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

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Regulation for filling of welded insulated cylinder

焊接绝热气瓶充装规定

(English Translation)

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Foreword

All the technical contents of this standard is mandatory.

Accordance with the standards GB/T 1.1-2009. Drafting Rules "Standardization Guide Part 1 standard structure and preparation of" given.

This standard by the National Standardization Technical Committee cylinder (SAC/TC31) and focal points.

This standard was drafted. Beijing Praxair Co., Ltd., Beijing Tianhai Industry Co., Ltd., Hangzhou New Century mixed gas Ltd., the Asian branch of China Gas Association.

1 Scope

This standard specifies the design and manufacture of GB 24159 "welding insulation cylinder" (also known as low-temperature insulation cylinder, hereinafter referred to as cylinders) filling the basic principles of safety and technical requirements.

This standard is applicable for use in normal ambient temperature ($-40\text{ }^{\circ}\text{C} \sim 60\text{ }^{\circ}\text{C}$), the storage medium is liquid oxygen, liquid nitrogen, liquid argon, carbon dioxide and Cryogenic liquid nitrous oxide, the design temperature is not lower than $-196\text{ }^{\circ}\text{C}$, the nominal volume of 10L $\sim$ 450L, working pressure of 0.2MPa $\sim$ 3.5MPa can Refillable vertical cylinders.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB 24159 welding insulation cylinder JB6898 cryogenic liquid storage equipment safety rules Check before filling 3 3.1 cylinders should have the following tags.

- a) cylinders shall have a "manufacturing license," the unit of production, and the manufacturer's name and the supervision and inspection mark;
- b) cylinders working pressure;
- c) number of cylinders and cylinder bottle NW;
- d) the date of manufacture cylinders;
- e) Number of cylinders own property.

3.2 Cylinders should only be by visual inspection, visual inspection include.

- a) name of the media filling and safety warning labels must be clear and complete;
- b) the cylinder surface without oil;
- c) the cylinder surface without serious depression, no over-burning phenomenon or other serious injury;
- d) the cylinder valve without damage, loose and missing parts phenomenon can be normal operation; gas outlet, liquid inlet and vent fitting dimensions meet Filling media requirements;
- e) the cylinder valve pressure rating is correct, intact, no discharge port blockage;
- f) connecting conduit at the top of the cylinder, level gauge, pressure gauge, pressure regulator without damage, loose and missing parts.

3.3 cylinders belonging to one of the following circumstances, should be treated, is prohibited filling.

- a) visual inspection of the original mark and do not meet the requirements of 3.1 and 3.2 cylinders;
- b) the original media bottle of unknown gas cylinders.

3.4 non-refillable cylinders scrapped.

4 Filling

4.1

should be filled using the gravimetric method. Measurement scales should be required to regularly test should be corrected prior to use once a day, to ensure its accurate indication, reliable. Weighing the maximum load shall be weighed in common (1.5-3.0) times.

4.2

Cylinder Filling Unit Filling procedures should be developed with reference to the unit and relevant regulations of the cylinder manufacturer.

No residual pressure of 4.3 for the first time and return when filling gas cylinders, gas purge should be clean, in order to ensure product quality.

Keep the joint seal surface cleanliness 4.4 connection line, do not have water or ice.

4.5

For CO₂ cylinders, use carbon dioxide gas purging. Application before filling carbon dioxide gas is pressurized to 0.8MPa or more, in the process of filling and continue to maintain pressure within the cylinder is not less than 0.8MPa.

4.6

should ensure that the filling gas cylinders upright, non-refillable lying down or diagonal.

4.7

filling amount can not exceed the maximum amount of filling gas cylinders nameplate, eliminate excess filling.

5 Check, after filling

5.1

The valve should be closed, and all attachments without pipeline leakage phenomenon.

5.2

cylinders look no frost, condensation.

6 Filling line

6.1

filling the pipeline design should take full account of the requirements of the maximum working pressure and cryogenic liquid system to the liquid pipeline between the two valves Installation adapt safety valve opening pressure should match the system pressure.

6.2

Connecting the vent pipe, residue emissions are vented during filling to be discharged to the outside.

7 Filling record

7.1

units should be someone responsible for completing the filling cylinder filling records. Contents of the record shall include at least.

- a) the date of filling;
- b) number of gas cylinders;
- c) Cylinder tare;
- d) the effective volume of the cylinder;
- e) The actual amount of filling gas cylinders;
- f) filling's name;
- g) filling the media name.

7.2

filling units should keep filling records, record time should not be less than two years.

8 Additional requirements

8.1

should be safe and reliable handling tools move cylinders. Prohibit the handling and storage cylinders lying down.

8.2

should consider the possibility of using a closed transport oxygen-rich surroundings appear or hypoxia.

8.3

The operator should give full consideration to the gas cylinder fixed way, bottles, valves, piping and safety relief devices to protect intact.

8.4

filling unit should be fitted with anti-wrong means to prevent product mix.

8.5

Security shall refer to the relevant clauses JB6898 execution.