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

GB/T 31379.1-2025

Replacing GB/T 31379-2015

**Test methods for polarizers of flat panel displays - Part 1:
Physical and chemical properties**

平板显示器偏光片测试方法 第1部分：理化性能

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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 is part 1 of GB/T 31379 Test methods for polarizers for flat panel displays. GB/T 31379 has published the following part.

- Part 1: Physical and chemical properties.

This document replaces GB/T 31379-2015 "Test methods for polarizing films for flat panel displays (FPD)" and is consistent with GB/T 31379-2015.

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

- Changed the scope (see Chapter 1, Chapter 1 of the 2015 edition);
- Added the term and definition of "polarizer" (see 3.1);
- Change the term "non-valid area" to "valid area" and redefine it (see 3.2, 3.1 of the 2015 edition);
- Deleted "Single transmittance", "Parallel transmittance", "Orthogonal transmittance", "Single wavelength transmittance", "Ultraviolet absorption performance" and "Polarization degree" The terms and definitions of "dichroic ratio", "hue" and "haze" (see 3.5 to 3.13 of the 2015 edition);
- Changed the instruments and equipment (see Chapter 4, Chapter 4 of the 2015 edition);
- Added environmental conditions "air pressure 86kPa ~ 106kPa" (see 5.1);

- Changed the dimensional accuracy and revised it to "not less than 0.01mm" (see 5.3.2, 5.2.2 of the 2015 edition);
- Deleted the test methods for optical properties, bonding properties and weather resistance of polarizing films (see 5.3, 5.4 and 5.5 of the 2015 edition);
- Added test methods for right angle, absorption axis, pencil hardness, film tearing static electricity, and water contact angle (see 5.7~5.11).

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 and coordinated by the National Technical Committee for Semiconductor Equipment and Materials Standardization (SAC/TC203).

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This document was first published in 2015 and this is the first revision.

Introduction

Polarizers are indispensable optical components for flat-panel displays. They can adjust the direction of light, increase contrast, block reflected light, etc.

With the development of technology, the application scope of flat panel displays is constantly expanding, and the performance requirements are gradually increasing.

There are also diversified demands for functions, such as using low water contact angle polarizers to improve the adhesion between touch screens and polarizers, and using low reflection Advertising screens with reflective polarizers can reduce the intensity of ambient light reflection to relieve consumers' visual fatigue.

Due to different performance requirements, improving the testing standards for polarizers is crucial to the independent development of polarizers in China.

GB/T 31379 is proposed to consist of 4 parts.

- Part 1: Physical and chemical properties. The purpose is to provide the size, thickness, warpage, peel force, straightness, absorption of polarizers for flat panel displays.

Test methods for physical and chemical properties such as axis, pencil hardness, film tearing static electricity, and water contact angle.

- Part 2: Optical properties. The purpose is to provide the transmittance, polarization, hue, reflectivity, haze, optical properties of polarizers for flat panel displays.

Testing methods for optical properties such as compensation value.

- Part 3: Reliability. The purpose is to provide polarizers with low temperature, high temperature, constant temperature and humidity, hot and cold shock, ultraviolet aging, bending, etc. Reliability testing method.

- Part 4: Surface properties. The purpose is to provide a test method for the surface properties of polarizers.

Flat panel display polarizer test method Part 1: Physical and chemical properties

1 Scope

This document describes the flat panel display polarizer size, thickness, warpage, peel force, squareness, absorption axis, pencil hardness, film tearing static, Test method for water contact angle.

This document applies to the design, production and testing of polarizers for flat panel displays.

2 Normative references

GB/T 2792-2014

GB/T 6739-2022

GB/T 25257-2010

GB/T 30693-2014

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Polarizer

An optical film material that converts natural light into polarized light.

3.2 effective area effectivearea

Polarizers are used in flat panel displays to show the actual area of the image.

Note. The effective area is shown in Figure 1. Figure 1 Effective area

3.3 spotdefect

A point visually detectable during inspection in reflection, transmission, or crossed Nicol transmission.