

ICS 23.100.60; 73.080  
CCS Q 61



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

**GB/T 20671.11-2026**

Replacing GB/T 20671.11-2006

---

**Classification system and test methods for nonmetallic gasket  
materials - Part 11: Test method for determining resistance of  
synthetic polymeric materials to fungi**

非金属垫片材料分类体系及试验方法 第11部分：合成聚合材料抗霉性测定方法

---

**Issued on: July 30, 2026**

**Implemented on: February 1, 2027**

---

**Issued by: State Administration for Market Regulation;  
Standardization Administration of the PRC**

## Table of Contents

|                                                     |
|-----------------------------------------------------|
| Foreword                                            |
| Introduction                                        |
| 1 Scope                                             |
| 2 Normative references                              |
| 3 Terms and definitions                             |
| 4 Principle                                         |
| 5 Instruments and equipment                         |
| 6 Reagents and culture media                        |
| 7 Test procedure                                    |
| 8 Test report                                       |
| Annex A (Informative) Information on the test fungi |

### Foreword

This document was issued on 30 July 2026 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 February 2027.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies.

It is classified under ICS 23.100.60; 73.080 and Chinese classification Q 61.

The document runs to 11 pages. The identification, the dates, the classification and the table of contents on this page are taken from the cover and the printed contents of the standard itself.

This document was drafted in accordance with GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document is Part 11 of GB/T 20671 "Classification system and test methods for nonmetallic gasket materials", which is divided into eleven parts: Part 1, Classification system for nonmetallic gasket materials; Part 2, Test method for compressibility and recovery of gasket materials; Part 3, Test method for fluid resistance of gasket materials; Part 4, Test method for sealability of gasket materials; Part 5, Test method for creep relaxation rate of gasket materials; Part 6, Test method for adhesion of gasket materials to metal surfaces; Part 7, Test method for tensile strength of nonmetallic gasket materials; Part 8, Test method for flexibility of nonmetallic gasket materials; Part 9, Test method for

durability of the binder of cork gasket materials; Part 10, Test method for thermal conductivity of gasket materials; Part 11, Test method for determining resistance of synthetic polymeric materials to fungi.

This document replaces GB/T 20671.11-2006. Compared with the 2006 edition, apart from structural adjustments and editorial changes, the main technical changes are as follows:

- a) the field of application has been changed (see Clause 1; Clause 1 of the 2006 edition);
- b) a clause of terms and definitions has been added (see Clause 3);
- c) "summary of the method" has been changed to "principle" (see Clause 4; Clause 3 of the 2006 edition);
- d) "apparatus" has been changed to "instruments and equipment", and further test instruments and equipment have been added (see Clause 5; Clause 5 of the 2006 edition);
- e) "reagents and materials" has been changed to "reagents and culture media", and methods for preparing the nutrient salt solution, the nutrient salt agar medium and the potato-dextrose medium have been added (see Clause 6; Clause 6 of the 2006 edition);
- f) the mixed fungal spore suspension, the viability control and the test sample have been changed and brought into the test procedure (see Clause 7; 6.4 and Clauses 7, 8 and 9 of the 2006 edition);
- g) the content of the test report has been changed (see Clause 8; Clause 10 of the 2006 edition).

This document was proposed by the China Building Materials Federation and is under the jurisdiction of the National Technical Committee on Non-metallic Mineral Products and Products of Standardization Administration of China (SAC/TC 406). The drafting organisations include Chengdu Junma Sealing Technology, Xianyang Non-metallic Mineral Research and Design Institute, CGN Nuclear Power Operations, Xianyang Hailong Sealing Composite Materials, Suzhou Sinoma Non-metallic Mineral Industrial Design and Research Institute and the Harbin Institute of Technology (Shenzhen).

This document was first issued in 2006; the present edition is the first revision.

From the Introduction: nonmetallic gasket materials are the core basic material of industrial sealing. Their flexibility, compressibility, corrosion resistance and adaptability to a wide range of service conditions have made them indispensable across petrochemicals, energy and power, aerospace, shipbuilding and high-end equipment. As part of an industrial sealing system, a nonmetallic gasket prevents leakage of the medium, keeps the plant running safely and steadily and improves energy efficiency; GB/T 20671 exists to standardise the classification rules, the technical requirements and the performance test methods for these materials across its eleven parts.

