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

GB/T 46192.2-2025

**Test methods for liquid crystal alignment layers - Part 2: Film
properties**

液晶配向膜测试方法 第2部分：成膜性能

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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 is Part 2 of GB/T 46192, "Test Methods for Liquid Crystal Alignment Films". GB/T 46192 has already published the following parts.

1.Physical and Chemical Properties;

2.Film-forming properties;

3.Photoelectric properties. 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: Shenzhen Dalton Electronic Materials Co., Ltd., China Electronics Technology Standardization Institute, and Changsha Dalton. Electronic Materials Co., Ltd., Nanxiong Yihao Chemical Co., Ltd., Guangzhou Huaxing Optoelectronic Technology Co., Ltd., Shenzhen Zhengtong Renhe Technology Co., Ltd. company. The main drafters of this document are. Xu Seqiang, Wu Yiran, Li Jinhua, Zhao Junsha, Nie Yonghui, Cao Kewei, Huang Xuerun, Shi Zeyuan, and Zhang Baoshuai. Guo Guihua.

Liquid crystal alignment film is an important component of liquid crystal display devices, which has the function of adjusting the alignment direction and distribution of liquid crystal

molecules in the liquid crystal display. The effect of intensity. Its effect on liquid crystal displays needs to be characterized using specific testing methods. To meet the needs of my country's development, research, manufacturing, inspection, and import/export trade of liquid crystal alignment film products, this paper formulates liquid crystal alignment film... A series of standards for test methods. GB/T 46192 "Test Methods for Liquid Crystal Alignment Films" is proposed to consist of the following three parts.

1. Physicochemical Properties. This section describes the standard test conditions and methods for the physicochemical properties of liquid crystal alignment film solutions.

2. Film Formation Performance. This section describes the standard test conditions and methods for assessing the film formation performance of liquid crystal alignment films.

3. Photoelectric Properties. This section describes the standard test conditions and methods for the photoelectric properties of liquid crystal alignment films. Test methods for liquid crystal alignment films Part

1 Scope

GB/T 46192.2-2025 is the Chinese national standard covering how the alignment film forms and behaves - the thickness and its uniformity across the panel, the surface morphology after rubbing or photo-alignment, the pretilt angle it induces in the liquid crystal, and the anchoring energy. Part 2 of the series, first edition. In force from 1 May 2026. Issued on 5 October 2025, it has been in force since 1 May 2026.

This document describes the transmittance, refractive index, surface hardness, volume resistivity, relative permittivity, and dielectric constant of liquid crystal alignment films used in liquid crystal displays. Test methods for mass loss, thermal decomposition temperature, glass transition temperature and water absorption rate. This document applies to the research, development, production, testing, and application verification of liquid crystal alignment films for liquid crystal displays.

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 6739-2022 Determination of Hardness of Paints and Varnishes by Pencil Method

GB/T 26497-2022 Electronic Balance

GB/T 26798-2011 Single-beam ultraviolet-visible spectrophotometer

GB/T 37631-2019 Test Method for Thermal Decomposition Temperature of Chemical Fibers

GB/T 46192.1 Test methods for liquid crystal alignment films - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 46192.1 and the following terms and definitions apply to this document.

3.1 Surface hardness The ability of liquid crystal alignment films to resist scratches or inhibit the formation of other surface defects.

3.2 waterabsorptionratio The ratio of the mass of water absorbed by the liquid crystal alignment film to the total mass after water absorption.

4 Transmission rate

4.1 Principle The luminous flux of the sample and the luminous flux transmitted through the air were measured using a UV-Vis spectrophotometer, and the luminous flux of the sample and the luminous flux transmitted through the air were calculated. The ratio of flux to transmittance is used to obtain the transmittance.

4.2 Instruments and Equipment The instrument meets the following requirements.

a) Measuring instrument. Ultraviolet-visible spectrophotometer.