

Translated English of Chinese Standard: YBB60102012

[www.ChineseStandard.net](http://www.ChineseStandard.net) → Buy True-PDF → Auto-delivery.

[Sales@ChineseStandard.net](mailto:Sales@ChineseStandard.net)

**YBB**

NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA

**YBB 60102012**

---

**Tests for Resistance to Attack of Glass by a Boiling Aqueous  
Solution of Mixed Alkali**

玻璃耐沸腾混合碱水溶液浸蚀性测定法

## Tests for Resistance to Attack of Glass by a Boiling Aqueous Solution of Mixed Alkali

This method is suitable for the determination and grading of the resistance to attack of various types of medicinal glass by boiling aqueous solution of mixed alkali.

This method is to etch a glass sample with a total surface area of 10~15cm<sup>2</sup> with an equal volume of boiling mixed solution of 0.5 mol/L sodium carbonate and 1 mol/L sodium hydroxide for 3 hours. Determine the mass loss per unit surface area of the glass test sample.

### Instruments

Test container: made of sterling silver or alkali-resistant silver alloy or welded stainless steel (related components of welded stainless steel: 18%Cr, 10%Ni, 0.08%C and additional Ti). The container (shown in Figure 1) is a cylindrical silver cup with a hemispherical or flat base and a tightly fitting lid. The lid has a thick neck and a small mouth for inserting the thermometer, and is equipped with four hooks for hanging samples below. If necessary, a gasket of stable material can be added to ensure that the seam between the cup body and lid is sealed.

Condenser: spherical or straight; length is 400 mm; made of chemically resistant glass.

Gooch glass funnel: (shown in Figure 2) made of chemically resistant glass. The upper port is connected to the condenser with a plug. The lower tube of the funnel is connected to the neck of the container with a stopper. Stoppers shall be made of stable material. Boil it in water for 60 minutes beforehand.

Heating bath: equipped with a controller that can heat glycerol and maintain a constant temperature at any temperature between 100~120°C, and is equipped with a stirring device.

Place the test sample in a plastic beaker. Add hydrofluoric acid (40%) - 2mol/L hydrochloric acid (1:9) mixed solution to completely immerse it. Stir with a magnetic stirrer for 10 minutes. Use tweezers (the head is wrapped in plastic or platinum; use dilute hydrochloric acid before use; then wash with water) and take out the test sample. Wash, dry, cool and weigh as described above.

### Determination method

Immerse the test container into the heating bath. Add 400 ml of 0.5 mol/L sodium carbonate solution and 400 ml of 1 mol/L sodium hydroxide solution into the test container to make the liquid level in the test container consistent with that of the bath solution. After covering with the lid, install the Gooch glass funnel and condenser. Turn on the condenser water flow. Start the stirrer and heat the bath. Allow the temperature in the test container to reach  $102.5^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ . The dripping speed of the reflux liquid shall be controlled to 4~6 seconds/drop. Then open the lid. Use silver wire to hang the test sample on the hook of the container lid. Immerse the test sample into the boiling solution (no collision between the test samples or between the test sample and the container wall) and boil continuously for  $3 \text{ hours} \pm 2 \text{ minutes}$ . Take out the test sample. Quickly soak three times in 1 mol/L hydrochloric acid solution. Wash three times with water. Finally rinse with acetone or absolute ethanol. Place in oven to dry at  $110^{\circ}\text{C}$  for 60 minutes. Transfer to a desiccator and cool to room temperature. Then weigh it accurately. Record its mass  $m_2$ .

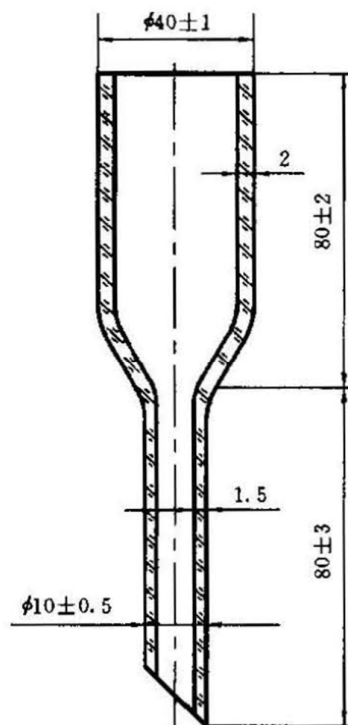


Figure 2 -- Gooch glass funnel

**This is an excerpt of the PDF (Some pages are marked off intentionally)**

**Full-copy PDF can be purchased from 1 of 2 websites:**

1. <https://www.ChineseStandard.us>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Select your country (currency), for example: USA (USD); Germany (Euro).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Tax invoice can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with download links).

2. <https://www.ChineseStandard.net>

- SEARCH the standard ID, such as GB 4943.1-2022.
- Add to cart. Only accept USD (other currencies - <https://www.ChineseStandard.us>).
- Full-copy of PDF (text-editable, true-PDF) can be downloaded in 9 seconds.
- Receiving emails in 9 seconds (with PDFs attached, invoice and download links).

Translated by: Field Test Asia Pte. Ltd. (Incorporated & taxed in Singapore. Tax ID: 201302277C)

About Us (Goodwill, Policies, Fair Trading...): <https://www.chinesestandard.net/AboutUs.aspx>

Contact: Wayne Zheng, [Sales@ChineseStandard.net](mailto:Sales@ChineseStandard.net)

Linkin: <https://www.linkedin.com/in/waynezhengwenrui/>

**----- The End -----**