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

**Part 2:
V-block refractometer method**

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

Partie 2: Méthode du réfractomètre à blocs en V



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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).

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).

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*.

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.

Introduction

This document specifies the method to determine the refractive index of optical glasses with the V-block refractometer. Some explanation of the V-block refractometer can be found in Reference [3]. The refractive index of optical glasses is the most important characteristic for the optical elements manufactured from them.

Regarding the standardization of the method of refractive index measuring method of optical glasses, the minimum deviation method is defined as ISO 21395-1.

The minimum deviation method is most accurate in refractive index measurement but requires an advanced technical skill to prepare a specimen with a precise shape and to measure the refractive index.

In contrast the V-block refractometer method is easier and faster when preparing a specimen and requires less technical skill for measurement. Therefore, this method is commonly used by people checking the quality of the optical glass products on a daily basis.

This document is intended to aid in measuring the refractive index of optical glasses accurately and improving the communications between raw optical glass suppliers and optical element manufacturers as well.

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

Part 2: V-block refractometer method

1 Scope

This document specifies a method to determine the refractive index of optical glass with the accuracy within 3×10^{-5} at the wavelength range from 365 nm to 2 400 nm by using the V-block refractometer method.

While this document can be used for non-glass materials, the user is informed that only optical glass has been considered in the development of this document, and other materials can have issues, which have not been taken into consideration.

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.

ISO 280, *Essential oils — Determination of refractive index*

ISO 9802, *Raw optical glass — Vocabulary*

ISO 21395-1, *Optics and photonics — Test method for refractive index of optical glasses — Part 1: Minimum deviation method*

ISO 80000-1, *Quantities and units — Part 1: General*

ISO 80000-3, *Quantities and units — Part 3: Space and time*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9802, ISO 80000-1, ISO 80000-3 and the following apply.

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 <https://www.electropedia.org/>

3.1

V-block prism

prism manufactured from optical glass material with a known refractive index

3.2

refractive index matching liquid

transparent liquid having the refractive index close to that of the specimen