

ICS 13.230
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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

AQ 3001-2005

**Technology-separate and explosion-proof of gasoline, gas
filling station and light-fuel, LPG tank of transportation by truck
(English Translation)**

Issued on: April 13, 2005

Implemented on: October 1, 2005

Issued by: State Administration of Work Safety

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1 Scope

This standard specifies the classification and marking, requirements, testing methods, inspection rules and technical documents of automobile gasoline (gas filling) stations that adopt the separate and explosion-proof technology as well as the light fuel oil and liquefied petroleum gas separate and explosion-proof storage tanks (tanks) for automobile transportation.

This standard applies to the design, manufacture, installation and acceptance of separate and explosion-proof storage tanks for gasoline (gas filling) stations, light fuel oil, LPG tank cars.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For the 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 edition of the referenced document applies.

GB 150 Steel pressure vessel

GB 15322 Technical requirements and test methods for combustible gas detectors

GB 18564 General specification for normal pressure tank body of transportation liquid dangerous goods

HG 23011-1999 The safety code for hot work in workplace

HG 23012 The safety code for vessel entry in workplace

Ministry of Labor Ministry of Labor [1994] No.262 Safety Supervision

Regulations for Liquefied Gas Tank Trucks liquid, the ratio of the volume of the liquid replaced to the volume of the tank.

3.7

Washing passage

A channel as reserved at the bottom of the tank for removing dirt and residue.

3.8

Well

A bracket installed at the manhole of the tank with an upper end fixed to the manhole and a lower end connected with the cleaning channel.

3.9

Internal unit

A column or multi-faceted column made of metal mesh packed in the well with the separate and explosion-proof material filled inside.

3.10

Construction piece

The components used to support the separate and explosion-proof materials, well, and position the cleaning channels in the tank, which are generally composed of one or several units.

3.11

Increases of pressure by burning explosion

Under the same test conditions, the pressure value after the explosion test without and with the installation of the separate and explosion-proof material is measured. The difference between the two and the initial pressure value before the explosion test is the increase of pressure by burning explosion, which can be used to evaluate the explosion-proof performance of the separate and explosion-proof material.

4.1.1 Classification by separate and explosion-proof materials

Separate and explosion-proof materials are divided into five types. Type I, Type

5.3.1 Cleaning before implementing separate and explosion-proof

technology

Implementation of cleaning of separate and explosion-proof technology storage tank adopts different solutions for new storage tanks and in-use storage tanks.

5.3.1.1 New tank cleaning

5.3.1.1.1

Inspect and determine the reagents for the tank leakage test.

5.3.1.1.2

Choose an appropriate cleaning agent for cleaning operations.

5.3.1.1.3

The safety analysis and qualification criteria are as follows.

- a) When using an explosion detector or other similar means, the measured gas or vapor concentration shall be less than or equal to 20% of the lower explosion limit;
- b) When using other analytical methods, when the lower explosive limit of the measured gas or vapor is greater than or equal to 4%, the measured concentration is less than or equal to 0.5%; when the measured lower explosive limit of the gas or vapor is less than 4%, the measured concentration is less than or equal to 0.2%;
- c) Other requirements shall comply with the provisions of Chapter 6 in HG 23011-1999.

5.3.1.1.4

The operations in the equipment shall comply with the requirements of HG 23012.

5.3.1.2 In-use tank cleaning

5.3.1.2.1

In order to ensure the construction safety in the transformation process of the separate and explosion-proof storage tank; the storage tank shall be cleaned before transformation.

Before cleaning, it shall check and determine the leakage of the storage tank. If it leaks, it shall be repaired and welded to prevent leakage. Cleaning shall meet the requirements of 5.3.1.1.1 and

5.3.1.1.2 of this standard.

5.3.1.2.2

The safety analysis and qualification criteria shall be in accordance with the provisions of 5.3.1.1.3 of this standard.

5.3.1.2.3

The operations in the equipment shall comply with the requirements of HG 23012.

5.3.2 Cleaning of storage tanks after separate and explosion-proof

technology transformation

5.5 Explosion-proof requirements

The Increases of pressure by burning explosion of the separate and explosion- proof device shall be less than or equal to 0.14 MPa.

6.1.1 Material appearance quality

The appearance quality of the separate and explosion-proof materials shall be inspected by straightedge and visual inspection methods, which shall meet the requirements of 5.2.1.

6.1.2 Material structure size

Use a vernier caliper to check the structural size of the separate and explosion- proof material, which shall meet the requirements of 5.2.2.

6.2 Safety testing of cleaning operation

Determination of the concentration of flammable and explosive gas or vapor.

6.2.1

Explosion detector or other similar means for testing

The explosion detector shall meet the requirements of GB 15322.

The testing range of its concentration shall comply with the provisions of item

1) of 5.3.1.1.3.

6.2.2 Use other analytical methods for testing

Test according to the relevant standards of various testing objects

The testing range of its concentration shall comply with the provisions of item

2) in 5.3.1.1.3.