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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 47290-2026

Technical specification for fire prevention and extinguishing in coal mines

煤矿防灭火技术规范

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Foreword

This document conforms to GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting is scheduled. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Mine Safety Administration. Technical Specifications for Fire Prevention and Extinguishing in Coal Mines

1 Scope

GB 47290-2026 is the Chinese national standard covering fire underground - the spontaneous combustion of coal left in the goaf, the monitoring of the indicator gases that precede it, the sealing, the nitrogen and grouting injection, and the fighting of a fire in a place that cannot be evacuated quickly. A mandatory standard, first edition, in force since 1 September 2026, under the National Mine Safety Administration. It was issued on 27 February 2026 and has been in force since 1 September 2026, as a first edition. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the general requirements for fire prevention and extinguishing in underground coal mines, as well as the relevant requirements for fire prevention, emergency response, and fire zone management. This document applies to the prevention and control of internal fires, external fires, and surface fires at the wellhead that threaten underground coal mines.

4 General Requirements

4.1 Adhering to the principles of prevention first, early warning, adapting to local conditions,

and comprehensive management, coal mines should formulate fire prevention and extinguishing measures both above and below ground.

4.2 Following the principle of coordinated disaster prevention and control, coal mines should select reasonable development layouts, mine ventilation methods, coal mining methods and processes, and roadway supports. Protection methods, etc.

4.3 Mines mining easily spontaneously combustible coal seams should prepare a special fire prevention and extinguishing design, establish a spontaneous combustion monitoring system, and implement grouting systems. Alternatively, a nitrogen (carbon dioxide) fire suppression system can be used to prevent spontaneous combustion of the coal seam.

4.4 Mines mining coal seams that are not prone to spontaneous combustion and have experienced spontaneous combustion fires or shown signs of spontaneous combustion should prepare a special fire prevention and extinguishing design. Establish a spontaneous combustion monitoring system and take measures to prevent spontaneous combustion of coal seams.

4.5 The safety of gels, inhibitors, three-phase foams used for fire prevention and extinguishing in coal mines, as well as polymer materials used for filling, sealing, and reinforcement, shall be ensured. The safety and environmental impact should be assessed, and a safety monitoring system and preventative measures should be developed.

4.6 Coal mines should conduct a comprehensive survey of hidden fire-causing factors within the mining area to determine the location, extent, and depth of fire zones and abnormally high-temperature zones. Temperature, temperature, gas composition and content.

4.7 Coal mines should formulate medium- to long-term fire prevention and extinguishing plans of 3 to 5 years based on medium- and long-term mining and excavation succession plans and the results of surveys on hidden disaster-causing factors.

4.8 Coal mines should revise the fire prevention content in their annual disaster prevention and control plans in a timely manner according to specific circumstances.

4.9 Coal mines shall prepare emergency response plans for fire accidents. In the event of a fire accident in a coal mine, immediate measures shall be taken to organize rescue efforts.

4.10 When a coal mine fire occurs and the main ventilation fan is reversed, the airflow direction in the roadway should be changed within 10 minutes. The air supply volume should not be less than 40% of the normal air supply volume.

4.11 When a coal mine is closed, fire prevention and extinguishing safety technical measures should be formulated to prevent fires from occurring during the closure period.

5.1.1 Internal fire causes

5.1.1.1 When constructing new mines, renovating or expanding existing mines, or extending production mines to new levels, the average exposed thickness should be at least

0.3 m. The spontaneous combustion tendency of the coal seam should be assessed. A new assessment should be conducted when the coal seam's occurrence conditions undergo significant changes.

5.1.1.2 The shortest spontaneous combustion period of all mined coal seams shall be determined by statistical methods, analogy methods, experimental measurement methods, etc.

