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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 11420-2024

Replacing GB/T 11420-1989

Vitreous and porcelain enamels - Test method for specular glossiness

搪瓷制品和瓷釉 光泽度测试方法

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document replaces GB/T 11420-1989 "Test method for enamel gloss": Compared with GB/T 11420-1989, except for structural adjustment and In addition to editorial changes, the main technical changes are as follows:

a) "Terms and Definitions" has been changed (see Chapter 3, Chapter 2 of the 1989 edition);

b) The requirements for the incident angle of the instrument and the working standard plate have been changed (see Chapter 5, 5:3 of the 1989 edition);

c) Added test environment (see Chapter 7);

d) The test procedures have been changed (see Chapter 8, Chapter 6 of the 1989 edition);

e) Added calculation and result presentation (see Chapter 9);

f) The content of the test report has been changed (see Chapter 10, Chapter 7 of the 1989 edition): Please note that some of the contents of this document may involve patents: The issuing organization of this document does not assume the responsibility for identifying patents: This document was proposed by the China Machinery Industry Federation: This document is under the jurisdiction of the National Technical Committee for Standardization of Metallic and Non-metallic Coverings (SAC/TC57): This document was drafted by: Hunan Sino Technology Co:, Ltd:, Zhuhai Gree Electric Appliances Co:, Ltd:, Donghua University, Jiangyin Silicon Putang Porcelain Co:, Ltd: The main drafters of this document are: Dai Qi, Yin Le, Zhang Shengtao, Xu Xiaojian, Wang Chenggen, Wang Helan, Ye Jiayi, Jiang Weizhong, Chen Hongmei, Xu Zhangqian, Gong Miao: This document was first published in 1989 and this is the first revision: Test method for gloss of enamel products and porcelain glazes

1 Scope

China's national test method for the specular gloss of vitreous and porcelain enamels - the fused glass coating on cookware, sanitaryware, appliance panels, cladding, chemical vessels and cast iron baths. Gloss is not a cosmetic property in enamel, or not only: it is the most sensitive routine indication of how a firing went. An enamel that was fired too cool has not fully matured and comes out low in gloss; one fired too hot or too long loses gloss again as the surface devitrifies; and a change in the milling of the slip or in the thickness of the coat shows up in the gloss reading before it shows up anywhere else. A works therefore uses this measurement as a process control on the furnace, and the figure is also what a purchaser specifies when the appearance of the finished article matters. This document describes the test method for the gloss of enamelled articles and porcelain enamel coatings, and it applies to the testing of the glossiness of the surface of enamel products and porcelain glaze layers. The method is specular reflectance measured with a glossmeter at a defined angle of incidence, and what the standard has to fix is everything that makes two readings comparable: the geometry and the angle used, the calibration of the instrument against a reference standard, the preparation and cleanliness of the surface, the curvature that can be accommodated and how a curved article is handled, the number and distribution of readings across a piece, and how the result is expressed. Issued on 25 April 2024 and in force since 1 November 2024, it replaces GB/T 11420-1989.

This document describes the test method for the gloss of enameled articles and porcelain enamel coatings: This document is applicable to testing the glossiness of the surface of enamel products and porcelain glaze layers:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document: JJG696 Verification Procedure for Mirror Gloss Meter and Gloss Plate

3 Terms and definitions

The following terms and definitions apply to this document: 3:1 gloss The degree of gloss on the surface of enamel products and porcelain glaze layers: 3:2 glossiness The brightness of the surface of enamel products and porcelain glaze is expressed by numerical values: 3:

3 Polished flat black glass with a refractive index of 1:567 and a surface gloss value of 100 at an incident angle (theta) in the visible light wavelength range Glass plate: 3:

4 Usually made of glass or ceramics, it is a standard plate with a flat, uniform and wear-resistant surface used for gloss meter measurement and calibration:

4 Principle

Under the specified light source and incident angle (theta), the reflected luminous flux of the enamel product and the enamel porcelain layer surface in the mirror direction is compared with the reference standard: The glossiness of a standard plate or working standard plate is tested by measuring the reflected luminous flux in the mirror direction: The glossiness is calculated according to formula (1): Gs(theta)= Phis Phios ·Gos(theta) (1) Where: Gs

--- glossiness of the sample;