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PEOPLE'S REPUBLIC OF CHINA**

GB 17835-2024

Water based extinguishing agent

水系灭火剂

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1 Scope

GB 17835-2024 is the Chinese national standard on water based extinguishing agent, in the field of environment and health protection, safety. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 28 November 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 December 2025. Classification: ICS 13.220.10, CCS C84. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document defines the terms and definitions of water based fire extinguishing agents. It specifies the models, requirements, inspection rules, packaging, marking, transportation and storage of water based fire extinguishing agents, and describes the corresponding test methods. This document applies to the research and development, production and inspection of water based fire extinguishing agents.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 4351, Portable fire extinguishers

GB 5749, Standards for drinking water quality

GB/T 6003.1, Test sieves - Technical requirements and testing - Part

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 water based extinguishing agent An extinguishing agent that adds additives such as penetrants and flame retardants to water to improve its fire extinguishing performance and other properties.

3.2 characteristic values The physical and chemical performance parameter values of water based fire extinguishing agents provided by the manufacturer.

3.3 lowest temperature for use Temperature 5°C above solidification point.

3.4 acute oral toxicity The health-damaging effects that occur in animals in the short term after a single or multiple oral administration of a test substance to experimental animals within 24 h.

4 Model

The method for compiling the model of water based fire extinguishing agent is as follows:

Example 1.S-6 (-10°C, 0°C) Enterprise-defined, indicating a water based fire extinguishing agent with a mixing ratio of 6%, a solidification point of -10°C for the original solution, and a solidification point of 0°C for the mixed solution. Example 2.S-3 (-15°C, -5°C), indicating a water based fire extinguishing agent with a mixing ratio of 3%, a solidification point of -15°C for the original solution, and a solidification point of -5°C for the mixed solution.

5.1 General requirements

5.1.1 The various raw materials used to produce water based fire extinguishing agents shall not be obviously toxic to organisms. They shall not decompose themselves or react with fuel to produce toxic or dangerous substances during fire extinguishing.

5.1.2 Manufacturers shall provide the following performance parameters for their water based fire extinguishing agents.

6.1 Temperature treatment

6.1.1 Instruments and equipment The test equipment shall meet the following requirements.

- a) Low temperature test chamber. temperature control accuracy is $\pm 2^{\circ}\text{C}$.
- b) Electric heating blast drying oven. temperature control accuracy is $\pm 2^{\circ}\text{C}$.

6.1.2 Test steps Perform temperature treatment according to the following steps.

- a) Adjust the temperature of the low temperature test chamber to $(10 \pm 1)^{\circ}\text{C}$ below the solidification point of the sample (original solution and mixed solution).
- b) Put the sample into a plastic or glass container. Seal it and put it into the test chamber. Keep it at a temperature 10°C below the solidification point of the sample for 24 h.

6.2 Solidification point

6.2.1 Instruments and equipment The instruments and equipment used for the test shall meet the following requirements.

- a) Solidification point tester. temperature control accuracy is $\pm 1^{\circ}\text{C}$.
- b) Platinum resistance. PT100, accuracy is $\pm 0.1^{\circ}\text{C}$, outer diameter is

6.2.2 Test steps To perform a solidification point measurement, follow these steps.

- a) Turn on the solidification point tester. Make the temperature of the cold room lower than the solidification point of the sample $(10 \pm 1)^{\circ}\text{C}$;
- b) Inject the sample into the dry and clean inner tube. Make the liquid level 50 mm;

c) Fix the platinum resistor in the center of the inner tube with a cork or rubber plug. The lower end of the platinum resistor is 10 mm away from the bottom of the inner tube;

6.2.3 Results The higher value of the two test results with a difference of no more than 1°C shall be taken as the test result.

6.3 PH

6.3.1 Instruments and materials The test equipment and materials shall meet the following requirements.

a) Acidity meter. accuracy is

0.01 pH.

b) Thermometer. graduation value is 1.0°C.

6.3.2 Test steps To perform a pH measurement, follow these steps.

a) Calibrate the acidometer with pH buffer;

b) Pour the sample into a dry, clean beaker. Immerse the electrode 30 mm below the sample and 10 mm above the bottom of the beaker. The electrode cannot touch the bottom and side walls of the beaker.

6.3.3 Results The average of two test results with a difference of no more than

0.1 pH is taken as the test result.

6.4 Sediment

6.4.1 Instruments and equipment The test instruments and equipment shall meet the following requirements.

a) Electric centrifuge. centrifugal acceleration is $(6000 \pm 600) \text{ m/s}^2$.

b) Graduated centrifuge tube. capacity is 50 mL, minimum graduation value is

0.1 mL.

c) Test sieve. in accordance with the requirements of GB/T 6003.1, pore size is 180 μm .

6.4.2 Test steps To perform sediment measurement, follow the steps below.

a) Take two 50 mL graduated centrifuge tubes. Fill each with 50 mL (V2) of sample. Then place them symmetrically in the centrifuge. Centrifuge at $(6000 \pm 600) \text{ m/s}^2$ for $(10 \pm 1) \text{ min}$;

b) Take out the graduated centrifuge tubes. Read the volume of the sediment (V1);

c) Use a wash bottle to rinse the sediment onto the test sieve. Observe whether the sediment can pass through the sieve completely.