



**International
Standard**

ISO 6760-1

**Optics and photonics — Test
method for temperature coefficient
of refractive index of optical
glasses —**

**Part 1:
Minimum deviation method**

*Optique et photonique — Méthode d'essai pour déterminer le
coefficient de température de l'indice de réfraction des verres
optiques —*

Partie 1: Méthode de la déviation minimale

**Second edition
2025-07**

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

ISO 6760-1:2025

<https://standards.iteh.ai/catalog/standards/iso/56ac0f37-3374-4ff9-8de3-56f4ceb0f05a/iso-6760-1-2025>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Measuring apparatus	4
5.1 Goniometer	4
5.2 Light source	4
5.3 Detector	4
5.4 Thermal chamber	4
6 Specimen prism	5
7 Measurement	5
7.1 Measurement of apex angle	5
7.2 Measurement of the angle of minimum deviation	5
8 Calculation	6
8.1 Absolute refractive index	6
8.2 Temperature coefficient of absolute refractive index	8
8.3 Temperature coefficient of relative refractive index	8
9 How to express the temperature coefficient of refractive index	9
10 Test report	9
Annex A (informative) Formula for calculating the refractive index of air	10
Annex B (informative) Calculation method for obtaining the relative refractive index of glass at an arbitrary temperature, air pressure and relative humidity	13
Annex C (normative) Half prism method	15
Annex D (normative) Interpolation formula for $\Delta n / \Delta T$	20
Annex E (informative) Derivation and verification of $\Delta n_{\text{rel}} / \Delta T$	21
Bibliography	24

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 3, *Optical materials and components*.

This second edition cancels and replaces the first edition (ISO 6760-1:2024), which has been technically revised.

The main changes are as follows:

- The status of [Annex C](#) and [Annex D](#) was changed from “informative” to “normative”.

A list of all parts in the ISO 6760 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Optical glass is widely used in optical devices such as cameras, telescopes, and microscopes, and its refractive index is measured by the minimum deviation method (see ISO 21395-1) and the V-block refractometer method (see ISO 21395-2^[4]). Here, when designing an optical apparatus that requires high resolution, it is necessary to consider the temperature change of the refractive index of the optical glass in the usage environment, however up until now, there is no International Standard. In view of the above situation, this document proposes a method for measuring the temperature coefficient of refractive index of optical glass with high accuracy, aiming to help mutual understanding of measured value users and contribute to efficiency and fairness.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 6760-1:2025](https://standards.iteh.ai/catalog/standards/iso/56ac0f37-3374-4ff9-8de3-56f4ceb0f05a/iso-6760-1-2025)

<https://standards.iteh.ai/catalog/standards/iso/56ac0f37-3374-4ff9-8de3-56f4ceb0f05a/iso-6760-1-2025>