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**Glass in building — Electrochromic  
glazings — Accelerated ageing test and  
requirements**

*Verre dans la construction — Vitrages électrochromes — Essai de  
vieillissement accéléré et exigences*



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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 on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

## Introduction

Electrochromic (EC) glazings perform several important functions in a building envelope, including

- minimizing the solar energy heat gain,
- providing for passive solar energy gain,
- controlling a variable visual connection with the outside world,
- enhancing thermal comfort (controlling heat gain), energy efficiency performance, illumination, and glare control, and
- providing for architectural expression.

Therefore, it is important to understand the relative serviceability of these glazings.

This document is intended to provide a means for evaluating the durability of electrochromic glazings.

The test procedures covered in this document includes:

- a) rapid but realistic cycling between high and low light transmission states;
- b) environmental parameters that are typically used in weatherability tests such as simulated solar exposure and high temperature, which are realistic for the intended use of electrochromic glazings.



# Glass in building — Electrochromic glazings — Accelerated ageing test and requirements

## 1 Scope

This document specifies the accelerated ageing test and requirements for electrochromic (EC) glazings.

The test method described in this document is only applicable to chromogenic glazings that can be switched using an electrical stimulus from high to low transmission states and vice versa. This test method is not applicable to other chromogenic glazings such as photochromic and thermochromic glazings, which do not respond to electrical stimulus.

This test method is applicable to any electrochromic glazing fabricated for vision glass (e.g. insulating glass unit, laminated glass) for use in buildings such as doors, windows, skylights and exterior wall systems and glazing exposed to solar radiation. The layers used for constructing the EC glazing and for electrochromically changing the optical properties can be inorganic or organic materials.

## 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 9050:2003, *Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and related glazing factors*

ISO 12543 (all parts), *Glass in building — Laminated glass and laminated safety glass*

ISO 20492 (all parts), *Glass in buildings — Insulating glass*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

### 3.1

#### **chromogenic glazing**

glazing that has the ability to change its visible and/or solar transmittance in response to an external stimulus such as electrical voltage or current, sunlight or temperature

### 3.2

#### **electrochromic**

#### **EC**

combination of materials through which visible and/or solar transmittance characteristics can be altered in response to an applied voltage or current