

ICS 83.080.01

CCS G 31



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

GB/T 2410-2008

**Determination of the Luminous Transmittance and Haze of
Transparent Plastics
(English Translation)**

Issued on: August 4, 2008

Implemented on: April 1, 2009

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative References...	4
3 Terms and Definitions...	4
4 Samples...	5
5 State Conditioning...	5
6 Test Environment...	5
7 Test Methods...	5
8 Test Report...	11
Appendix A (informative) Derivation of Haze Calculation Formula...	12

Foreword

The modification of this Standard adopts ASTM D 1003.2007 Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics. Its technical content is basically equivalent to this Standard. There are merely editorial modifications in the text. Its compiling method is completely corresponding with this Standard.

This Standard serves as a replacement of GB/T 2410-1980 Transparent Plastics - Transmissivity and Haze Test. In comparison with GB/T 2410-1980, there are several main changes as follows.

- State conditioning is added;
- The tolerance of test temperature is modified from $\pm 5\text{ }^{\circ}\text{C}$ into $\pm 2\text{ }^{\circ}\text{C}$;
- The tolerance of relative humidity is modified from $\pm 20\%$ into $\pm 10\%$;
- Light source A is added;
- Sample thickness measurement accuracy is modified;
- Spectrophotometry is added;
- Appendix A "Derivation of Haze Calculation Formula" is added.

In this Standard, Appendix A is informative.

This Standard was proposed by China Petroleum and Chemical Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee 15 on Plastic of Standardization Administration of China (SAC/TC 15).

The responsible drafting organization of this Standard. National Chemical Building Materials Testing Center of SINOPEC Beijing Research Institute of Chemical Industry (Material Testing Department).

The participating drafting organizations of this Standard. National Synthetic Resin Quality Supervision and Inspection Center; China National Center for Quality Supervision & Test of Plastic Products (Fuzhou); Guangzhou KINGFA Science & Technology Co., Ltd.

1 Scope

This Standard stipulates two methods for the determination of luminous transmittance and haze of transparent plastics. Method A is haze meter method. Method B is spectrophotometry.

This Standard is applicable to the determination of luminous transmittance and haze of transparent plastics in plate, sheet and thin-film state.

2 Normative References

Through the reference in this Standard, clauses of the following documents become clauses of this Standard. In terms of references with a specific date, all the subsequent modification sheets (excluding the corrected content) or the revised editions are not applicable to this Standard. However, all parties that reach an agreement in accordance with this Standard are encouraged to explore the possibility of adopting the latest version of these documents. In terms of references without a specific date, the latest version is applicable to this Standard.

GB/T 2918-1998 Plastics - Standard Atmospheres for Conditioning and Testing (idt ISO 291.1997)

3 Terms and Definitions

The following terms and definitions are applicable to this Standard.

3.1 Haze

Haze refers to the ratio of scattered light flux (which deviates from the direction of incident light through transmittance on the sample) to transmitted light flux. It shall be expressed in percentage (in terms of this method, scattered light flux which deviates from the direction of incident light by over 2.5° shall merely be used in the calculation of haze).

4.1 Requirements

Samples cannot have defects that would affect material performance or defects that would cause deviations in research.

4.2 Shapes and Dimensions

Sample dimensions shall be sufficiently large to cover the entrance window of integrating sphere. It is recommended that sample shall be circular pieces with the diameter of 50 mm, or, 50 mm x 50 mm square pieces.

5 State Conditioning

Under the temperature of $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ and the relative humidity of $50\% \pm 10\%$, in accordance with GB/T 2918-1989, conduct state conditioning for not less than 40 h, then, proceed with the test.

6 Test Environment

Test shall be conducted in the same environment as sample state conditioning.

7.1.1 Instrument

The geometric performance and optical performance of the instrument shall comply with the requirements in this Part. The principle of the instrument is shown in Figure 1.

7.1.2.1 Sample dimensions

Measure the thickness of the sample. When thickness is less than 0.1 mm, the measurement shall at least be accurate to 0.001 mm. When thickness is more than

7.1.3.1 Luminous transmittance

In terms of each sample, luminous transmittance, expressed in percentage, shall be calculated in accordance with Formula (1).

7.2.1 Instrument

The geometric performance and optical performance of the instrument shall comply with the requirements in this Part. The principle of the instrument which adopts non-vertical illumination and diffused reception is shown in Figure 2.

7.2.2 Test procedures

Comply with 7.1.2, unless there are operation instructions provided by instrument manufacturers.

7.2.3 Result calculation and expression

Calculate in accordance with 7.1.3, unless the instrument can automatically calculate the luminous transmittance and haze.

8 Test Report

Test report shall include the following content.

Appendix A

(informative)

Derivation of Haze Calculation Formula

A.1 Haze formula shall be derived through the following two steps.

A.1.1 Luminous transmittance

Luminous transmittance, which is expressed in percentage, shall be calculated in accordance with Formula (A.1).

.....