

# Guidelines for handling high-pressure gas cylinders

Guideline 15, No. 6

9 June 2003

## 1. Purpose

These detailed guidelines define safe handling of high-pressure gas cylinders and the necessary actions in irregular cases on the basis of Article 17, Term 2, in the Regulations for Safety Precaution for High-Pressure Gas (hereafter called Regulations) stipulated by JASRI.

## 2. Definition

Cylinders in this guideline are those for the containment of high-pressure gas, as determined by the high-pressure gas safety laws, which can be transported over the ground.

## 3. Handling

### 3.1 General rules

The rules described below are to be followed in the handling of cylinders.

- a. Use cylinders that have passed the inspection of cylinders (including re-inspection) and that have the prescribed stamp on them.
- b. When cylinders filled with a total of 300 m<sup>3</sup> or more of high-pressure gas are stored in a building or within 30 m of a building (except those connected by pipes), the cylinders must be stored at the designated site for gas storage.
- c. Open and close the valve of a cylinder gently.
- d. Secure cylinders in place so that they do not fall, tumble or move, using chains, cylinder stands, and other retainers.
- e. Use a heating pad or hot water at 40° C or lower to heat cylinders, valves, and pipes.
- f. Prevent corrosion of cylinders by humidity or dripping water.
- g. Inspect the valve, pressure regulator, pressure meter and piping for any abnormalities before, during, and after the use of cylinders.
- h. Attach safety caps to cylinders not in use or those being transported.

- i. Transport cylinders carefully using a cylinder carrier so as not to applying any shock. Those who carry cylinders must wear gloves.
- j. Use the pressure regulator appropriate for the type of gas filled in the cylinder, and do not use it for any other type of gas.
- k. Sufficiently wash the connecting parts of the cylinder and pipes and connect them tightly to prevent gas leakage.
- l. Do not place cylinders in a sealed room. If it is necessary to use them in a sealed room, take measures for preventing lack of oxygen (for example, installation of a warning device and ventilation system).
- m. Any other rules set by the safety supervisor, safety staff, cylinder manager, and the general manager of the Safety Office for the purpose of safe control must be followed.

### 3.2 Flammable gas

Follow the rules described below in addition to the general rules when using cylinders filled with flammable gas (hydrogen, ammonia, carbon monoxide or other flammable gas).

- a. Post signs announcing the use of flammable gas at the door.
- b. Use the gas in a well-ventilated area (when used in a room, confirm that the ventilation system is working), and keep the temperature of the cylinder at or below 40° C.
- c. Smoking and the use of fire are banned. Do not place flammable or combustible materials within 5 m of the area where gas is used.
- d. Ensure that firefighting equipment such as a fire extinguisher is readily accessible.
- e. Any other rules set by the safety supervisor, safety staff, cylinder manager, and the general manager of the Safety Office for the purpose of safe control must be followed.

### 3.3 Toxic gas

Follow the rules described below in addition to the general rules when using cylinders filled with toxic gas (chlorine, hydrogen chloride, ammonia, carbon monoxide or other toxic gas).

- a. Post signs announcing the use of toxic gas at the door.
- b. Use the gas in a well-ventilated area (when used in a room, confirm that the ventilation system is working), and keep the temperature of the cylinder at or below 40° C.

c. Any other rules set by safety supervisor, safety staff, cylinder manager and the general manager of the Safety Office for the purpose of safe control must be followed.

### 3.4 Oxygen gas

Follow the rules described below in addition to the general rules when using cylinders filled with oxygen gas.

- a. Smoking and the use of fire are banned. Do not place flammable or combustible materials within 5 m of the area where oxygen gas is used.
- b. Ensure that firefighting equipment such as a fire extinguisher is readily accessible.
- c. Remove flammable materials such as petroleum and oil from valves and other tools.
- d. Any other rules set by the safety supervisor, safety staff, cylinder manager and the general manager of the Safety Office for the purpose of safe control must be followed.

### 4. Receipt of cylinders

Anyone wishing to receive gas cylinders must appoint a cylinder manager in advance and prepare and keep the record of the delivery and receipt of cylinders.

### 5. Return of cylinders

- a. Return unnecessary cylinders, including those with remaining gas, to the gas supplier immediately.
- b. Immediately return, to the supplier, cylinders exceeding the guarantee period defined by inspection.

### 6. Action in irregular cases

- a. Immediately inform everyone in the vicinity of any irregularity, and report the irregularity through the emergency contact network. Take necessary measures to prevent fire, and seek directions from safety staff or the cylinder manager.
- b. In the case of fire, take all necessary measures, such as moving cylinders to a safe place or cooling them with water, to prevent the heating of cylinders.

### Supplementary provision

This guideline is effective June 9, 2003.