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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 17919-2025

Replacing GB/T 17919-2008

Safety specification for explosion protection in combustible dust collection system

可燃性粉尘除尘系统防爆安全规范

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1 Scope

GB 17919-2025 is the Chinese national standard on safety specification for explosion protection in combustible dust collection system, 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, process system and equipment requirements, explosion control measures requirements, monitoring and early warning requirements, and operational safety management requirements for dust collection systems used in the area subject to dust explosion hazardous; and describes the corresponding verification methods. This Document applies to the design, manufacture, installation, acceptance, use, and maintenance of dust collection systems used in area subject to dust explosion hazardous. This Document does not apply to dusty areas in coal mines, of fireworks and firecrackers, explosives, or strong oxidizers.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

GB 2894 Safety colors and safety signs

GB 3836.15 Explosive atmospheres - Part

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 15604 and the following apply.

3.1 Dust In an atmospheric environment, tiny solid particles that can either settle down by their own weight or remain suspended in the air for a period of time.

3.2 Combustible dust In an atmospheric environment, dust, fibers, or fluffy catkins that can undergo violent oxidation reactions with gaseous oxidants. NOTE. The gaseous oxidant, primarily air, and combustible dust can cause dust explosions under certain conditions.

3.3 Area subject to dust explosion hazardous Locations where there is a risk of flammable dust explosion in the atmospheric environment.

3.4 Dust collection system A system for capturing solid particles in a gas-solid two-phase flow, consisting of a dust hood, ductwork, dust collector, fan, and control device.

3.5 Dust collector Devices or equipment for separating and capturing dust from dusty gases.

3.6 Dry dust collector A dust collector that does not use liquids (water) to capture dust in dusty gases.

3.7 Wet dust collector/wet scrubber A dust collector that uses the washing action of a liquid to separate dust from dusty gases. NOTE. The liquid in a wet scrubber is generally water.

3.8 Gravity dust collector A dust collector that separates and captures dust from dusty gases without using liquid (water), separating the dust from the dusty gases while simultaneously capturing and collecting the dust. It combines a dust collection hood, dust removal duct, dust collector, fan, and control device.

3.18 Honeycomb dust collector A dust collector that is used to collect fibers in textile processes. NOTE. The filter media in the main body of the honeycomb dust collector is disc-shaped, and the filter media is cleaned by a rotating suction arm located in the dusty air chamber.

3.19 Explosion-proof device The Device that employs dust explosion prevention and control technologies to avoid the formation of dust clouds or potential ignition sources, thereby reducing the hazards of explosions. NOTE. Such as explosion venting, inerting, explosion isolation, and explosion suppression devices, etc.

4 General Requirements

4.1 Dust collection systems should be designed and selected based on dust explosion risk assessment, production processes, environmental protection, and occupational health requirements.

4.2 Dust collection systems shall be set up relatively independently for different process areas (zones). A single dust collection system shall not be shared in any of the following situations.

a) Different types of dust that may exacerbate the explosion hazard after mixing;

b) Combustible dust and combustible gases (including vapors);

c) Dust-generating points within two or more independent buildings (structures);

d) Dust-generating points in different fire compartments of the same building (structure);

e) Process dust collection systems and environmental cleaning systems.

4.3 The grinding room, powder screening room, and shot blasting room of metal powder additive manufacturing (3D printing) shall be set up with relatively independent dust collection systems for different process areas (zones).

4.4 When combustible dust and combustible gas coexist or are associated, measures shall

be taken simultaneously to prevent explosions of both the combustible gas and combustible dust.

4.5 Dust collection systems in different buildings (structures) or different fire compartments shall not be connected through dust collection pipes, exhaust ducts, or fans.

4.6 Combustible dust shall not share an exhaust chimney with combustible or corrosive waste gases; combustible metal dust collection systems shall not share an exhaust chimney with the fan terminals of other dust collection systems.

4.7 Electrostatic precipitators and gravity dust collectors shall not be used in dust collection systems.

4.8 Inside filtration shall not be used in filter-type dry dust collection systems.

4.9 Dry dust collection systems shall employ one or more explosion control measures, including explosion venting, explosion isolation, explosion suppression, explosion resistance, and inerting; but explosion isolation measures shall not be used alone.

5.1.1 Dust collector housing

5.1.1.1 It shall be made of steel; and the design strength of the housing shall be able to withstand the maximum explosion pressure after explosion-proof measures are taken.

5.1.1.2 The interior surface of the dust collector shall be smooth and rust-proofed; aluminum coating shall not be used.

5.1.1.3 Internal measures such as flow guidance or arcing shall be taken to prevent dust accumulation. The angle between the ash hopper wall and the horizontal plane shall be greater than 65°.

5.1.1.4 An inspection door shall be provided. The design strength of the inspection door and its connections shall be no less than the design strength of the dust collector housing.

5.1.1.5 Fire extinguishing device interfaces shall be provided according to the physicochemical properties of the dust.

5.1.2 Filter media

5.1.2.1 Flame-retardant and anti-static filter media shall be used.

5.1.2.2 The electrostatic protection measures for metal components connecting the filter media (such as filter media frames, tube sheets, short pipes, etc.) shall meet the relevant requirements of GB 12158.

5.1.3 Dust cleaning

5.1.3.1 Filter media in porous layer dust collectors shall not be cleaned by mechanical or