

ICS 55.100
CCS Y 22



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 4545-2007

Replacing GB/T 4545-1984

Test methods for stress examination of glass containers

玻璃瓶罐内应力试验方法

(English Translation)

Issued on: December 5, 2007

Implemented on: September 1, 2008

Issued by: Standardization Administration of China

Table of Contents

Foreword
1 Scope
2 Sample
3 Polariscope
4 Standard sheet

Foreword

The revised standard used by the US ASTM C148-00 "Bolipingguan stress test methods." the technical content of this standard is consistent with ASTM C148-00.

The main difference between this standard and ASTM C148-00 as follows.

- The standard delete ASTM C148-00 the preamble, this increases the standard directory and preface;
- The standard delete references ASTM C148-00 references to ASTM standards;
- This standard sample ASTM C224 requirements specified in written directly to standard texts;
- The standard delete ASTM C148-00 in imperial units.

This standard replaces GB/T 4545-1984 "Bolipingguan stress test methods." this standard and GB/T 4545-1984 compared to the main changes are as follows.

- Increased the determination of the scope of the two methods;
- Increasing the apparent stress the main determining factor;
- Test procedure in more detail than the original standard test procedure according to the different types of samples are described;
- Increasing the precision and bias of the two test methods.

The standard proposed by China National Light Industry Council.

This standard daily glass enamel by the National Standardization Center.

This standard was drafted. Donghua University, the National Optical glass enamels Quality Supervision and Inspection Center.

1 Scope

1.1

standard specifies the corresponding optical path difference between the test methods and Bolipingguan annealed condition regarding measurement. The following two methods selectable use.

Method A. using a polarization analyzer and a set of standard sheet comparison measurements.

Method B. using a polarization analyzer measured directly.

1.2

A method for the determination of the optical path difference of less than 150nm of samples, Method B for the determination of the optical path difference is smaller than the sample of 565nm.

NOTE: Use of these methods measured the apparent stress depends primarily on. (1) a glass stress magnitude and distribution; (2) the thickness of the glass (optical path measurement point); (3) Glass Ingredients. For ordinary soda-lime-silica glass bottles, ingredients affect small, negligible.

1.3

In determining the stress at the bottom of glass containers, the thickness of the glass can affect the conversion formula (1).

Where.

TR --- true stress level;

TA --- apparent stress level;

Note: The position of the maximum thickness should be measured in the apparent path difference on.

1.4

Both test method is applicable to evaluate the quality of annealed glass containers, glass containers or glass-like control of the chemical composition of other products the quality of.

2 Sample

2.1

The specimen shall not Bolipingguan other tests.

2.2

samples to be pre-placed in the laboratory for more than 30min.

2.3

No direct contact with the sample by hand, wear gloves when testing.

Method A. the polarization analyzer and a reference standard sheet comparison measurements

3 Polariscope

The degree of polarization around 3.1 Horizon is not less than 99%.

Horizon measured at least 3.2 than large bottles 51mm. Analysis from the polarizer and the mirror from the observation should be met through the bottle bottom inspection.

3.3

with the optical path difference is sensitive tint 565nm, which is observed in the visual range of the change should be less than the difference between a domain 5nm, its slow axis and the plane of polarization to 45 °, so that visual observation domain produces purple background. Luminance samples measured at least 300cd/m².

Note: The color film path difference between 510nm and 580nm in order to distinguish between colors, ideally 565nm.

4 Standard sheet

Using a set of not less than five and a known standard glass wafer internal stress, this standard sheet should cover the production of glass containers annealing range, Wafer diameter greater than 76mm, less than 102mm, each piece having a predetermined residual stress, leaving 6.4mm at the edges of an optical path difference Consistency should be not less than 21.8nm, not larger than 23.8nm.