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NATIONAL STANDARD OF THE

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YBB 60372012

Test for stress

内应力测定法

Test for stress

This method is suitable for the determination of stress in pharmaceutical glass containers.

Usually glass is an isotropic homogeneous material. When stress exists, it will show anisotropy and produce light birefringence. This method stipulates a method, for measuring the birefringence optical path difference, using a polarizing stress meter, AND for expressing the stress of the product in terms of the optical path difference value per unit thickness.

Instrument

The polarizing stress meter shall meet the following technical requirements:

When using polarizing elements and protective components for observation, the brightness at the edge of the light field shall not be less than 120 cd/m².

The polarizing element used shall ensure that the polarization degree, at any point in the bright field, is not less than 99%.

The polarization field is not less than 85 mm.

A 565 nm full-wave plate (sensitive color plate) and a quarter-wave plate can be placed, between the polarizer and analyzer, respectively. The slow axis of the wave plate is 90° to the plane of polarization of the polarizer.

The analyzer shall be installed, so that it can rotate relative to the polarizer and the full-wave plate or quarter-wave plate; meanwhile it has a measuring device for the rotation angle (the dial grid value is 1°).

Determination method

The test product shall be a product, that has not been tested after annealing. It must be placed under temperature conditions in the laboratory for more than 30 minutes, in advance. Gloves shall be worn during measurement, to avoid direct contact with the test product with hands.

(1) Inspection of colorless test samples

Inspection of the bottom of the colorless test sample: Place the quarter-wave plate into the field of view. Adjust the zero point of the polarizing stress meter, to make it appear in a dark field of view. Put the test product into the field of view. Observe the bottom from the mouth. At this time, a dark cross will appear in the field of view. If the stress of the test product is small, the dark cross will be blurred. Rotate the analyzer, to separate the dark cross into two arcs moving in opposite directions. As the dark area moves outward, blue-gray appears on the concave side of the arc, whilst brown appears on the convex side. If the stress value of a selected point is

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Contact: Wayne Zheng, Sales@ChineseStandard.net

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