



SLOVENSKI STANDARD
oSIST prEN 17416:2019
01-september-2019

Steklo v gradbeništvu - Ocenjevanje sproščanja nevarnih snovi - Določevanje emisij iz steklenih izdelkov v zrak v zaprtih prostorih

Glass in building - Assessment of release of dangerous substances - Determination of emissions into indoor air from glass products

Glas im Bauwesen - Beurteilung der Freisetzung gefährlicher Stoffe - Bestimmung von Emissionen in die Innenraumluft aus Glasprodukten

Verre dans la construction - Évaluation de l'émission de substances dangereuses - Détermination des émissions par les produits verriers dans l'air intérieur

Ta slovenski standard je istoveten z: prEN 17416

ICS:

13.020.99	Drugi standardi v zvezi z varstvom okolja	Other standards related to environmental protection
13.040.40	Emisije nepremičnih virov	Stationary source emissions
81.040.20	Steklo v gradbeništvu	Glass in building

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Glass in building - Assessment of release of dangerous substances - Determination of emissions into indoor air from glass products

Verre dans la construction - Évaluation de l'émission de substances dangereuses - Détermination des émissions par les produits verriers dans l'air intérieur

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 129.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 17416:2019) has been prepared by Technical Committee CEN/TC 129 “Glass in building”, the secretariat of which is held by NBN.

This document is currently submitted to the CEN Enquiry.

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prEN 17416:2019 (E)

Introduction

This document provides specific rules for flat glass products used in buildings to support the assessment of release of dangerous substances into indoor air.

This document aims at complementing the general rules established in EN 16516:2017, by providing additional detailed rules on technical aspects specific to the glass products.

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1 Scope

This document provides specific rules for the assessment of the release on dangerous substances from glass products into indoor air of buildings in complement to the horizontal rules given in EN 16516.

This document addresses specifically products as mentioned in TC 129 Mandate - M135 Amendment 1 EN (2012), i.e. products covered by the following European Standards: EN 1036-2 and FprEN 16477-2. However, this document can also be applied to other glass products containing volatiles organic compounds (VOC) such as: EN 1279-5, EN 15755-1 and EN 14449. Glass products that do not contain organic compounds are not in the scope of this document (see Annex A).

This document address the release of dangerous substances into indoor air from construction products, although it can also be applied to glass products used in other applications such as furniture.

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.

EN 1036-1, *Glass in building - Mirrors from silver-coated float glass for internal use - Part 1: Definitions, requirements and test methods*

EN 1036-2, *Glass in building - Mirrors from silver-coated float glass for internal use - Part 2: Evaluation of conformity; product standard*

EN 1279-1, *Glass in Building - Insulating glass units - Part 1: Generalities, system description, rules for substitution, tolerances and visual quality*

EN 1279-5, *Glass in building - Insulating glass units - Part 5: Product standard*

EN 14449, *Glass in building - Laminated glass and laminated safety glass - Evaluation of conformity/Product standard*

EN 15755-1, *Glass in building - Adhesive backed polymeric filmed glass - Part 1: Definitions and requirements*

EN 16477-1, *Glass in building - Painted glass for internal use - Part 1: Requirements*

FprEN 16477-2, *Glass in building - Painted glass for internal use - Part 2: Evaluation of conformity/Product standard*

EN 16516, *Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air*

EN ISO 12543-1, *Glass in building - Laminated glass and laminated safety glass - Part 1: Definitions and description of component parts (ISO 12543-1)*

EN ISO 12543-2, *Glass in building - Laminated glass and laminated safety glass - Part 2: Laminated safety glass (ISO 12543-2)*

EN ISO 12543-3, *Glass in building - Laminated glass and laminated safety glass - Part 3: Laminated glass (ISO 12543-3)*

EN ISO 16000-11, *Indoor air - Part 11: Determination of the emission of volatile organic compounds from building products and furnishing - Sampling, storage of samples and preparation of test specimens (ISO 16000-11)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16516 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 <https://www.iso.org/obp>

3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

VOC Volatile Organic Compound

4 Intended conditions of use, emission scenarios and European reference room

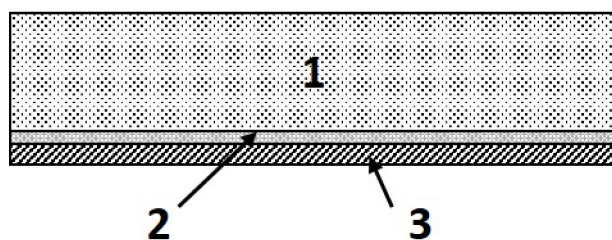
4.1 Intended conditions of use and emission scenario

4.1.1 Product description.

The glass that represent in general the main part of the glass product does not contain any VOC. Glass is manufactured in furnaces where the raw materials are melted at a temperature above 1 500 °C and therefore no organic compounds whatsoever are present within the glass itself. VOC in glass products are generally found in added components such as paint, plastic film, sealant, glue, etc. Moreover the organic containing component is rarely exposed directly to the indoor air but most likely placed against a hard surface (e.g. wall, ceiling, floor, frame, etc.).

