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

GB/T 38094-2019

**Vitreous and porcelain enamels - Low voltage test for detecting
and locating defects**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method equivalent to ISO 8289.2000 "low voltage test for enamel products and enamel defect detection and positioning".

The documents of our country that have a consistent correspondence with the international documents referenced in this standard are as follows.

--- GB/T 8897.2-2013 Primary batteries Part 2. Dimensions and electrical performance requirements (IEC 60086-2.2011, MOD).

This standard has made the following editorial changes.

--- For ease of use, the unit expression of conductivity is modified to an international common unit with the same value (5.2).

This standard is proposed and managed by the China Light Industry Association.

This standard was drafted. Donghua University, National Eyeglass Glass Enamel Product Quality Supervision and Inspection Center, Shanghai Glasses Glass Enamel Products

Quality supervision and inspection station.

1 Scope

This standard specifies two low-voltage tests for the detection of defects in enamel porcelain and metal substrates.

Method A is a rapid test method based on electrical or electroacoustic, which can basically determine the defect position and is suitable for the detection of planar samples;

Method B is an optical test method based on color effect, which can accurately determine the position of defects and is suitable for the detection of samples with more complex

shapes.

Note 1. Select the correct test method for distinguishing the area of conductance enhancement measured by method B and the pinhole extending to the metal substrate measured by two methods.

is important.

Note 2. The low voltage test is a non-destructive method for the detection of enamel defects, which is completely different from the high voltage test method. The test results of the two test methods

Not comparable.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

IEC 60086-2 Primary Battery Part 2. Specifications (Primarybatteries-Part 2. Specificationsheets)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Defect defect

Pores, cracks or blasts from metal substrates.

Note. It is difficult to avoid certain defects (such as burning marks) in the production process of enamel products.

4 Principle

Method A uses electrical or electroacoustic methods to detect defects, and Method B uses optical methods based on color effects to detect defects. by

The defects of the enamel article were brought into contact with the conductive solution and tested under low voltage conditions.

5 test solution

3.0 g +/- 0.1 g of sodium nitrite was dissolved in 100 mL of tap water, and 2 drops of liquid

detergent were added.

If you want to visually observe the defect, that is, using the color effect based method B, add 4mL of phenolphthalein ethanol solution to the solution (to

The mass fraction of phenolphthalein is 0.5%).

Caution - Use caution when using sodium nitrite and phenolphthalein solutions.

If the sample is not coated after the test, in addition to the sodium nitrite solution, alternative test solutions (other water-soluble salts), salts

The amount of addition should be controlled to a conductivity of 35 mS/cm +/- 3 mS/cm and a pH of 7.5 +/- 1.