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

EJ/T 307-2014

**Requirements on application of uranium hexafluoride cylinder
(English Translation)**

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Foreword

This Standard replaces EJ/T 307-1996 Requirements on application of uranium hexafluoride cylinder.

Compared with EJ/T 307-1996, this Standard has the main changes as follows.

- a) ADD the requirements that the stainless steel containers need to be conducted with cold-hot test when operating at -196°C;
 - b) ADD the methods of pressure test and gas leakage test;
 - c) ADD the requirements of paint identifications for serial-number 300L, 740L, 1,000L and 3m3 containers;
 - d) ADD the item that the allowable loading amount of containers shall not be greater than 3.0kg when the loading abundance of 1L containers is less than 5%;
 - e) CHANGE the pressure test cycle of 60L containers from 3a to 5a.
- CHANGE the pressure test cycle of 1L containers whose loading abundance is less than 5% from 1a to 5a;

- f) ADD the requirements of critical control during the hydrolysis;
- g) ADD the relevant requirements for scrapping containers;
- h) USE the contents referenced from EJ/T 190 to replace the contents of Item c in Article 6.1.3.3 of the previous Standard;
- i) ADD the operating provisions of liquid filling;
- j) DELETE Table 4 in the original Standard.

This Standard was proposed by China National Nuclear Corporation (CNNC).

This Standard shall be under the jurisdiction of the Institute for Standardization of Nuclear Industry.

Drafting organization of this Standard. CNNC Lanzhou Uranium Enrichment Co., Ltd.

Main drafters of this Standard. Zhou Junjie, Wu Tingfang, Xin Zhiyi, Li Jiangang, Zhang Minhua, Wei Xiangpeng, and Jing Mingxuan.

This Standard was first released in 1987, and was first revised in 1996.

Requirements on application of
uranium hexafluoride cylinder

1 Scope

This Standard specifies the management and application methods of UF₆ containers.

This Standard applies to the application of 1L, 60L, 300L, 740L, 1,000L and 3m³ UF₆ containers, and shall be considered as a reference for the application of other UF₆ containers.

2 Normative references

The provisions in the following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard. However, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are

applicable. For undated references, the latest versions apply to this Standard.

GB 150 Steel pressure containers

GB/T 3864-1996 Industrial nitrogen

GB 11806 Regulations for the safe transport of radioactive material

GB 15146.3 Nuclear criticality safety for fissile materials outside reactors -

Part 3. Requirements for nuclear criticality safety in the storage of fissile materials

EJ/T 190-1994 Technical conditions for steel containers

EJ/T 303 1L UF6 containers

EJ/T 304 60L UF6 containers

EJ/T 305 300L UF6 containers

EJ/T 306 1,000L UF6 containers

EJ/T 350 740L UF6 containers

buckles. The engagement length of the threads between the bolts of embedded valve bodies and the valve bodies shall not be less than 1.5 times of the bolt diameter. The bolts and nuts shall have $\Phi 2\text{mm}$ lead sealing holes.

3.2.9 The tin-plated valves shall be screwed in for 7-12 buckles, while the container plugs shall be screwed in for 5-8 buckles. The screwing torque shall be within the range of 280-560N·m. The valves and plugs shall have $\Phi 2\text{mm}$ lead sealing holes.

4.1.1 The stainless steel containers need to be conducted with cold-hot test when operating at -196°C . When each batch of containers includes more than 10pcs, SAMPLE the containers accounting for 10% to 20% of the batch quantity for cold-hot test. If one of the containers is unqualified, INCREASE the sampling quantity to 40% of the batch quantity. If the non-conformance products still exist, CONDUCT the cold-hot test to the entire batch of containers. When the batch quantity is equal to or less than 10pcs, CONDUCT the cold-hot test to each container.

4.1.2 The method of conducting the cold-hot test to the containers is as follows.

- a) During the test, EVACUATE the container until the pressure is lower than 133Pa. After 30min, CHECK whether the pressure meets the requirements of the vacuum test.
- b) PUT the container in the dedicated Dewar bottle. POUR in liquid nitrogen, so as to cool down the container. The liquid level of liquid nitrogen shall always submerge the welds of container neck. FREEZE the container for 1h. Naturally THAW to room temperature. HEAT the container to the maximum allowable temperature according to the provisions of design drawings. MAINTAIN heating for 1h. Naturally COOL down to room temperature.
- c) The vacuum test for containers shall meet the requirements of Article 4.4.1.

4.2.1 The requirements for pressure gages and the safety precautions of the pressure test are as follows.

- a) USE two pressure gages that are proven to be qualified along with the same measuring range for conducting the pressure test;
- b) The precision of pressure gages shall not be lower than Level 1.5. CONDUCT verification within half a year. The appropriate measuring range shall be 1.5 to 3 times of the test pressure. The dial diameter shall be greater than 100mm;
- c) The safety precautions of the pressure test shall be implemented according to TSG R0004-2009.

4.2.2 CONDUCT hydrostatic test or air pressure test according to the requirements of design drawings.