4.1.2 Mirrors, painted glass, and adhesive backed polymeric filmed glass

Mirrors (EN 1036-1), painted glass (EN 16477-1), adhesive backed polymeric filmed glass (EN 15755-1): the component that is susceptible to release VOC's is applied on the back of the product on the entire surface; it consists of paint and/or adhesive polymeric film (see Figure 1). During use, the face covered is generally applied on to a hard surface such as a wall. Those products are used inside the building as decorative wall covering; they rarely cover all four walls of a room but more generally two walls or less.



Key

- 1 glass
- 2 paint
- 3 adhesive polymeric film

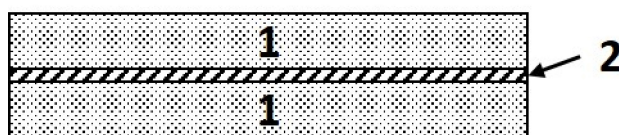
Figure 1 — Illustration of a section of a painted glass or mirror with an adhesive backed polymeric film

4.1.3 Laminated glass

Laminated glass consists of one sheet of glass with one or more sheets of glass and/or plastic glazing sheet material joined together with one or more interlayers according to EN ISO 12543-1, EN ISO 12543-2 and EN ISO 12543-3 (see Figure 2).

In the case one external part of the laminated product consists of a VOC containing material (e.g. plastic glazing sheet material), the product shall be tested taking into account the specific intended application (e.g. the plastic glazing sheet can be facing the interior).

The interlayer is generally made of organic compounds (e.g. polyvinyl butyral) and is susceptible to releasing VOC's. Although, in most cases (see previous paragraph for exception) because the interlayer is comprised between two glass panes the contact between the interlayer and the indoor air is limited to a very small surface along the edge of the glass product. As laminated glass are usually placed into a frame, there is no direct contact between the indoor air and the interlayer material. Those products are used in insulating glass units (window) for façade (for safety or security purposes) and inside the building as partition or balustrade. Generally, they cover two walls or less.



Key

- 1 glass
- 2 interlayer

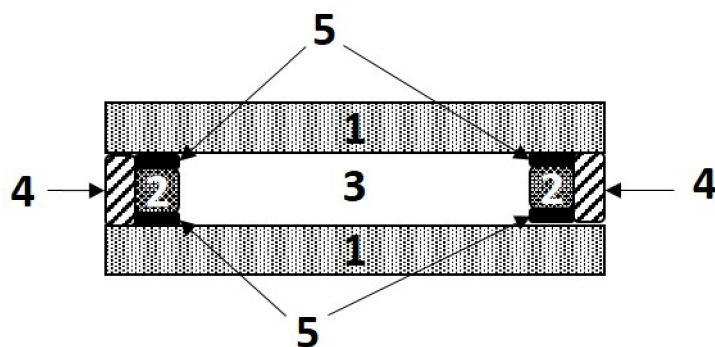
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Figure 2 — Illustration of a section of a laminated glass with two glass panes and one polymeric interlayer

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4.1.4 Insulating Glass Unit

Insulating glass units (EN 1279-1) are made of at least two panes of glass separated by spacers (see Figure 3). One or both glass panes may be laminated glass. The inside cavity is filled with dry air or an inert gas (usually Argon). The glass panes are held together to the spacer by an inner sealant (usually butyl based). The insulating glass unit is then sealed by an outer sealant (various compositions are available, e.g. polyurethane, polysulphides or silicone based products). The inner and the outer sealant contain organic compounds and are susceptible of releasing VOC. As the glazing is generally fixed into a frame there is no direct contact between the organic compounds and the indoor air. Those products are generally used for façade (windows) or partition inside the building and cover two wall or less. Most applications concern a standard window.

**Key**

- 1 glass
- 2 spacer
- 3 inside cavity filled with dry air or inert gas
- 4 outer sealant
- 5 inner sealant

Figure 3 — Illustration of a section of an insulating glass unit

4.2 Reference room and emission scenario

4.2.1 General

The horizontal European Standard EN 16516 specifies one reference room and one set of conditions that are used as conventional references for any specification of emission rates and any calculation of the related concentrations of emitted compounds in indoor air.

The reference room serves as a convention and is a model that does not represent a real room. It is used to calculate the relevant loading factor.

4.2.2 Dimensions and loading factors in the reference room

As per EN 16516, the dimensions of the reference room are listed below:

- the walls are 2,5 m high;
- floor and ceiling both measure 3 m x 4 m resulting in surfaces of 12 m² each;
- there is one door of 0,8 m (width) × 2 m (height) (1,6 m²);
- there is one window of 2 m²;
- sealants and other very small surfaces up to 0,2 m².

The total wall area (minus door and window) is 31,4 m². The total air volume is 30 m³.

Using these reference room dimensions, the following loading factor shall be used:

- 0,5 m²/m³ for glass products used as wall covering (mirrors, painted glass, and adhesive backed polymeric filmed glass);
- 0,05 m²/m³ for doors and windows;