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NATIONAL STANDARD OF THE
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ICS 71.060.01

G 10

GB/T 23774-2009

**Inorganic chemicals for industrial use - General
method for the determination of whiteness**

无机化工产品白度测定的通用方法

Issued on: May 23, 2009

Implemented on: January 01, 2010

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

**Standardization Administration of the People's Republic of
China.**

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Inorganic chemicals for industrial use - General method for the determination of whiteness

1 Scope

This Standard specifies the terms and definitions, instruments and apparatuses, test procedures and result calculation of the general method for the determination of whiteness of inorganic chemicals for industrial use by the whiteness meter.

This Standard applies to the determination of whiteness of powder products in inorganic chemicals for industrial use.

2 Normative references

The terms in the following documents become the terms of this Standard by reference to this Standard. For dated references, all subsequent amendments (not including errata content) or revisions do not apply to this standard. However, parties to agreements that are based on this Standard are encouraged to study whether the latest versions of these documents can be used. For undated references, the latest edition applies to this Standard.

GB/T 3979, Methods for the measurement of object color

GB/T 9086, The white standard plate for colorimetry and photometry

GB/T 5950, Method for measurement of whiteness of building materials and non-metal mineral products

3 Terms and definitions

The following terms and definitions are applicable to this Standard.

3.1 Whiteness

It refers to the ratio of the amount of diffusely reflected radiant energy on the surface of the measured object in the visible light region to that of a completely white (standard white) object, which is expressed in percentages. It is the degree of whiteness, called whiteness.

3.2 Whiteness value

The whiteness of the surface of a perfect reflective diffuser (PRD) whose spectral diffuse reflectance is identically equal to 1 is 100 degrees; the whiteness of the surface of a black body whose spectral diffuse reflectance is identically equal to 0 is 0 degrees.

The whiteness of any white object represents the relative value to the whiteness of the PRD.

4 Instruments and apparatuses

4.1 Whiteness meter

4.1.1 The whiteness meter that is used in this Standard is illuminated by D₆₅ or A light source; the illumination and observation condition can be any one of vertical/diffusion (0/d) and diffusion/vertical (d/0).

4.1.2 The effective peak wavelength (main wavelength) of the instrument is 457 nm $\pm$ 5 nm; the half width (half waviness width) is 44 nm; the absolute reflection factor of the black tube is not more than 0.1%; the field of view is 10°.

4.1.3 The reading accuracy of the instrument is required to reach one decimal place.

4.2 Standard white plate

Ceramic standard white plate and powder standard white plate (magnesium oxide and barium sulfate) shall meet the requirements of GB/T 9086.

4.3 Working standard white plate

For the convenience of measurement, a white ceramic plate with a smooth surface, no stains, no cracks, and no scratches that affect its performance can be used as a working standard white plate for daily calibration of instrument values. The working standard white plate shall meet the requirements of GB/T 3979 Methods for the measurement of object color. The working standard white plate shall be calibrated by the standard white plate every month; the average value of more than three calibrations is the whiteness value of the working standard white plate; the maximum difference between the three times is not more than 0.3.

Note: The ceramic standard white plate, barium sulfate and magnesium oxide powder standard white plate, and working white plate shall be stored in a desiccator and protected from light.

4.4 Constant pressure powder compactor

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