5.1.1.3 When using retreat mining to exploit coal seams prone to spontaneous combustion, the spontaneous combustion of coal in the goaf of the same coal seam should be measured at least once. The fire zone distribution area is excluded when using the full backfilling mining method. This applies when the coal mining method, ventilation system, fire prevention and extinguishing measures, etc., occur at the coal mining face. In the event of significant changes, the measurement should be repeated. The distribution range of the three zones of spontaneous combustion in goaf should be delineated using the oxygen concentration index method. Areas in the goaf with an oxygen concentration greater than 18% are considered scattered zones. In the tropics, the region with an oxygen concentration not exceeding 18% and not less than the critical oxygen concentration is the oxidation zone; the region with an oxygen concentration less than the critical oxygen concentration is the... Asphyxiation zone.

5.1.1.4 In mines mining single, thick coal seams prone to spontaneous combustion, the main haulage roadway and main return airway should be located within the rock strata. (Mining coal seams) In coal mines with multiple shafts, the main transport roadway and main return airway should be located within the rock strata or within the coal seam that is not prone to spontaneous combustion. If it is absolutely necessary to install it within a coal seam that is prone to spontaneous combustion or has a self-igniting structure, it should be anchored and sprayed or reinforced with an arch. The gaps and caving areas behind the arch should be treated with non-corrosive and non-toxic materials. Non-flammable materials should be used for filling, and reactive polymer materials should not be used.

5.1.1.5 In mining areas where coal seams prone to spontaneous combustion are being mined, at least one dedicated return airway should be provided.

5.1.1.6 When mining coal seams prone to spontaneous combustion, the location of fire doors for the coal face should be pre-selected in the coal face design. After the ventilation system of the coal mining face is established, fire-resistant door walls should be constructed according to the design, and a sufficient number of materials or finished products for sealing fire doors should be stockpiled. Type of enclosed fire door, the material of the enclosed fire door should be non-combustible.

5.1.1.7 When mining coal seams prone to spontaneous combustion or prone to

spontaneous combustion, the coal face should adopt a retreating mining method; no undesigned features should be arbitrarily left during the mining process. The coal pillars and top and bottom coal; when the coal mining face reaches the final mining line, measures should be taken to ensure that the roof collapses completely.

5.1.1.8 When managing the roof using the caving method in mining steeply inclined coal seams prone to spontaneous combustion, a safety barrier should be left above the main rock gate and the haulage rock gate in the mining area. There are coal pillars. Coal pillars remaining above the transport gate in the mining area can be recovered after the mining area is closed, but safety measures to prevent spontaneous combustion should be implemented. measure.

5.1.1.9 When mining coal seams prone to spontaneous combustion, safety techniques should be developed to prevent spontaneous combustion in goaf areas, high-risk roadway areas, and coal pillar failure areas. Technical measures.

5.1.1.10 Coal mines should formulate sealing and management measures to prevent spontaneous combustion in goaf areas, and promptly construct various types of airtight enclosures while ensuring their quality. With... As coal mining faces advance, connecting roadways leading to the goaf should be closed off one by one. After the longwall mining is completed, permanent maintenance should be carried out within 45 days. Prolonged sealing. Within 45 days after the completion of mining in a mining area, airtight walls should be installed in all roadways connecting to the mined area to completely seal the mining area. Closed. All abandoned boreholes connected to closed goaf areas should be permanently sealed.

5.1.1.11 When constructing a sealed goaf, a special design and safety technical measures should be prepared.

5.1.1.12 Before draining water from a goaf, the risk of spontaneous combustion in the goaf should be assessed. During water drainage, the goaf should be closely monitored. Monitoring and prevention of spontaneous combustion hazards, and the development of safety technical measures to prevent spontaneous combustion in goaf areas. After draining water from the goaf area, the drainage system should be closed. Water gate valves should be equipped with automatic water discharge devices or be permanently sealed to prevent air leakage through the water discharge pipe.

5.1.1.13 The intake and return air of the mining face should not pass through the goaf. When using pillarless mining for goaf-side conveying and goaf-side retention, preventative measures should be developed. Safety technical measures for spontaneous combustion in goaf areas.

5.1.2 External Fire Causes

5.1.2.1 The distance between the timber and gangue stockpile and the air intake shaft shall