INTERNATIONAL WORKSHOP AGREEMENT

IWA 43

First edition
2023-10

Glass types — Crystal glass, crystal and lead crystal — Specifications and test methods

Types de verres — Cristallin, cristal et cristal au plomb — Spécifications et méthodes d'essai

Reference number
IWA 43:2023(E)

© ISO 2023



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

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

© ISO 2023 – All rights reserved

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Specifications **1**
4.1 General 1
4.2 Specifications for crystal glass 2
4.3 Specifications for crystal 2
4.4 Specifications for lead crystal 2
5 Test methods **2**
5.1 Chemical composition 2
5.2 Physical determinations 3
5.2.1 Density 3
5.2.2 Refractive index 3
Annex A (informative) **Crystal glass types specifications** **4**
Annex B (informative) **Workshop contributors** **5**
Bibliography **6**

© ISO 2023 – All rights reserved

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.

International Workshop Agreement IWA 43 was approved at a workshop hosted by the Association française de normalisation (Afnor), held in La Plaine Saint Denis, France, on 16 June 2023.

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.

© ISO 2023 – All rights reserved

Introduction

This document is intended to provide specifications and test methods for three crystal glass types (crystal glass, crystal, lead crystal) used in consumer goods in relation to tableware, containers, furniture, home decor, jewellery and any other decorative components in consumer goods. The purpose is to promote a global understanding of consumer quality requirements, together with corresponding methods to measure the specifications.

The three crystal glass types are determined based on three criteria: chemical composition, refractive index and density. A maximum lead content criterion is added for crystal and crystal glass.

The refractive index depends on the chemical composition of glass. While lead oxide remains the most efficient constituent to obtain a high refractive index because it favours general qualities (mass purity, high transparency for non-coloured glass), other components such as calcium oxide, barium oxide, zinc oxide may also contribute to a high refractive index.

© ISO 2023 – All rights reserved

Glass types — Crystal glass, crystal and lead crystal — Specifications and test methods

1 Scope

This document provides the specifications and specifies the requirements for the designation of three types of glass namely crystal glass, crystal, and lead crystal, according to their chemical composition, density and refractive index. This document also describes the test methods to measure the respective characteristics of these crystal glass types.

Given the potential lead contamination concerns in crystal glass and crystal, this document additionally stipulates a maximum permissible limit for lead content.

This document is applicable to the designated crystal glass types used as tableware, containers (e.g. bottles, decanters, perfume jars), giftware, home decor and any decorative components in consumer goods (e.g. glass components and/or parts used in jewellery, textile applications, and electrical and electronic equipment), furniture and luminaries.

This document does not apply to crystal glass types used within the areas of construction, healthcare and laboratories, and other technical uses of glass.

2 Normative references

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 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 Specifications

4.1 General

The determination of the three crystal glass types is based on the following criteria:

— metal oxides composition;

— density;

— refractive index (n_D);

— a maximum lead (Pb) content for crystal glass and crystal.

For a summary of crystal glass types specifications, see Annex A.

The intentional addition of lead oxides is prohibited in batch compositions for both crystal glass and crystal. However, due to the omnipresence of lead ions in the natural environment, some lead ions are present in the glass matrix from trace elements in specific raw materials used for crystal glass or

© ISO 2023 – All rights reserved