BS ISO 8424:2023

BSI Standards Publication

Raw optical glass — Resistance to attack by aqueous acidic solutions — Test method and classification

National foreword

This British Standard is the UK implementation of ISO 8424:2023.

The UK participation in its preparation was entrusted to Technical Committee CPW/172, Optics and Photonics.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2023

ISBN 978 0 539 17440 3

ICS 81.040.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2023.

Amendments/corrigenda issued since publication

Date	Text affected

BS ISO 8424:2023

INTERNATIONAL STANDARD

ISO 8424

Third edition
2023-07

Raw optical glass — Resistance to attack by aqueous acidic solutions — Test method and classification

Verre d'optique brut — Résistance à l'attaque par des solutions acides aqueuses — Méthode d'essai et classification

Reference number
ISO 8424:2023(E)

COPYRIGHT PROTECTED DOCUMENT

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

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*.

This third edition cancels and replaces the second edition (ISO 8424:1996), which has been technically revised.

The main changes are as follows:

— a new measurement procedure, the powder method, was added;

— Annex A was added;

— Annex B was added;

— the surface method is technically revised.

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 methods for testing the resistance of optical glasses to the attack by aqueous acidic solutions and provides corresponding classifications according to the resistance determined.

Two different methods are provided: A surface method and a powder method. Both methods are described side by side so that the user can select a suitable or convenient method for the application.

The surface method is applied to polished glass samples. The results are comparable to application conditions.

The powder method uses small amounts of crushed granular glass for testing. It is easy to apply, and provides test results quickly.

The acid resistance classes determined by the two different methods show a correlation, but they cannot be converted into each other unambiguously. Therefore, different notations are introduced for the acid resistance classes referring to the determining method to avoid misunderstandings.

INTERNATIONAL STANDARD ISO 8424:2023(E)

Raw optical glass — Resistance to attack by aqueous acidic solutions — Test method and classification

1 Scope

This document specifies two methods for testing the resistance of raw optical glasses to attack by aqueous acidic solutions and defines a classification of optical glasses according to the acid resistance determined by these methods.

The surface method tests the resistance of the polished plate-shaped optical glass to attack by aqueous acidic solutions at 25 °C for a specified time and indicates the class determined by this method as "SR-S".

The powder method tests the resistance of crushed granular optical glass to attack by an acidic aqueous solution at above 98 °C for 1 h, and indicates the class determined by this method as "SR-P".

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 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 3585, *Borosilicate glass 3.3 — Properties*

ISO 4797, *Laboratory glassware — Boiling flasks with conical ground joints*

ISO 4799, *Laboratory glassware — Condensers*

ISO 10110-8, *Optics and photonics — Preparation of drawings for optical elements and systems — Part 8: Surface texture*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology 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/

4 Principle of measurement

4.1 Surface method

A polished glass sample is exposed to a test solution with a pH of 0,3 (nitric acid Solution 0,5 mol/l) or 4,6 (buffer solution) at 25 °C for specified durations. The sample is weighed before and after immersion to determine the loss in material. From this result the duration required to remove a surface layer of 0,1 µm depth is determined and categorized into the acid resistance class SR-S.