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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 46377-2025

Test methods for liquid crystal mixtures

混合液晶测试方法

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Standardization Administration of the PRC

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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. 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 National Technical Committee on Standardization of Semiconductor Equipment and Materials (SAC/TC203). This document was drafted by:

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1 Scope

GB/T 46377-2025 is the Chinese national standard covering characterising a liquid crystal blend - the clearing point and the nematic range, the dielectric and optical anisotropy, the elastic constants and the rotational viscosity that decide the switching speed, and the voltage holding ratio that decides the image quality. First edition, in force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026.

This document describes the purity of the mixed liquid crystal, volatile components, moisture content, particle size, metal ion concentration, clearing point, dynamic viscosity, density, and elasticity. Physical constant, rotational viscosity, optical anisotropy, dielectric anisotropy, threshold voltage, saturation voltage, resistivity, voltage retention rate, ion density, Test methods for low-temperature performance. This document applies to the purity of mixed liquid crystals, volatile components, moisture content, particle size, metal ion concentration, clearing point, dynamic viscosity, density, and elasticity. Physical constant, rotational viscosity, optical anisotropy, dielectric anisotropy, threshold voltage, saturation voltage, resistivity, voltage retention rate, ion density, Determination of low-temperature performance.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 602 Preparation of standard solutions for the determination of impurities in chemical reagents

GB/T 4946 Gas Chromatography Terminology

GB/T 6425 Terminology for Thermal Analysis

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 8170-2008 Rules for rounding off numerical values and the representation and determination of limiting values

GB/T 9008 Terminology for Liquid Chromatography

GB/T 11446.1 Electronic Grade Water

GB/T 25915.1-2021 Cleanrooms and related controlled environments - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 4946, GB/T 6425, GB/T 9008 and SJ/T 11203, as well as the following terms and definitions, apply to this document.

3.1 Liquid crystal mixture A uniform single-phase liquid crystal mixture formed by mixing multiple individual liquid crystal molecules in a certain proportion.

3.2 particles A substance other than a gas that is dispersed in a liquid and forms a homogeneous system with the liquid.

3.3 quality control sample A substance or material with one or more uniform and stable property values.

Note. Regular testing of its specific values is used to maintain and monitor the stability of the measurement system.