INTERNATIONAL STANDARD

ISO 20492-1

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Glass in buildings — Insulating glass —

Part 1: Durability of edge seals by climate tests

Verre dans la construction — Verre isolant —

Partie 1: Résistance des fermetures de côté par essais climatiques

Reference number
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 20492-1 was prepared by Technical Committee ISO/TC 160, *Glass in building*, Subcommittee SC 1, *Product considerations*.

ISO 20492 consists of the following parts, under the general title *Glass in buildings — Insulating glass*:

— *Part 1: Durability of edge seals by climate tests*

— *Part 2: Chemical fogging tests*

— *Part 3: Gas concentration and gas leakage*

— *Part 4: Test methods for the physical attributes of edge seals*

Introduction

This part of ISO 20492 consists of a series of procedures for testing the performance of pre-assembled, permanently sealed insulating glass units or insulating glass units with capillary tubes that have been intentionally left open. This part of ISO 20492 is intended to help ensure that

— energy savings are made, as the U-value and solar factor (solar-heat gain coefficient) do not change significantly;

— health is preserved, because sound-reduction and vision do not change significantly;

— safety is provided, because mechanical resistance does not change significantly.

This part of ISO 20492 also covers additional characteristics that are important to the trade and includes the marking of the product (i.e., the CE marking or markings of other regulatory groups).

It is necessary to consider distinct markets for insulating glass. As within each market there are technical differences with respect to rebate sizes, vision lines and methods of application, two approaches are included in this part of ISO 20492. Approach 1 addresses requirements for markets such as North America. Approach 2 addresses requirements for markets such as Europe. Each approach includes separate test methods and specifications pertaining to minimum requirements for the durability of edge seals as determined by climate tests.

This part of ISO 20492 does not cover physical requirements of sealed-glass insulating units such as appearance, thermo-physical properties, heat and light transmission and glass displacement.

The main intended uses of the insulating glass units are installations in buildings and construction, such as in windows, doors, curtain walling, skylights, roofs and partitions where protection against direct ultraviolet radiation exists at the edges.

NOTE In cases where there is no protection against direct ultraviolet radiation at the edges, such as structural-sealant glazing systems, it is still necessary to review factors such as sealant longevity when exposed to long term ultraviolet light and the structural properties of the sealant for these applications. For more information on the requirements for structural-sealant glazing applications, reference can be made to ASTM C1369 [1], ASTM C1249 [2] and ASTM C1265 [3].

The test methods in this part of ISO 20492 are intended to provide a means for testing the performance of the sealing system and construction of sealed, insulating glass units.

Sealed, insulating glass units tested in accordance with these method are not intended for long-term immersion in water.

The options for testing apply only to sealed, insulating glass units that are constructed with glass.

The methods of this part of ISO 20492 might not be applicable in certain cases, such as for insulating glass units containing spandrel glass or absorptive coatings, as these products can experience field temperatures that exceed the temperature limitations of the sealant.

Glass in buildings — Insulating glass —

Part 1:
Durability of edge seals by climate tests

1 Scope

This part of ISO 20492 establishes two methods for testing the durability of edge seals of insulating glass units by means of climate tests. The two methods are designated as Approach 1 for markets such as North America and Approach 2 for markets such as Europe.

This part of ISO 20492 is applicable to pre-assembled, permanently sealed, insulating glass units with one or two airspaces, and with capillary tubes that are intentionally left open to equalize pressure inside the unit with the surrounding atmosphere.

This part of ISO 20492 is not applicable to sealed, insulating glass units that contain a spandrel glass coating.

This part of ISO 20492 does not apply to insulating glass (IG) units whose function is decorative only.

2 Normative references

The following reference documents are indispensable for the application of this document. For dated references, only the cited edition applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 760, *Determination of water — Karl Fischer method (General method)*

EN 572-1, *Glass in building — Basic soda lime silicate glass products — Definitions and general physical and mechanical properties*

EN 572-2, *Glass in building — Basic soda lime silicate glass products — Float glass*

EN 1279-1, *Glass in building — Insulating glass units — Part 1: Generalities, dimensional tolerances and rules for the system description*

ASTM E546, *Standard Test Method for Frost Dew Point of Sealed Insulating Glass Units*

ASTM E631, *Standard Terminology of Building Constructions*

ASTM C1036, *Standard Specification for Flat Glass*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1279-1, ASTM E631 and the following apply.