A warning appears at the head of the document: persons using it should have practical

experience of proper laboratory work. The document does not identify all possible safety and environmental issues, and it is the user's responsibility to take appropriate safety, health and environmental measures and to comply with the relevant national laws and regulations.

## 1 Scope

GB/T 20671.11 is the Chinese test method for the fungal resistance of synthetic polymeric materials, the eleventh part of the series on nonmetallic gasket materials. A gasket that grows mould loses its sealing surface, and in a humid plant, a ship or a buried joint, that is a real failure mode rather than a cosmetic one; what feeds the fungus is not the polymer but the plasticisers, cellulose, lubricants, stabilisers and colorants compounded into it. The method inoculates the test piece with a mixed fungal spore suspension, incubates it under conditions favourable to growth, and then examines and identifies the growth visible on the piece. The document specifies the principle, the instruments and equipment, the reagents and culture media, the test procedure and the test report, and it applies to tube, rod, sheet and film polymeric materials whose performance is affected by mould. The 2026 edition replaces GB/T 20671.11-2006, adding a terms clause, the preparation methods for the nutrient salt solution and the culture media, and a reworked test procedure.

## 2 Normative references

The contents of the following documents constitute indispensable provisions of this document through normative reference in the text. For dated references, only the edition corresponding to that date applies. For undated references, the latest edition, including all amendments, applies.

GB/T 6682 Water for analytical laboratory use - Specification and test methods.

GB 41918-2022 Biological safety cabinets.

## 3 Terms and definitions

The following terms and definitions apply to this document.

3.1 resistance to fungi: the ability to withstand or inhibit the growth and multiplication of fungal spores and mycelium.

## 4 Principle

The components of a synthetic polymeric material are themselves antimicrobial and unsuitable for fungal growth; it is the plasticisers, cellulose, lubricants, stabilisers and colorants in the compound that are the main reason fungi attack the material. A suitable organism is inoculated onto the test piece, the inoculated piece is incubated under

conditions favourable to the growth of the organism, and the piece is then removed and the microbial growth visible on it examined and identified, from which the resistance of the sample to fungi is judged.

## 5 Instruments and equipment

The clause specifies the equipment: a constant temperature and humidity incubator controlling 10 degrees Celsius to 50 degrees Celsius to within 1 degree and 50 % to 95 % relative humidity to within 5 %; a biochemical incubator controlling 5 degrees Celsius to 50 degrees Celsius to within 1 degree; an autoclave controlling 101 degrees Celsius to 137 degrees Celsius to within 0.1 degree; a balance reading to 10 mg and an analytical balance reading to 0.1 mg; a pH meter reading to 0.01; a class II biological safety cabinet conforming to GB 41918-2022; a refrigerator; a 30 mL sprayer; measuring cylinders, Petri dishes, conical flasks, an inoculating loop, glass beads, sterile filter paper, a glass funnel, a glass tissue grinder, an optical microscope, a centrifuge running from 500 r/min to 5000 r/min, beakers and colourless glass test tubes.

## 6 Reagents and culture media

6.1 General requirements. Unless otherwise specified, all tests shall use reagents of chemically pure grade or better and distilled or deionised water meeting the grade 3 requirements of GB/T 6682.

6.2 Sterile water. Distilled or deionised water is sterilised in the autoclave at 121 degrees Celsius for 20 min and kept for use.

6.3 Nutrient salt solution. The reagents in the nutrient salt solution shall all be of analytical grade; the composition is given in Table 1 and comprises potassium dihydrogen phosphate, magnesium sulfate heptahydrate, ammonium nitrate, sodium chloride, iron(II) sulfate heptahydrate, zinc sulfate heptahydrate, manganese sulfate monohydrate and dipotassium hydrogen phosphate.

The clause continues with the nutrient salt agar medium and the potato-dextrose medium, both new in this edition, and with the preparation of the mixed fungal spore suspension.

## 7 Test procedure

The test procedure covers the preparation of the test pieces, the viability control that proves the spore suspension is capable of growth, the inoculation of the test pieces, their incubation in the constant temperature and humidity incubator, and the examination and identification of the growth on them at the end of the incubation period. In the 2006 edition this material was spread across four separate clauses; it has been brought together here.