



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

GB 50161-2022

Fireworks and firecrackers engineering design safety standards

Issued on: September 8, 2022

Implemented on: December 1, 2022

**Issued by: Ministry of Housing and Urban-Rural Development of the
People's Republic of China;
State Administration for Market Regulation**

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1 General

1.0.1 This standard is formulated to standardize the safety design of fireworks and firecrackers projects, prevent major safety risks, prevent production safety accidents, protect the lives of the people, and promote the safe, sustainable and high-quality development of the fireworks and firecrackers industry.

1.0.2 This standard is applicable to the engineering design of new construction, reconstruction and expansion of fireworks production and construction projects and wholesale warehouses, but not applicable to the engineering design of fireworks retail stores (points).

1.0.3 The provisions of this standard on external safety distances are also applicable to the planning and construction of residential areas, enterprises, towns, and important facilities around fireworks production and construction projects and wholesale business warehouses.

1.0.4 In addition to complying with this standard, the engineering design of fireworks production and construction projects and wholesale operation warehouses shall also comply with the current relevant national standards.

2.0.1 Fireworks project for production and construction of fireworks

Factory buildings, warehouses, places, and supporting facilities for the production of fireworks and firecrackers, black powder, pyrotechnic powder, fuses, etc. for the production of fireworks and firecrackers.

2.0.2 Hazardous goods

Items that may endanger human safety and property safety, this standard refers to black powder, pyrotechnic powder, fuse, single-base gunpowder, oxidant, reducing agent (combustibles), etc., as well as semi-finished and finished fireworks made of the above items.

2.0.3 Semi-finished product

Products that have been completed in some production stages and need further processing.

2.0.4 hazardous goods production building

Buildings (structures) that produce and process dangerous goods.

2.0.5 Hazardous goods transit store

During the production process, the buildings (structures) used for temporary storage of medicines, fuses, medicinal parts, semi-finished products and finished products in the factory area.

2.0.6 hazardous goods general store area

Centrally set up the warehouse area for storing dangerous goods such as finished fireworks and firecrackers, black powder, pyrotechnic powder (effect parts), and fuses.

2.0.7 temporary explosive storage cave

Caves embedded in natural mountains near dangerous buildings (structures) and used for temporary storage of medicines.

2.0.8 Hazardous buildings (structures)

Buildings (structures) that produce or store dangerous goods, including dangerous goods production plants, transit warehouses, storage warehouses, drying yards, fireworks and firecrackers testing grounds, caverns for temporary storage of black powder, pyrotechnic powder and effect parts, etc.

2.0.9 Calculated quantity of explosive

The maximum amount of explosives stored or processed in a building (structure) that can explode or burn at the same time.

2.0.10 design quantity of explosive

The amount of dangerous goods that can be converted into TNT equivalent and can explode at the same time.

2.0.11 External distance external safety distance

The minimum safe distance allowed under the specified damage standards between dangerous buildings (structures) and various external targets of the factory (reservoir area).

2.0.12 internal safety distance

The minimum distance between dangerous buildings (structures) and adjacent buildings (structures) should be satisfied under the specified damage standards.

2.0.13 Auxiliary room

Tool rooms, monitoring rooms, duty rooms, changing rooms, toilets, etc. set up in dangerous buildings (structures).

2.0.14 Armor protective device armor protective device

A device installed in a specific place or on a single specific equipment or operating position to prevent personnel, materials or equipment outside the device from being damaged by a possible local fire or explosion.

2.0.15 blast resistant door

The door is installed on the anti-blast structure wall of the anti-blast room and has the overall effect of resisting the blast shock wave and the penetration of fragments.

2.0.16 delivery window

It is a window-type device specially set up on the explosion-proof wall or safety isolation device to transfer dangerous materials and has the functions of explosion-proof and fire-proof.

2.0.17 emergency exit

The operating personnel in the building (structure) can be directly evacuated to the exit of the outdoor safe zone.

2.0.18 Electrical installation in hazardous locations

Explosive or flammable substances are present or expected to be present in sufficient quantities.

A place where precautions are taken for the construction, installation and use of electrical

equipment.

2.0.19 combustible dust atmosphere combustible dust atmosphere

Under atmospheric environmental conditions, the mixture of dust or fibrous combustible substances and air is ignited, and the combustion spreads to the environment of all unburned mixtures.

2.0.20 Explosive gas atmospheres explosive gases atmospheres

Under atmospheric ambient conditions, the mixture of gas or vapor combustible substances and air is ignited, and the combustion spreads to the environment of all unburned mixtures.

2.0.21 Direct earthing direct-earthing

Connect metal equipment or metal components to the grounding system directly with conductors for reliable connection.

2.0.22 Indirect grounding indireet-earthing

Reliably connect the human body, metal equipment, etc. to the grounding system through anti-static materials or anti-static products.

2.0.23 Anti-electrostatic material

By adding conductive substances (carbon black, metal powder, etc.), antistatic agents, etc. to the polymer to reduce the resistivity and increase the charge leakage capability of the material.

2.0.24 Anti-electrostatic ware

Items made of curved antistatic materials, solid in shape, and with a resistance value in the range of $5 \times 10^4 \Omega \sim 1 \times 10^8 \Omega$.

2.0.25 static non-conductor static non-conductor

Objects with volume resistivity greater than or equal to $1.0 \times 10^{10} \Omega \cdot \text{mm}$ or objects with surface resistivity greater than or equal to $1.0 \times 10^{11} \Omega$.

2.0.26 maximum permissible surface temperature

The maximum surface temperature that electrical equipment is allowed to reach during operation in order to avoid ignition of dust.

2.0.27 Independent electrical substation