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

GB 18614-2012

Replacing GB 18614-2002

Fire extinguishing agent heptafluoropropane (HFC227ea)

七氟丙烷 (HFC227ea) 灭火剂

(English Translation)

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Foreword

Chapter 4 of this standard, Chapter 6 are mandatory, the rest are recommended.

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard replaces GB 18614-2002 "heptafluoropropane (HFC227ea) fire extinguishing agent", compared with GB 18614-2002, the main technical

Changes are as follows.

--- Modify the "acidity" test method (see 54, 2002 version 5.3.);

--- An increase of "Toxic", "concentration of fire" test items and test methods (see Chapter 4, Table 1 and 5.8,5.9);

The standard reference method using redrafted ISO 14520-9.2006 "gas fire extinguishing systems - Physical properties and system design - Part 9.

HFC227ea extinguishing agents "(in English) establishment, and ISO 14520-9.2006 is equivalent to the degree of non-conformity.

The standard proposed by the People's Republic of China Ministry of Public Security.

This standard by the National Standardization Technical Committee of fire extinguishing agent Technical Committee (SAC/TC113/SC3) centralized.

This standard was drafted. Tianjin Fire Research Institute of Ministry of Public Security.

1 Scope

This standard specifies the heptafluoropropane (HFC227ea) terms and definitions extinguishing agent requirements, test methods, inspection rules, marking, packaging,

Transportation, storage and so on.

This standard applies to seven fluorine propane (HFC227ea) extinguishing agent.

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/T 191-2008 Packaging - Pictorial signs

Preparation of GB/T 601 chemical reagent standard titration solution

GB/T 603 chemical reagent in test methods - Preparations with

GB 5749 drinking water health standards

GB/T 5907 fire first part basic terms

Laboratory use specifications and test methods GB/T 6682 Analysis

GB/T 7376 Determination of water by industrial fluorinated alkanes Trace

GB 14193 Rules for filling of liquefied gas cylinders

GB 14922.1 Laboratory Animal parasitology rating and monitoring

GB 14922.2 Microbiology Laboratory Animal rating and monitoring

Genetic quality of GB 14923 animals mammals animal control

GB 14924.3 animal feed nutrients

GB 14925 Laboratory Animal Facilities and Environment

GB/T 20702-2006 gas fire extinguishing performance test methods

3 Terms and Definitions

GB/T 5907, GB/T 20702-2006 and as defined in the following terms and definitions apply to this document.

3.1

For extinguishing heptafluoropropane (HFC227ea).

NOTE: heptafluoropropane according to our chemical nomenclature system should 1,1,1,2,3,3,3-heptafluoropropane, in accordance with the internationally accepted nomenclature called Halon

HFC227ea. Specific meaning is. HFC Representative hydrofluorocarbons; 2 represents a carbon atom number minus 1 (i.e. three carbon atoms); 2 represents a hydrogen atom number plus 1 (i.e.

A hydrogen atom); 7 represents a fluorine atom number (i.e., seven fluorine atoms); E represents a substituent to form an intermediate carbon atoms -CHF-; a represents carbon atom at both ends

Sub-atomic weight of substituted and the difference between the minimum that is the most symmetrical.

4 Requirements

Heptafluoropropane (HFC227ea) extinguishing agent shall comply with the technical performance requirements in Table 1.

Table 1 heptafluoropropane (HFC227ea) fire extinguishing agent technology performance

Project Type Technical indicators failed

Purity /% (m/m) ≥ 99.6 A

Acidity /% (m/m) $\leq 1 \times 10^{-4}$ A

Moisture /% (m/m) $\leq 10 \times 10^{-4}$ A

Evaporation residue /% (m/m) ≤ 0.01 B

Suspension or no turbidity or precipitate precipitate B

Extinguishing concentration (cup burner method) /% (V/V) 6.7 ± 0.2 A

toxicity

No anesthesia narcotic symptoms and characteristics A

No irritation and irritation characteristics A

5.1 General provisions

This standard reagents and water in the absence of other requirements specified refers to three analytical reagent water and GB/T 6682 stipulated.

Standard solutions used in the experiment, did not indicate when the other requirements according to GB T 601, the provisions of preparation/GB/T 603's.

5.2.1 Sample Cylinders

Sample cylinders shall meet the following requirements.

- a) made of stainless steel;
- b) design pressure of not less than 1.5MPa.

5.2.2 processing method of sample cylinder

Sample cylinders before first use, need water and an appropriate solvent (such as ethanol or acetone) and dried. After washing, at 105 °C ~ 110 °C

Drying oven bake within 3h ~ 4h, while hot cylinder was evacuated to an absolute pressure of not more than 1.3kPa, and this pressure was maintained 1h ~

2h, then close the cylinder valve to prepare for sampling.

Before each subsequent sampling should be remaining in the cylinder heptafluoropropane (HFC227ea) extinguishing agent sample vent, still 1.3kPa

After 1h under vacuum, then poured into a small amount of heptafluoropropane (HFC227ea) fire extinguishing agent, continue to maintain a vacuum sampling cylinder 1h clear

Clean and dry.

5.2.3 Sampling methods

Dry with a stainless steel capillary tube is connected to the filling heptafluoropropane (HFC227ea) extinguishing agent cylinder outlet valve, stainless steel thin tube

As short as possible, slightly opening the cylinder valve release heptafluoropropane (HFC227ea) fire extinguishing agent, flushing valve and connecting pipe 1min, then

The rapid end of the connection pipe connected to the sample close the cylinder valve. The sample cylinder on the scales (if necessary, sample cylinders can be immersed in an ice-salt bath

In), the heptafluoropropane (HFC227ea) extinguishing agent cylinder outlet valve open, open the sample cylinder valve so heptafluoropropane

(HFC227ea) extinguishing agents poured into them. From the change in weight scales instructions to determine the weight of poured sample. After sampling, the first close

Sampling cylinder valve, then close the filling heptafluoropropane (HFC227ea) extinguishing agent cylinder valve, remove the connecting pipe. All tests were

Liquid should be sampled.

5.3.1 measuring instrument

Purity measuring device using gas chromatography with capillary column and FID (with hydrogen as a carrier gas, terephthalic sensitive

Degree should be higher than 8000mV · mL/mg).