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

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Mine Ventilation Safety Equipment Standards (with instructions)

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1 General

1.0.1 This standard is formulated to unify the coal mine ventilation safety equipment configuration standards, achieve advanced technology, economical rationality, safety and reliability.

1.0.2 This standard is applicable to the configuration of ventilation safety equipment for newly built, rebuilt and expanded coal mines.

1.0.3 Ventilation safety equipment should proceed from the specific conditions of the mine, adopt new equipment and new materials according to local conditions, and eliminate outdated equipment.

1.0.4 Mine ventilation safety equipment should not only comply with this standard, but also comply with the current relevant national standards.

2.1.1 The main ventilators of large and medium-sized mines should be equipped with an online monitoring system.

2.1.2 The mine should be equipped with ventilation testing instruments and meters such as wind speed, air pressure, temperature, dry humidity, differential pressure, total pressure and static pressure. Requirements for grade identification, anti-wind drills and determination of ventilation resistance.

2.1.3 The configuration of ventilation testing equipment shall comply with the provisions of Appendix A of this standard.

2.2 Gas detection equipment

2.2.1 The mine shall be equipped with a sufficient number of gas detection instruments, and the equipment of methane, carbon dioxide and other harmful gas detection instruments shall meet the following requirements.

- 1 High and low concentration portable optical methane detectors and portable methane detection and alarm devices should be equipped according to the type of well and the number of mining working faces, and the requirements for inspection sites such as mining working faces and chambers and the number of methane inspections should be guaranteed;
- 2 The number of oxygen detectors or methane oxygen detectors, small mines should be equipped with 3 to 5 sets, medium mines should be equipped with 5 to 10 sets, and large mines should be equipped with 10 to 15 sets;
- 3 The number of carbon monoxide detectors, small mines should be equipped with 1 set, medium mines should be equipped with 2 sets, large mines should be equipped with 3 sets;
- 4 The number of carbon dioxide detectors should not only meet the requirements for checking the carbon dioxide concentration in the air flow of the mining face, the return air lane of the mining area, the total mine return air lane, or one wing return air lane, but also meet the requirements of local ventilation in the area where the wind is stopped when repairing the old mine lane. Carbon dioxide concentration inspection requirements when the machine returns to normal ventilation; the number of carbon dioxide detectors, small mines should be equipped with 3 to 4 sets, medium mines should be equipped with 5 to 8 sets, and large mines should be equipped with 9 to 12 sets;
- 5 For the quantity of hydrogen sulfide detectors, sulfur dioxide detectors, nitrogen oxide detectors and ammonia detectors, small mines should be equipped with 1 set, medium mines should be equipped with 2 sets, and large mines should be equipped with 3 sets.

2.2.2 Mine should be equipped with methane detector calibrator and gas detection instrument calibration device, etc., and the equipped quantity should meet the following requirements.

- 1 The number of methane detector calibrator should be determined according to the number of optical interference methane detectors equipped, and it should be equipped with 1 to 3 sets;
- 2 The number of calibration devices for methane, oxygen, carbon monoxide and other gas detection instruments should be equipped according to the well type or the number of

calibration instruments. Small and medium-sized mines should be equipped with 1 set, and large mines should be equipped with 1 to 2 sets.

2.3 Gas detection and prevention equipment

2.3.1 The gas basic parameter measurement equipment for high-gas mines and coal and gas outburst mines shall meet the following requirements.

- 1 Each mining area should be equipped with 1 to 2 pneumatic drilling rigs;
- 2 Each mining area should be equipped with 1 to 2 borehole gas flow measuring devices;
- 3 Each mining area should be equipped with 2 to 3 gas parameter detectors for gas drainage pipelines;
- 4 One to two sets of coal seam gas pressure measuring devices shall be equipped;
- 5 One set of portable coal seam gas content detector shall be equipped;
- 6 Large and medium-sized mines should be equipped with a set of coal seam gas content measurement device;
- 7 Large and medium-sized mines should be equipped with a set of drainage drilling and sealing quality detector;
- 8 Each mining area of large and medium-sized mines should be equipped with 1 to 2 sets of coal seam deep hole fixed-point sampling devices.

2.3.2 Low-gas mine gas basic parameter measurement equipment can be selected according to actual needs.

2.3.3 Outburst detection and outburst prevention equipment for coal and gas outburst mines shall meet the following requirements.

1. Each mining and excavation face with outburst danger should be equipped with 1-2 sets of anti-outburst electric drilling rigs and drilling tools;
2. Each mining and excavation face with outburst danger shall be equipped with a set of gas outburst parameter instrument;
- 3 Each mining and excavation face with outburst danger shall be equipped with a gas outburst hazard forecaster;
- 4 Each mining area should be equipped with a gas release initial velocity index tester, a coal firmness coefficient tester, a coal drilling cuttings gas desorption instrument, a drilling gas gushing initial velocity tester and a set of 1 to 2 supporting capsule hole sealers. set;
- 5 Large and medium-sized mines can be equipped with a coal and gas outburst real-time diagnosis and early warning system, and an acoustic emission coal-rock gas dynamic

disaster monitoring and forecasting system.

2.3.4 The equipment for measuring basic gas parameters shall comply with the provisions in Appendix B of this standard.

2.3.5 Coal and gas outburst mine outburst detection and outburst prevention equipment configuration shall comply with the provisions of Appendix C of this standard.

2.4 Safety equipment

2.4.1 The mine shall be equipped with an isolated self-rescuer, and the rated protection time shall not be less than 45 minutes. In addition to the number of self-rescuers equipped according to the number of people going into the mine, it should also include the number of self-rescuers equipped at underground shelters and self-rescuer supply stations on disaster avoidance routes. The reserve amount should be calculated as 10% to 20% of the total.

2.4.2 The isolated self-rescuer shall be equipped with a self-rescuer airtight tester, and the quantity should be one for every 200 self-rescuers.

2.4.3 The ambulance equipment of the ambulance team shall comply with the provisions of the current industry standard "Mine Ambulance Regulations" AQ 1008.

2.4.5 Coal and gas outburst mines and rock burst mines should be equipped with compressed air self-rescue devices.

2.4.6 The configuration of mine safety protection equipment shall comply with the provisions of Appendix A of this standard.

3.1 Fire detection equipment

3.1.1 A spontaneous combustion monitoring system should be established for mines that are prone to spontaneous combustion and coal seams that are prone to spontaneous combustion.

3.1.2 Mining mines prone to spontaneous combustion and spontaneous combustion coal seams, in addition to complying with the provisions of Section 2.2 of this standard, should also be equipped with additional detection instruments such as carbon monoxide, temperature and other harmful gas concentrations. In addition to the regular detection of changes in the concentration of carbon monoxide and other harmful gases and gas temperature in the return air flow, the number of additional allocations should also meet the inspection requirements during the process of rescuing personnel and fire extinguishing, when the fire area is closed, when the fire area is confirmed to be extinguished, and when the fire area is unsealed. Carbon monoxide and other harmful gas concentration requirements.

3.1.3 Mine mines prone to spontaneous combustion and spontaneous combustion coal