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

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Coal chemical engineering design fire protection standard

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1 General

1.0.1 This standard is formulated in order to standardize the fire protection design of coal chemical engineering, reduce fire hazards, and protect personal and property safety.

1.0.2 This standard is applicable to the fire protection design of new construction, expansion and reconstruction projects that use coal as raw material to produce fuel and chemical products through coal gasification or direct coal liquefaction process.

1.0.3 The fire protection design of coal chemical engineering should follow the relevant national guidelines and policies, so as to be safe, reliable, advanced in technology, and economical and reasonable.

1.0.4 The fire protection design of coal chemical engineering shall not only implement this standard, but also comply with the current relevant national standards.

2.0.1 coal chemical factory

A factory that uses coal as raw material and adopts coal gasification or direct coal liquefaction technology to produce, store and transport fuel and chemical products.

2.0.2 coal storage and transportation system

Raw coal storage, transportation and processing system, including coal loading, coal unloading, coal transportation, storage, crushing and other facilities.

2.0.3 pulverized-coal preparation system pulverized-coal preparation system

Processing system for processing raw coal into coal powder, including feeding metering, grinding, drying, conveying, collecting, storage and other facilities.

2.0.4 Explosion-proof wall

Walls used to resist blast shock waves.

3 basic rules

3.0.1 The fire hazard classification of liquefied hydrocarbons and flammable liquids shall comply with the provisions in Table 3.0.1.

Fire hazard classification of liquefied hydrocarbons and flammable liquids

Note. 1 Class B liquids whose operating temperature exceeds their flash point shall be classified as Class A and B liquids;

2 Class C A liquid whose operating temperature exceeds its flash point shall be classified as Class B A liquid;

4 The fire separation distance between Category C installations or facilities and surrounding adjacent facilities shall not be less than 75% of the requirements for Category A and B installations or facilities;

5 For transfer stations, screening and crushing chambers, coal unloading devices, and coal transport trestles, the fire separation distance shall not be less than 50% of the coal storage area regulations, and shall not be less than 20m;

6 The fire separation distance between important plant-wide or regional facilities and category D and E facilities of adjacent plants shall not be less than 25m;

7 The fire separation distance between various facilities in the coal chemical plant and the coal storage yard in the adjacent factory that is exclusively used by the coal chemical plant shall be increased by 25% according to the value specified in Table 4.2.5 of this standard for the coal storage yard area, and shall not be less than 30m;

8 The fire separation distance between the liquid ammonia tank group and the surrounding adjacent facilities shall be determined in accordance with the corresponding provisions of the Class A and B liquid tank groups;

9 The volume of the storage tank is not greater than 1000m³ 10 The fire separation distance between the liquefied hydrocarbon tank group and the 330kV~1000kV overhead power line shall not be less than 1.5 times the tower height and shall not be less than 100m;

11 in the table 4.1.7 The fire separation distance between the coal chemical plant and the public facilities in the chemical park shall comply with the relevant provisions of the current national standard GB 50160 "Standards for Fire Protection in Design of Petrochemical Enterprises".

4.2 General layout

4.2.1 The coal chemical plant shall, according to its own production process, characteristics, functional requirements and fire hazards of each component, and in combination with terrain, wind direction, traffic and other conditions, carry out general layout

according to functional divisions, and shall comply with the following regulations.

- 1 Facilities that may emit flammable gases, tank groups, loading and unloading areas, and plant-wide sewage treatment plants should be located on the upwind side of the annual minimum frequency wind direction in crowded places, open flames, and sparks;
2. The air separation unit should be arranged in the area with clean air, and it should be located on the downwind side of the annual minimum frequency wind direction in the place emitting combustible gas and combustible dust;
3. The main substation that uses overhead power lines to enter the factory area shall be arranged at the edge of the factory area;
- 4 The coal storage yard area should be arranged on the edge of the plant area, and should be located on the windward side of the annual minimum frequency wind direction of the plant area
- 5 The loading and unloading facilities for flammable liquid vehicles should be arranged on the side of the factory area facing the road outside the factory, and fences should be set up to separate them from other facilities; the railways in the factory should be arranged concentratedly at the edge of the factory area;
- 6 The factory-wide hazardous chemical warehouse should be arranged at the edge of the factory area;
7. The plant-wide elevated flare should be located on the windward side of the minimum frequency wind direction throughout the year;
- 8 The central control room should be far away from the equipment (area) and storage tank (area), and should be set in the production management area;
- 9 The liquefied hydrocarbon tank group and the flammable liquid tank group should not be adjacently arranged on the platform higher than the device, the important facility of the whole plant or the personnel concentration place; when limited by conditions or required by the process, the flammable liquid raw material storage tank On a platform higher than the device, measures should be taken to prevent leaking flammable liquid from flowing into the device, important plant-wide facilities or places where people gather;

4.2.6 The fire distance between the center line of the loading and unloading line of liquefied hydrocarbons and flammable liquid tank cars and the center line of the coal unloading line of the railway in the factory shall meet the following requirements.

- 1 For liquefied hydrocarbon loading and unloading lines, it shall not be less than 25m;
- 2 For the loading and unloading lines of Class A, B and B liquids, the length shall not be less than 20m;
- 3 For the Class C liquid loading and unloading line, it shall not be less than 15m.

4.2.7 In the railway loading and unloading area for liquefied hydrocarbons and flammable

liquids, the fire separation distance between the centerlines of two adjacent platform railway loading and unloading lines and between the diesel locomotive and the centerline of another platform railway loading and unloading line shall meet the following requirements.

1 For Class A and B liquids, the fire separation distance between the centerlines of two adjacent pallet railway loading and unloading lines shall not be less than 10m, and the fire separation distance between a diesel locomotive and the centerline of another pallet railway loading and unloading line shall not be less than 12m; When Class A, B, and Class B liquids are loaded and unloaded in a sealed manner, the fire distance can be reduced by 25%;

2 For Class C liquids, the fire separation distance between the centerlines of two adjacent pallet railway loading and unloading lines shall not be less than 7m, and the fire separation distance between a diesel locomotive and the centerline of another pallet railway loading and unloading line shall not be less than 8m.

4.2.8 Other layouts such as railways in the factory and greening of the factory area shall comply with the relevant provisions of the current national standard "Standards for Fire Prevention in Design of Petrochemical Enterprises" GB 50160.

4.3 Fire lanes in the factory

4.3.1 There should be no less than 2 vehicle entrances and exits leading to the road outside the plant in the coal chemical plant, and they should be located in different directions.

4.3.2 Ring fire lanes should be set up around the following places, and at least two places should be connected with other lanes.

- 1 device or combination device;
- 2 Combustible gas storage tank area, flammable liquid storage tank area;
- 3 Combustible liquid storage tanks with a total volume of not less than 120,000m³ single tank group or multiple tank groups;
- 4 Liquefied hydrocarbon storage tank group;
- 5 Hazardous chemical storage area;
- 6 Open-pit coal storage yards, silos, and coal storage warehouses with an area greater than 10,000 square meters;
- 7 Railway loading and unloading areas for liquefied hydrocarbons and flammable liquids.

For the places in Items 2, 5, 6, and 7 of this article, when it is really difficult to set up a circular fire lane due to terrain conditions, an end-type fire lane with a return yard can also be set up. The return yard should not be less than 20.0m x 20.0m (including the road