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

GB/T 9086-2026

Replacing GB/T 9086-2007

White standard plates for colorimetry and photometry

用于色度和光度测量的标准白板

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document replaces GB/T 9086-2007 "Standard White Plates for Colorimetric and Photometric Measurements". Compared with GB/T 9086-2007, except for... Aside from structural adjustments and editorial changes, the main technical changes are as follows:

- a) Terms and definitions have been changed (see Chapter 3, Chapter 3 of the.2007 edition);
- b) The classification has been changed (see Chapter 4, Chapter 4 of the.2007 edition);
- c) The acetone cleaning method was changed to ultrasonic cleaning (see 5.3.1, 5.2.1 in the.2007 version).
- d) The optical geometry of illumination and detection has been changed (see 6.1.2,.2007 edition of 6.1.2).
- e) The certificate content has been changed (see 7.2,.2007 version 7.2). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the China Building Materials Federation. This document was drafted by: Building Materials Industry Technology Supervision and Research Center, Fujian Zhongqing Kuangbo Construction Co., Ltd., and China Building Materials Federation. Hehui, China Building Materials Academy Co., Ltd., Wenzhou Jiayi Instrument Co., Ltd.,

Beijing Aobotai Technology Co., Ltd., Beijing Industrial University, Shaanxi Hantong Construction Engineering Quality Testing Co., Ltd., Shenzhen Water Engineering Testing Co., Ltd., Beijing Chentek Instrument Technology Limited Liability Company, Shanghai Yuanxi Instruments Co., Ltd., China Railway Jingcheng Engineering Testing Co., Ltd., China Railway 22nd Bureau Group Co., Ltd. Rail Transit Engineering Chengfen Branch, Guangzhou Lantai Instrument Co., Ltd., Caipu Technology (Zhejiang) Co., Ltd., Guangdong Sanenshi Technology Co., Ltd., China National Institute of Metrology The Academy of Sciences, Jinghong Construction Research (Beijing) Technology Co., Ltd., and Beijing Construction Research Bohe Technology Co., Ltd. The main drafters of this document are. Yu Yang, Wang Huan, Cai Qirong, Zhu Zhe, Wang Luyu, Liu Yun, Qiu Binhui, Wu Yuhui, Huang Chengjun, Li Chunye, and Zhang Yaru. Yuan Jing, Sun Ruoduan, Zhang Xiaoxiao, Han Lei, Hao Yunan, Yuan Kun, Shi Zhihua, Gao Xin, Zhang Yong, Yang Cheng, Han Mingshan, Xue Qing, Cheng Haotian, Zhang Wen, Liu Juan Su Chaoyang, Su Hao, Zhang Li, Gao Yangyang, Chen Jiayu, Chen Lu. The release history of this document and the document it replaces is as follows: --First published in 1988 as GB 9086-1988; --When it was first revised in 2007, it was incorporated into GB 9087-1988 "Powder Standard White Plates for Colorimetric and Photometric Measurements"; --This is the second revision. Standard white board for colorimetric and photometric measurements

1. Scope This document specifies the classification, requirements, instruments and measurements, certificates and markings, and packaging of standard white plates used for colorimetric and photometric measurements. Transportation and storage. This document applies to standard white boards used for colorimetric and photometric measurements.

4 Classification

4.1 According to the materials used in their production, they are divided into two categories. ceramic standard white boards and powder standard white boards.

a) Ceramic standard whiteboards are divided into. 1) Glossy ceramic white boards should be used and calibrated under the same conditions; 2) Matte ceramic whiteboard, whose surface diffuse reflection properties are close to those of magnesium oxide or barium sulfate powder diffuse reflection standard whiteboard.

b) Powder standard white boards are divided into. 1) Standard white board for magnesium oxide powder; 2) Barium sulfate powder standard white board; 3) Standard white board for polytetrafluoroethylene powder.

