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

GB 18154-2025

Replacing GB/T 18154-2000

**Safety specification for explosion suppression of combustible
dust**

可燃性粉尘抑爆安全规范

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1 Scope

GB 18154-2025 is the Chinese national standard on safety specification for explosion suppression of combustible dust, 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 31 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and takes effect on 1 November 2026. Classification: ICS 13.230, CCS C67. 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 general requirements, technical requirements, installation, use, maintenance requirements for combustible dust explosion suppression devices; describes the corresponding verification methods. This document applies to explosion suppression of process equipment and facilities in dust explosion hazard areas. This document does not apply to locations with coal mines, fireworks and firecrackers, explosives, strong oxidizers, or toxic or corrosive dust.

2 Normative references

The following documents, through normative references in this document, constitute essential provisions of this document. For dated references, only the edition cited applies; for undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 3836.28 Explosive atmospheres - Part

28.Non-electrical equipment for explosive atmospheres - Basic method and requirements

GB 15577 Safety regulations for dust explosion prevention and protection

GB/T 15604 Dust explosion protection terminology

GB 19517 National electrical equipment safety technical code

GB 50057 Code for design protection of structures against lightning

3 Terms and definitions

The terms and definitions defined in GB/T 15604, as well as the following terms and definitions, apply to this document.

3.1 Explosion suppression

3.7 Threshold pressure The minimum response pressure of a sensor to a combustible dust explosion.

4 General requirements

4.1 Enterprises shall identify and assess the dust explosion propagation risks existing in their production and processing systems; select and design suppression devices according to process safety requirements.

4.2 The design, manufacturing, installation organizations of suppression devices shall provide relevant equipment safety performance and usage instructions; be responsible for the safety performance of the safety equipment.

4.3 Enterprises shall establish systems and operating procedures for the installation, use, maintenance, upkeep of explosion suppression devices; assign dedicated personnel to be responsible for installation, use, maintenance, upkeep.

5.1 General requirements

5.1.1 The explosion suppression device shall promptly diffuse sufficient suppressant after detecting an explosion signal, to prevent flame propagation within the suppression area and reduce explosion pressure in the initial stage of the explosion.

5.1.2 After the explosion suppression device is triggered, the maximum pressure within the

system shall be less than the design pressure of pipelines, containers, equipment, etc.

5.1.3 The installation positions and distances between the explosion detector and the explosion suppressor shall meet the response time of the explosion suppression device and shall not affect the normal operation of the on-site process.

5.2 Selection and design of explosion suppression devices

5.2.1 When selecting and designing explosion suppression devices, the characteristic data of the protected process shall be obtained, including but not limited to the following.

- a) The explosion protection method already adopted;
- b) Potential ignition sources and their possible locations;
- c) The design pressure of the protected equipment;
- d) The concentration of combustible dust, gas flow direction, wind speed, temperature within the explosion suppression zone.

5.2.2 When selecting and designing, the characteristic parameters of the protected process during an explosion shall be understood, including but not limited to.

- a) The type and characteristic parameters of combustible dust, such as the minimum ignition energy of the dust cloud, the minimum ignition temperature of the dust cloud, the maximum explosion pressure of the dust cloud, the explosion index;
- b) The minimum concentration of suppressant required to suppress the explosion.

5.2.3 When selecting and designing explosion suppression devices, the installation information of the explosion suppression devices shall be clearly defined, including but not limited to.

- a) Detector model;
- b) Detector installation location;
- c) Explosion suppressor specifications, model, quantity;
- d) Explosion suppressor installation location.

5.2.4 The suppressant selected for the explosion suppression device shall meet the following requirements.

5.3 Explosion suppression device requirements

5.3.1 The explosion suppression device shall be tested. The suppressant mist generated by the device shall be able to cover potential hazards within the protected space.

Note. The test method for the explosion suppression device is given in Appendix B.

5.3.2 The explosion suppression device shall have a safety device that can stop its activation during operation.

Note. Safety devices include mechanical and electrical types.

5.3.3 The explosion suppression device or its components shall not generate an ignition source before the device is activated.

Note. Such sources include electrostatic discharge, mechanical friction, electric sparks, hot surfaces, etc.

5.3.4 The explosion suppression device shall not produce any ejection hazards after activation.

5.3.5 Non-electrical components of the explosion suppression device installed in an explosive atmosphere shall comply with the requirements of GB/T 3836.28.

5.3.6 Explosion suppression devices classified as special equipment shall be managed as such.

5.3.7 When monitoring explosion pressure using a pressure sensor, a threshold pressure that can trigger the explosion suppression device's response shall be set. The triggering conditions for the pressure sensor are detailed in B.6.

5.3.8 The detection platform equipped with the explosion suppression device shall be able to monitor and display the device's model, installation location, quantity, operating status.

5.4 Marking, packaging, storage

5.4.1 The markings and labels of the explosion suppression device shall be affixed to the corresponding components, clearly visible, shall include at least the following information.

- a) Name and model of the device and main components;
- b) Product standard number;
- c) Main technical specifications;
- d) Manufacturer's name;
- e) Date of manufacture and product number.

5.4.2 The packaging of each component of the explosion suppression device shall be impact- and drop-resistant, to prevent damage and potential hazards.

5.4.3 The following documents shall be provided with the explosion suppression device.

- a) Product certificate of conformity;
- b) Product instruction manual;
- c) Emergency response measures.