

ICS 17.180
CCS N 30



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

GB/T 26332.1-2024

Replacing GB/T 26332.1-2018

**Optics and photonics - Optical coatings - Part 1: Vocabulary
(English Translation)**

Issued on: September 29, 2024

Implemented on: April 1, 2025

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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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 26332 "Optical films for optics and photonics". GB/T 26332 has been published for the following part.

- Part 1: Terminology;
- Part 2: Optical properties;
- Part 3: Environmental adaptability;
- Part 4: Specified test methods;
- Part 5: Basic requirements for anti-reflection coatings;
- Part 6: Basic requirements for reflective films;
- Part 7: Basic requirements for neutral beam splitter films;
- Part 8: Basic requirements for laser optical films.

This document replaces GB/T 26332.1-2018 "Optics and photonics - Optical films - Part 1: Definitions" and is compatible with GB/T 26332.1-Compared with 2018, in addition to

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

- "Clear aperture" adds the preferred term "effective aperture" (see 3.1.1.4);
- Added "Average spectral transmittance based on wavelength", "Average spectral transmittance based on wave number", "Spectral optical density" and "High reflective film" Terms such as "partially reflective film", "micro scratches", "fogging", and "discoloration" (see 3.1.2.2, 3.1.2.3, 3.1.2.6, 3.2.1.2, 3.2.1.3, 3.3.2.3, 3.3.3.5, 3.3.3.6);
- Changed "Spectral Transmittance", "Spectral Reflectance", "Spectral Absorption", "Phase Delay", "Particles", "Fine Dust", and "Hair-like Scratches" Definitions of terms such as "spots" (see 3.1.2.1, 3.1.2.4, 3.1.2.5, 3.1.4.2, 3.3.1.3, 3.3.1.4, 3.3.2.2, 3.3.3.1, 2.2.2, 2.2.3, 2.2.4, 2.5.2, 4.1.3, 4.1.4, 4.2.2, 4.3.1 of the 2018 edition);
- Added the expression symbol Theta for "angle of incidence" (see 3.1.2.9);
- Change "Linear polarized light", "Elliptically polarized light", "Circularly polarized light", "Randomly polarized light" and "Unpolarized light" to "Linear polarization" and "Elliptically polarized light" "Circular polarization", "Random polarization", "Non-polarized" (see 3.1.3.1, 3.1.3.2, 3.1.3.3, 3.1.3.4, 3.1.3.5, 2018 version 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.4.6).

This document modifies ISO 9211-1:2024 "Optical films for optics and photonics - Part 1: Terminology".

This document has the following structural adjustments compared to ISO 9211-1:2024.

- Added Appendix A, and moved the contents of Table 1 of ISO 9211-1:2024 to Appendix A;
- Appendix B corresponds to Appendix A of ISO 9211-1:2024.

The technical differences between this document and ISO 9211-1:2024 and their reasons are as follows.

- Move part of the content in paragraph 2 of Chapter 1 of ISO 9211-1:2024 to the "Introduction" because this part describes GB/T 26332 (all parts) rather than this document, and the scope of application is increased (see Chapter 1) to facilitate this document.

Application of documents;

- ISO 11145:2018 replaces ISO 11145 with the normative reference, and ISO 80000-7:2019 replaces ISO 80000-7 (See Chapter 3) to facilitate the application of this document.

The following editorial changes were made to this document.

- Correct the term classification from 4 categories to 3 categories (see Chapter 1);
- Changed "Note 2" of "spectral transmittance", "Note 1" of "spectral reflectance", "Note 1" and "Note 4" of "spectral absorption ratio" (see 3.1.2.1, 3.1.2.4, 3.1.2.5);

- Added "Note" in "Films named according to their main functions" (see 3.2);
- Added "Note" in "Terms related to common film defects" (see 3.3);
- Changed the description of "color spots" and added "Note" (see 3.3.3.1);
- Changed the article numbers of "fogging" and "color change" (see 3.3.3.5, 3.3.3.6) to correct the errors in the ISO standard;
- Deleted the part of the suspected "nodule" defect in the "pinhole" defect picture (see Figure B.1).

Introduction

Optical thin film components are widely used in various scientific and technological fields related to optics and photonics to achieve reflection, beam splitting, filtering, etc.

With the continuous advancement of technology, optical thin film components are becoming more and more popular.

The performance requirements are higher and the demand types are more diversified. Therefore, it is necessary to develop a set of technical this will not only help promote the standardized and orderly development of my country's optical film industry, but also better promote related GB/T 26332 "Optical Films for Optics and Photonics" was drafted in this context.

Determined.

GB/T 26332 describes the optical thin films coated on the surface of optical components and substrates, and gives the standards for the technical indicators of optical thin films.

The expression form defines the general characteristics and necessary test and measurement methods, but is not intended to be used to specify the deposition method of optical thin films.

GB/T 26332 adopts the ISO 9211 series and is intended to consist of 8 parts.

- Part 1: Terminology. The purpose is to standardize the technical expressions of common terms related to optical films.
- Part 2: Optical properties. The purpose is to standardize the description of various spectral characteristics of optical films.
- Part 3: Environmental adaptability. The purpose is to specify the environmental test methods applicable to the environmental adaptability of optical film components.
- Part 4: Specified test methods. The purpose is to supplement the detailed technical requirements of several environmental test methods. Part 3 the test methods are cited in.
- Part 5: Basic requirements for anti-reflection films. The purpose is to specify the basic

requirements for commonly used anti-reflection films.

--- Part 6: Basic requirements for reflective films. The purpose is to specify the basic requirements for commonly used metal reflective films.

--- Part 7: Basic requirements for neutral beam splitter films. The purpose is to specify the basic requirements for commonly used neutral beam splitter films.

--- Part 8: Basic requirements for laser optical films. The purpose is to specify the basic requirements for commonly used laser optical films.

The terms specified in this document are the basis of GB/T 26332. Please read the following instructions carefully when using and referring to this document.

a) The optical properties of the coating surface are usually described by spectrophotometric values. Optical properties are related to the energy (radiation or luminescence) of electromagnetic wave propagation.

The optical properties of the coating surface are also affected by scattering.

NOTE 1 When expressing functions relating to the spectrum, it is common to write the wavelength λ in parentheses as part of the notation.

Note 2: The unit of wavelength λ is usually nanometer (nm) or micrometer (μm). When wave number (σ) or photon energy (h ν) is used instead of wavelength (h = Planck constant the unit of wave number is usually the reciprocal centimeter (cm^{-1}), and the unit of photon energy is usually the electron volt (eV).

b) When the incident angle is not zero, the optical properties of the film are related to the polarization state of the incident light and will affect the polarization state of the outgoing light.

If necessary, the relationship between the direction of the electric vector and the plane of incidence is usually stated.

c) Chromaticity parameters are used to characterize optical surfaces for visual applications. These parameters depend on the reference illumination source, the observer, and Optical properties of the surface. Chromaticity parameters are not part of this document.

Optics and Photonics Optical Thin Films Part 1: Terminology

1 Scope

This document defines the terms and definitions related to optical films. The terms are divided into three categories. basic terms and definitions, functional film terms and definitions, and Definitions and terms of common thin film defects.

This document is applicable to optical films coated on the surfaces of optical components and substrates.