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JIS

JAPANESE INDUSTRIAL STANDARD

Testing Methods for Specific Gravity of Epoxide Resins and Hardeners

JIS K 7232—1986

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JAPANESE INDUSTRIAL STANDARD

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Testing Methods for Specific Gravity
of Epoxide Resins and Hardeners

K 7232-1986

1. Scope

This Japanese Industrial Standard specifies the testing methods for specific gravity of epoxide resins and hardeners.

2. Definitions

The definitions of main terms used in this standard shall be as follows:

- (1) epoxide resin This resin shall be in accordance with the definition in JIS K 7231.
- (2) hardener This hardener shall be in accordance with the definition in JIS K 7231.
- (3) specific gravity 25/25°C Specific gravity is defined as the ratio of the mass of sample having a certain volume at 25°C and the mass of water having the same volume at 25°C, and expressed by a unitless number.

3. Classification of Testing Methods

Classification of testing methods shall be as follows:

3.1 Testing Method for Liquid Epoxide Resins and Hardeners

- (1) Pycnometer method
- (2) Specific gravity cup method
- (3) Hydrometer method

3.2 Testing Methods for Solid Epoxide Resins and Hardeners

- (1) Underwater substitution method
- (2) Pycnometer method

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4. Testing Method for Specific Gravity of Liquid Epoxide Resins and Hardeners

4.1 Pycnometer Method

4.1.1 Summary of Testing Method By means of a pycnometer, measure the mass of the sample at 25°C and of the distilled water of the same volume at 25°C, and obtain the specific gravity 25/25°C of the sample from the ratio of two masses.

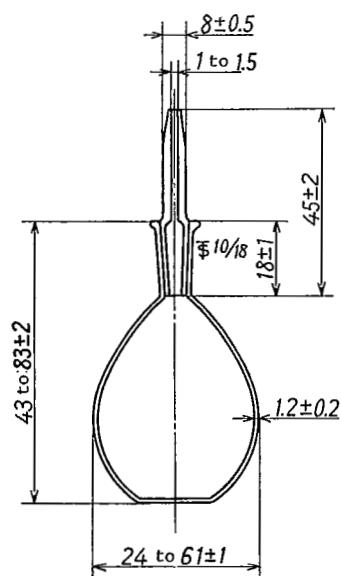
4.1.2 Devices and Apparatus

- (1) **Pycnometer** Pycnometer of glass, having the volume of 10 to 50 ml, equipped with ground stopper, shall be that specified in JIS R 3503. Fig. 1 gives the classes, shapes, and dimensions of pycnometers.

Fig. 1. Pycnometers

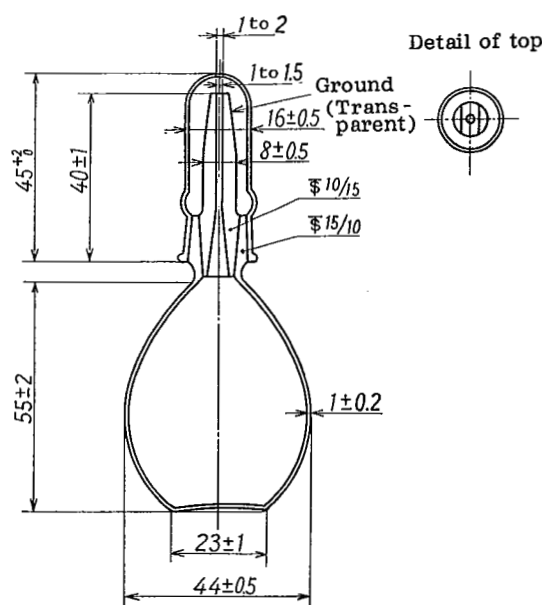
(a) Gay-Lussac-Type Pycnometer

Unit: mm



(b) Warden-Type Pycnometer

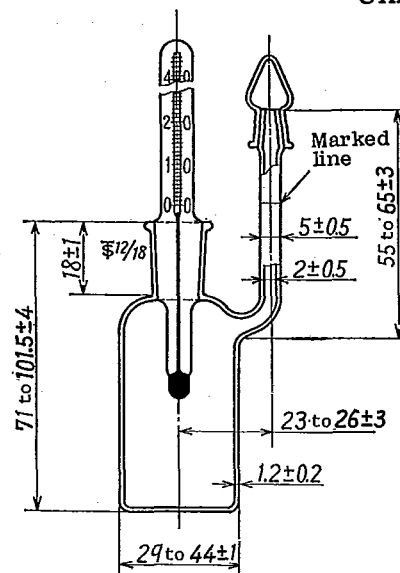
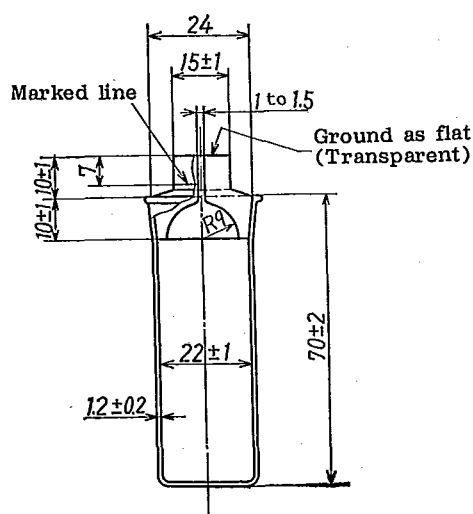
Unit: mm



(c) Hubbard-Type Pycnometer (d) Gay-Lussac-Type Pycnometer with Thermometer

Unit: mm

Unit: mm



- (2) Thermostatic Bath This is to be able to the temperature of bath at $25.0 \pm 0.1^\circ\text{C}$.
- (3) Thermometer This is one specified in VIS 17 in JIS B 7410 or the equivalent thereto.
- (4) Chemical Balance Its reciprocal sensibility is 0.1 mg.

4.1.3 Procedures of Test The procedures of test shall be as follows:

- (1) Weigh the mass of a pycnometer together with a stopper and cap to the nearest 0.1 mg (m_1).
- (2) Fill the pycnometer with distilled water adjusted preliminarily to near the temperature for measuring ⁽¹⁾ lest bubbles should be contained, and put in a thermostatic bath kept at $25 \pm 0.1^\circ\text{C}$.

After letting it stand for 30 to 60 minutes, plug with a stopper kept at the same temperature, and, after removing the distilled water overflowed, draw up the pycnometer from the thermostatic bath. Wipe its outside with clean and dried cloth, and after putting on a cap, weigh the mass to the nearest 0.1 mg (m_2).

Note ⁽¹⁾ Never exceed the temperature of 25°C .

- (3) Then, after drying the pycnometer, fill the sample instead of distilled water into the pycnometer, and weigh the mass of the pycnometer filled with the sample to the nearest 0.1 mg (m_3) similarly to (2).