

YBB 00212003-2015

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National Drugs Packing Containers (Materials) Standards

YBB 00212003-2015

Test for coefficient of linear thermal expansion

线热膨胀系数测定法

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Test for coefficient of linear thermal expansion

This method is applicable to the determination of the linear thermal expansion coefficient of medicinal glass containers with similar components to standard glass.

In this method, the standard glass with the known linear thermal expansion coefficient and the glass with the linear thermal expansion coefficient to be tested are laminated and fired together, drawn into thin filaments. Due to the different linear thermal expansion coefficients of the two glasses, the filaments are bent. According to the degree of bending of the filaments, the average linear thermal expansion coefficient of the glass to be tested can be measured.

Device: Blowtorch, micrometer and micrometer holder (with an accuracy of 0.01 mm), special clamps (as shown in Figure 1, the size is roughly made of steel strip which is 200 mm long, 20 mm wide, 1 mm thick. To prevent hands from hot, two pieces of insulation are inserted for 100 mm at the front end), measurement ruler (as shown in Figure 2, consisting each of a glass plate with a size of 250 mm x 300 mm and a glass mirror; coordinate paper is pasted on the mirror surface and horizontal and vertical coordinate lines are marked. Cut 3 mm paper around the two points which apart 200 mm laterally and from both sides of the vertical line to expose the mirror surface; it is 60 mm for the upper and lower parts of the cutting portion from both sides of the vertical line).

Measurement method: Take the non-defective glass under normal production and pull it into a glass rod with a diameter of 4 ~ 6 mm. According to the measurement method of average linear thermal expansion coefficient (YBB00202003-2015), accurately determine the average linear thermal expansion coefficient as the standard glass.

Burn one end of the standard glass soft; use a special clip to flatten it; burn it soft again; stretch it for 20 ~ 30 mm; burn it soft again; pull off the front tip, to form a shovel shape which has a width of about 6 mm, a length of about 20 mm, a thickness of about 1 mm.

Take a small piece of sample to be tested; dip it on the glass rod; make it into a shovel shape according to the above method. The two shovel shapes are required to have the same width and thickness, without glass defects.

Overlap the two shovel shapes; burn them together; there shall be no air bubble; burn off the rod tip with the tested product.

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