4.2 According to shape, they are divided into two types.

a) Round standard whiteboard. The diameter should be 25 mm to 100 mm, and the thickness should be 5 mm to 10 mm;

b) Square standard whiteboard. the side length should be 45 mm to 100 mm and the thickness should be 5 mm to 10 mm.

5 Requirements

5.1 Overview Colorimetric and photometric measurements are performed using a perfectly reflective diffuser as the standard. This is typically done by comparing the sample with a standard white plate. During measurement, one should... Use a standard whiteboard with known spectral reflectance and tristimulus values.

5.2 Appearance

5.2.1 The surface should be flat, free of cracks, stains and scratches that affect its performance.

5.2.2 When pressed powder standard white boards are placed vertically or upside down, no powder particles should fall off.

5.3 Physical and chemical properties

5.3.1 Physical properties Ceramic standard white boards can have their optical properties restored after cleaning with water, ethanol, or ultrasonic cleaning, followed by drying. They are not easily damaged under normal use conditions. Injured or broken.

5.3.2 Chemical stability Under normal circumstances, the optical performance of a standard whiteboard should not be affected by atmospheric temperature, humidity, and radiation.

5.4 Optical Performance

5.4.1 Spectral reflectance In the visible light spectrum, the spectral reflectance of ceramic standard white boards with wavelengths above 400 nm should be above 80%. (The last sentence appears to be incomplete and possibly refers to a different topic. powder standard white boards.) The spectral reflectance should be above 95.0%.

5.4.2 Neutral In the visible light band, the extreme value of the difference in spectral reflectance at wavelengths above 400 nm should not exceed 15%.

5.4.3 Orientation Uniformity Under specified lighting conditions, the difference in spectral reflectance in any direction at the center of a standard whiteboard should not exceed 0.5%.

6.1 Instrument and Lighting Observation Conditions

6.1.1 Spectrophotometer A spectrophotometer for measuring spectral reflectance should meet the following conditions.

- a) Wavelength range 380 nm to 780 nm;
- b) The spectral half-band width of the spectrophotometer is within
- c) The maximum permissible error for photometric measurement is 0.5%;

d) The maximum permissible error for wavelength is

0.5 nm.

6.1.2 Optical geometry for illumination and detection According to GB/T 3978, the measurement of a standard whiteboard should use a D65 standard illuminator, or an A standard illuminator, or a C standard illuminator, and at least one... Use one of the following geometric conditions. $8^\circ/d$, $d/8^\circ$, $45^\circ/0^\circ$, or $0^\circ/45^\circ$. The measurement results should indicate whether SCE or SCI was used.

Note. d represents diffuse reflection.

6.2 Measurement of spectral reflectance and calculation of X, Y, and Z tristimulus values

6.2.1 The measurement of spectral reflectance shall be carried out in accordance with the provisions of GB/T 3979.

6.2.2 The measurement wavelength range is 380 nm to 780 nm, with wavelength intervals of 5 nm or 10 nm.

6.2.3 The calculation of the X, Y, and Z values of the tristimulus shall be carried out in accordance with the provisions of GB/T 3979.

7 Certificates and Marks

7.1 Whiteboards conforming to the standards specified in this document should have a certificate issued by a nationally authorized unit.

7.2 The certificate should at least list a 2° or 10° CIE standard observer in a D65 standard illuminant or an A standard illuminant or a C standard illuminant. Tristimulus values X, Y, Z, and blue light whiteness value and Hunter whiteness value.

7.3 Standard whiteboards conforming to the requirements of this document shall be marked with the special mark GSBA number, batch number, test date, test conditions and expiration date.

8 Packaging, transportation and storage

8.1 Packaging The packaging should bear the GSB mark, include a certificate and instruction manual, and be designed to prevent shock and scratches.

8.2 Transportation During transportation, moisture and impact should be prevented.

8.3 Storage Standard whiteboards should be stored in a desiccator away from light.