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

GB/T 45340-2025

**Metallic and other non-organic coatings - Measurement of
coating thicknesses - Fizeau multiple-beam interferometry
method**

金属及其他无机覆盖层镀层厚度的测量斐索多光束干涉法

(English Translation)

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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 modified from ISO 3868:1976 "Measurement of coating thickness of metallic and other inorganic coatings-Fizeau multi-beam interferometry" Law".

This document has the following structural adjustments compared to ISO 3868:1976.

--- Chapter 4 corresponds to Chapter 2 of ISO 3868:1976;

--- Chapter 5 corresponds to Chapter 4 of ISO 3868:1976;

- Chapter 6 corresponds to Chapter 5 of ISO 3868:1976;
- Chapter 7 corresponds to Chapter 6 of ISO 3868:1976;
- Chapter 8 corresponds to Chapter 7 of ISO 3868:1976, 8.1.2 corresponds to 7.1.1 of ISO 3868:1976, 8.1.3 corresponds to 7.1.2, 8.2 in ISO 3868:1976 correspond to 7.2, 7.2.1 to 7.2.5 in ISO 3868:1976;
- Chapter 9 corresponds to Chapter 8 of ISO 3868:1976.

The technical differences between this document and ISO 3868:1976 and their reasons are as follows.

- Increased the scope of application (see Chapter 1);
- Added normative references GB/T 3138 and GB/T 12334 (see Chapter 3) to adapt to my country's technical conditions;
- Changed the definitions of test eyepiece, scale units and indicator lines (see 3.1, 3.2, 3.5, 3.1, 3.2, 3.5 of ISO 3868:1976) 3.5) to adapt to my country's technical conditions;
- The introductory words on factors affecting thickness measurement accuracy have been deleted to adapt to my country's technical conditions;
- Changed the reading accuracy requirements (see 6.3, 5.3 of ISO 3868:1976) to adapt to my country's technical conditions;
- Changed the surface flatness requirements (see 6.4, 5.4 of ISO 3868:1976) to adapt to my country's technical conditions;
- Changed the step clarity requirements (see 6.5, 5.5 of ISO 3868:1976) to adapt to my country's technical conditions;
- The cleanliness requirements (see 6.7, 5.7 of ISO 3868:1976) have been changed to adapt to my country's technical conditions;
- Added general rules for step preparation (see 8.1.1) to adapt to my country's technical conditions.

The following editorial changes were made to this document.

- Delete Notes 1 and 2 of 7.1.2.3 of ISO 3868:1976.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee for Standardization of Metallic and Non-metallic Coverings (SAC/TC57).

1 Scope

This document describes the Fizeau multi-beam interferometry method for the measurement of coating thickness of metals and other inorganic coatings.

This document applies to the use of Fizeau multi-beam interferometry to measure the maximum thickness of metals and other inorganic coatings with a maximum reflectivity of less than 2 μm .

Measurement of coating thickness.

This document is not applicable to the measurement of enamel type coverings.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 3138 Terminology for surface treatment of metals and other inorganic coatings GB/T 12334 Definitions and general rules for thickness measurement of metals and other non-organic coatings

3 Terms and definitions

The terms and definitions defined in GB/T 3138, GB/T 12334 and the following apply to this document.

micrometer eyepiece filarmicrometereyepiece A device used to observe and measure images.

Note: It consists of an adjustable lens, an indicator line that moves with the rotation of the hand wheel, and a series of count lines across the field of view.

filarunits

The scale on the micrometer control device.

Note: Proportional to the unit of length.

Fizeauplate

An optical flat plate with a smooth surface, high reflectivity and low absorption.

Interference fringes Dark lines formed by interference of light waves.

Hairlines

A thin wire inside a micrometer eyepiece that moves as the handwheel is turned.

Note: Used to measure the spacing and offset of interference fringes.