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PEOPLE'S REPUBLIC OF CHINA**

GB 19081-2025

**Safety specification for dust explosion prevention in feed
processing system**

饲料加工系统粉尘防爆安全规范

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1 Scope

GB 19081-2025 is the Chinese national standard on safety specification for dust explosion prevention in feed processing 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 24 January 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 February 2026. Classification: ICS 13.230, CCS C 67. 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 zoning and scope of dust explosion hazardous area, overall requirements, building (structure) requirements, process system and equipment requirements, electrical requirements, dust removal and pneumatic conveying system requirements, explosion control measures, and operation safety management requirements for the feed processing system. It also describes the corresponding verification methods. This document applies to the design, operation and safety management of the feed processing system involving combustible dust explosion hazards.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 12158 General Guideline for Preventing Electrostatic Accidents

GB 15577 Safety Regulations for Dust Explosion Preventing and Protection

GB/T 15604 Terminology for Dust Explosion Prevention

GB/T 15605 Guide for Pressure Venting of Dust Explosions

GB/T 26888 Grain and Oil Machinery - Magnetic Separator

GB/T 37241 Guide on Inerting for the Prevention of Explosions

GB 50016 Code of Design on Building Fire Protection and Prevention

GB 50057 Design Code for Protection of Structures against Lightning

GB 50058 Code for Design of Electrical Installations in Explosive Atmospheres

GB 55037 General Specification for Building Fire Protection

3 Terms and Definitions

The terms and definitions defined in GB/T 15604 and the following terms and definitions are clouds may occur in the air. [Source: GB/T 3836.35-2021, 3.25.2]

3.9 Zone

22 During normal operation, a location where an explosive dust atmosphere in the form of dust clouds is unlikely to occur in the air, or if it does occur, but it will only occur for a short period of time. NOTE. the possibility of explosive dust clouds arising from the dust layer also needs to be considered. [Source: GB/T 3836.35-2021, 3.25.3]

4 Zoning and Scope of Feed Dust Explosion Hazardous Area

4.1 Based on the frequency and duration of the explosive dust atmosphere of feed dust, the dust explosion hazardous area of the feed processing system shall be divided into Zone 20, Zone 21 and Zone 22.

4.2 Based on conditions such as the process, feed characteristics, location of feed dust release sources, amount and possibility of dust release, explosion conditions, ventilation and dust removal, and site structure and layout, the zoning and scope of feed dust explosion hazardous area shall be determined. Examples of the zoning are provided in Appendix A.

4.3 Whenever changes occur in the process, feeds, equipment, site structure and layout, or work organization mode, the scope and class of dust explosion hazardous area shall be re-assessed, re-defined and re-zoned.

4.4 Throughout the entire operation, the zoning and instruction files shall be documented, and regular dynamic assessments of the process hazards and zoning shall be conducted.

4.5 When the zoning and scope of the feed dust explosion hazardous area change, timely technical and management measures shall be implemented to ensure that the equipment and facilities within the changed area meet the requirements for dust explosion protection.

5 General Requirements

5.1 The design of the feed processing system shall adhere to the principle of holistic protection. Design documents shall clearly describe the zoning of feed dust explosion hazardous area in the design, and the dust explosion prevention measures implemented in terms of building structure, process selection, equipment model selection and layout, dust control, electrical engineering and management, etc.

5.2 Process pipeline and dust removal ductwork shall not pass through non-hazardous

areas or

6.1 General Requirements

6.1.1 Fire protection design for buildings shall comply with the provisions of GB 50016 and GB 55037.

6.1.2 The location of the distribution room shall ensure that the system power supply can be quickly shut off in the event of a dust explosion and meet the requirements for firefighting and evacuation lighting.

6.1.3 Where there are dust release sources within 10 meters around the control room or distribution room, dust-proof measures shall be implemented on doors, windows and openings, and ventilation devices shall be equipped with dust filters.

6.1.4 For silo clusters consisting of multiple silos, each silo shall be independently sealed, with no connecting holes. Each silo shall be equipped with a manhole or cleanout opening, and dust shall be prevented from escaping from the silo.

6.1.5 Wall and floor openings within the feed dust explosion hazardous area shall be sealed after equipment installation is completed.

6.1.6 Explosion venting doors shall open outward.

6.2 Floors

6.2.1 The floors of warehouses and feed processing workshops shall be flat, smooth, and easy to clean.

6.2.2 When insulating materials are used as the entire surface layer of the floor, anti-static measures shall be implemented.

6.3 Walls

6.3.1 The fire resistance rating of the walls of the feed processing system shall comply with the provisions of GB 50016.

6.3.2 The interior surfaces of the building and the surface of its components shall be smooth, flat, and easy to clean.

7.1 General Requirements

7.1.1 Explosion-proof measures shall be implemented for machinery and equipment used in the feed dust explosion hazardous area.

7.1.2 Non-metallic materials and wear-resistant liners used inside silos, equipment, and pipelines that come into contact with feed materials and dust shall be anti-static materials and grounded in accordance with the requirements of GB 12158.