

# TSG

SAFETY TECHNICAL REGULATION  
OF SPECIAL EQUIPMENT

TSG 23-2021

## Regulation on Safety Technology for Gas Cylinder 气瓶安全技术规程

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# Regulation on Safety Technology for Gas Cylinder

## 1 GENERAL PROVISIONS

### 1.1 Purpose

In order to normalize the safe operation of gas cylinders, to protect people's lives and property safety, and to promote economic and social development, this Regulation is formulated in accordance with the *Special Equipment Safety Law of the People's Republic of China* and the *Regulations on Safety Supervision of Special Equipment*.

### 1.2 Scope of Application

(1) This Regulation is applicable to seamless gas cylinders, welded gas cylinders, cryogenic insulated gas cylinders, fiber-wrapped gas cylinders, gas cylinders filled with packing, and gas cylinder bundles (Note 1-3), of which the ambient temperature is  $-40^{\circ}\text{C}$  to  $60^{\circ}\text{C}$  (Note 1-1), the nominal water capacity is 0.4L to 3,000L, the nominal working pressure is 0.2 MPa to 70 MPa (gauge pressure, the same below), the product of pressure and capacity is not less than  $1.0 \text{ MPa}\cdot\text{L}$ , containing compressed gas, high/low pressure liquefied gas, cryogenic liquefied gas, dissolved gas, adsorbed gas, gas mixture (Note 1-2), and liquid with a standard boiling point  $\leq 60^{\circ}\text{C}$ ;

(2) The large-capacity cylinders intended for tube trailers and bundle containers and the cylinders for fire extinguishment should meet the requirements of general provisions, materials, design and manufacturing set out in this Regulation; furthermore, the tube trailers and bundle containers should fulfill the requirements of *Supervision Regulation on Safety Technology for Transportable Pressure Vessel*; the large-capacity cylinders of  $>3,000 \text{ L}$  and  $\leq 5,000\text{L}$  may use the provisions of this Regulation as a reference.

The gas cylinders referred to in this Regulation includes shell and cylinder attachments; the categories, types, and designations of gas cylinders covered by this Regulation are as described in Annex A.

Note 1-1: The ambient temperature applicable to the cylinders for vehicles (Note 1-4) and the cylinders for fire extinguishment should fulfill the requirements of appropriate standards.

Note 1-2: The classification of gases filled in cylinder, e.g. compressed gas, high/low pressure liquefied gas, cryogenic liquefied gas, dissolved gas, adsorbed gas, and gas mixture, and the physical parameters of commonly used gases are as described in Annex B.

Note 1-3: The cylinder bundle refers to a number of cylinders are bundled together to form a cylinder installation for the purpose of road transportation or temporary fixation, generally consisting of gas cylinders, pipelines, and frame.

Note 1-4: The cylinder for vehicles refers to the cylinder containing automotive fuels, e.g. natural gas, hydrogen, liquefied petroleum gas, liquefied dimethyl ether, etc., fixed in the motor vehicles.

### 1.3 Scope of Inapplicability

This Regulation is not applicable to the cylinders for fire extinguishment which are only subjected to instantaneous pressure during fire fighting, or cylinders for portable dry powder fire extinguishers, or cylinders for water-based fire extinguishers, or brazed structure cylinders, or cylinders intended for military equipment, nuclear facilities, aerospace planes, railway locomotives, offshore installations and ships, and special equipment for underground mines and civil airports.

### 1.4 Relationship with Standards and Administrative Systems

(1) This Regulation specifies the basic safety requirements for design, manufacturing, type test, supervision and inspection, filling and usage, and periodic inspection of gas cylinders; the relevant standards for gas cylinders and the safety management requirements for gas cylinders developed by relevant enterprises shall not be inferior to this Regulation.

(2) Generally, gas cylinder products should be designed and manufactured according to national or industry standards. If national or industry standards are not available, group standards or enterprise

standards should be formulated. Enterprise standard setters should also provide a comparison table that meets the basic safety requirements of this Regulation. See Annex C for the format.

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