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

**Part 1:  
Minimum deviation method**

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

*Partie 1: Méthode de la déviation minimale*



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Published in Switzerland

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## 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 documents 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

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](http://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*.

A list of all parts in the ISO 21395 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](http://www.iso.org/members.html).

## Introduction

The refractive index of optical glasses has been measured by various methods, but up to now, an International Standard for the measurement has not been available. The refractive index of optical glasses is the most important characteristic for the optical elements to be manufactured from them. This document defines a suitable method for measuring the refractive index of optical glasses accurately and also helps to improve communication between raw optical glass suppliers and optical element manufacturers.



# Optics and photonics — Test method for refractive index of optical glasses —

## Part 1: Minimum deviation method

### 1 Scope

This document specifies the measuring method for the refractive index of optical glasses with the accuracy within  $1 \times 10^{-5}$  used in the spectral range from 365 nm to 2 400 nm.

Additional information on how to apply the refractive index in the dispersion and the various dispersion formulae of optical glasses is given in [Annex A](#) and [Annex B](#).

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references in this document.

### 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses.

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 4 Principle

As shown in [Figure 1](#), when the monochromatic light beam is refracted by the specimen prism at the angle of minimum deviation, the relative refractive index of the specimen prism to the air at the wavelength of the monochromatic light beam is described by the following [Formula \(1\)](#):

$$n_{\text{rel}} = \frac{\sin \frac{\alpha + \delta_{\text{min}}}{2}}{\sin \frac{\alpha}{2}} \quad (1)$$