

ICS 13.220.50

CCS C84



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

GB 16807-2025

Fire intumescent seals

防火膨胀密封件

Issued on: August 1, 2025

Implemented on: August 1, 2026

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

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1 Scope

GB 16807-2025 is the Chinese national standard on fire intumescent seals, in the field of environment and health protection, safety. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 1 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 August 2026. Classification: ICS 13.220.50, CCS C84. 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 specifies the grade code and model compilation, technical requirements, inspection rules, as well as marking, packaging, transportation and storage of fire

intumescent seals, and describes the corresponding test methods. This document applies to the design, manufacture and inspection of fire intumescent seals with fireproof sealing functions used in building components such as fire-resistant doorsets, fire resistant windows, fire shutter assemblies, fire dampers, and fire-resistant glass partitions.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 191, Packaging - Pictorial marking for handling of goods

GB/T 6003.1, Test sieves - Technical requirements and testing - Part

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 fire intumescent seals Materials that expand when exposed to fire or high temperature and are used to assist building components in providing them with fireproof, smokeproof, heat-insulating and other fire-proof sealing properties.

3.2 intumescent components Material in fire intumescent seals that expands when exposed to fire or high temperatures.

4 Grade code and model compilation

4.1 Grade code The smoke density and smoke toxicity grade codes of fire intumescent seals are shown in Table 1, and the fireproof sealing grade codes are shown in Table 2.

4.2 Type designation The method for compiling the model of fire intumescent seals is shown in Figure 1. Example 1.FPJ-Y1D3F1.0-10-15x2-A, indicating a fire intumescent seal, of smoke density grade 1, smoke toxicity grade 3, overall fire resistance integrity of building components used ≥ 60 min, nominal expansion ratio 10 times, rectangular cross-section width 15 mm, thickness 2 mm, and the enterprise-customized A. Example 2.FPJ-Y2D2F1.5-8-phi6-B, indicating a fire intumescent seal, of smoke density grade 2, smoke toxicity grade 2, overall fire resistance integrity of building components used ≥ 90 min, nominal expansion ratio 8 times, circular cross-section outer diameter 6 mm, and enterprise-customized B. Example 3.FPJ-Y3D1F0.5-6-t13x3, indicating a fire intumescent seal, of smoke density grade 3, smoke toxicity grade 1, overall fire resistance integrity of building components used ≥ 30 min, nominal expansion ratio 6 times, and special-shaped cross-section characteristic dimensions 13 mm x 3 mm.

5 Technical requirements

5.1 Appearance The exposed surface of the fire intumescent seal shall be flat and smooth, without cracks, indentations, uneven thickness, or obvious falling off or powdering of the intumescent component.

5.2 Deviation of mass (weight) per unit length The deviation of mass (weight) per unit length of the fire intumescent seal from the value announced by the manufacturer shall not exceed 10%.

5.3 Expansion performance

5.8.1 After the acid resistance test, the fire intumescent seals shall not show obvious corrosion, swelling, powdering or falling off.

5.8.2 After the acid resistance test, the mass (weight) change rate of fire intumescent seals shall not be greater than 5%.

5.8.3 After the acid resistance test, the expansion ratio of the intumescent component of the fire intumescent seal shall not be less than 90% of the initial expansion ratio ().

5.9 Alkali resistance

5.9.1 After the alkali resistance test, the fire intumescent seals shall not show obvious corrosion, swelling, powdering or falling off.

5.9.2 After the alkali resistance test, the mass (weight) change rate of fire intumescent seals shall not be greater than 5%.

5.9.3 After the alkali resistance test, the expansion ratio of the intumescent components of the fire intumescent seals shall not be less than 90% of the initial expansion ratio ().

5.10 Freeze-thaw cycle resistance

5.10.1 After the freeze-thaw cycle resistance test, the fire intumescent seals shall not show obvious powdering or falling off.

5.10.2 After the freeze-thaw cycle resistance test, the expansion ratio of the intumescent components of the fire intumescent seals shall not be less than 90% of the initial expansion ratio ().

5.11 UV radiation resistance

5.11.1 After the UV radiation resistance test, the fire intumescent seals shall not show obvious powdering or falling off.

5.11.2 After the UV radiation resistance test, the expansion ratio of the intumescent

components of the fire intumescent seals shall not be less than 90% of the initial expansion ratio ().

5.12 Fireproof sealing The overall fire resistance integrity of building components shall comply with the requirements of Table 2.

6 Test methods

6.1 Appearance Verify by visual inspection at any position of the test sample. Where. - initial expansion ratio, in milliliters per gram (mL/g); n_0 - nominal expansion ratio, in milliliters per gram (mL/g); β - expansion ratio deviation. When the expansion height of the test sample ($H_2 - H_1$) exceeds 60 mm, the mass of the test sample shall be appropriately reduced and the test shall be repeated.

6.4 Smoke density

6.4.1 Randomly select one section of the fire intumescent seal sample, which shall include the decoration, covering layer and related accessories.

6.4.2 Carry out the test according to the method specified in GB/T 8627. The dimensions of the fence on all four sides of the sample are 64 mm x 64 mm x 64 mm, and the fence is made of a 6 mm x 6 mm x

0.9 mm stainless steel mesh. The sample length shall be (25.4 ± 0.3) mm (without assembly). The remaining dimensions and structures shall maintain the actual application state of the test sample. During the test, the side with the larger projected area of the fire intumescent seal shall face the flame, and the four sides of the sample shall be centered on the sample holder.

6.5 Smoke toxicity

6.5.1 Randomly take a section of fire intumescent seal sample with a length of not less than (400 ± 5) mm. The sample shall include decoration, covering layer and other related accessories.

6.5.2 Carry out the test according to the method specified in GB/T 20285.

6.6 Air aging resistance test

6.6.1 Randomly take fire intumescent seals and cut them into three sections of samples with a length of (500 ± 5) mm. If the mass (weight) per unit length of the sample is small, the sampling length may be appropriately increased. Place the samples in an electric forced air drying oven at a temperature of (70 ± 2) °C for 168 h under the blast condition; remove the samples and place them in a desiccator to cool naturally to room temperature. Inspect the surfaces of the samples and the intumescent components; all three samples shall meet