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2026. Classification: ICS 71.120, CCS G94. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document describes a test method for measuring the permeability of impermeable graphite materials by the vacuum decay method. This document is applicable to the testing of non-contact materials with air as the test gas and a permeability coefficient of 1x10-6mm2/s~1mm2/s under natural environmental conditions. Test of permeability coefficient of permeable graphite material.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 13465.1 Test methods for impermeable graphite materials Part

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 The amount of gas permeation per unit time and per unit area of an impermeable graphite tubular sample of a certain volume and length.

3.2 Vacuum decay method The sealed container is vacuumed to a certain pressure value, and then placed in a natural environment for a set time. The sealed container is tested before and after standing. The method for calculating the gas permeability coefficient of tubular specimens is based on the difference in pressure values inside the device.

4 Test Principle

The measurement is carried out using the vacuum decay method, that is, an impermeable graphite tubular sample is installed on the test device to form a closed container, and then the vacuum is Empty the container to a certain pressure value, and then let it stand in a

natural environment for a set time. The pressure difference between the closed container before and after standing is measured. Calculate the permeability coefficient of impermeable graphite tubular specimen.

5.1 Test apparatus

5.1.1 Test device structure The structure and components of the test device are shown in Figure 1.