
**Profili iz nemehčanege polivinilklorida (PVC-U) za izdelavo oken in vrat -
Razvrščanje, zahteve in preskusne metode - 2. del: Profili PVC-U, prevlečeni s
folijami, lepljenimi z lepili**

Unplasticized poly(vinyl chloride) (PVC-U) profiles for the fabrication of windows and doors - Classification, requirements and test methods - Part 2: PVC-U profiles covered with foils bonded with adhesives

Profile aus weichmacherfreiem Polyvinylchlorid (PVC-U) zur Herstellung von Fenstern und Türen - Klassifizierung, Anforderungen und Prüfverfahren - Teil 2: PVC-U Profile beschichtet mit Folien, die mit Klebstoffen befestigt sind

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Profilés de poly(chlorure de vinyle) non plastifié (PVC-U) pour la fabrication des fenêtres et des portes - Classification, exigences et méthodes d'essai - Partie 2 : Profilés en PVC-U plaxés avec des films collés

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COMITÉ EUROPÉEN DE NORMALISATION
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prEN 12608-2:2022 (E)**European foreword**

This document (prEN 12608-2:2022) has been prepared by Technical Committee CEN/TC 249 “Plastics”, the secretariat of which is held by NBN.

This document is currently submitted to the CEN Enquiry.

The EN 12608 series, *Unplasticized poly(vinyl chloride) (PVC-U) profiles for the fabrication of windows and doors — Classification, requirements and test methods*, currently consists of the following parts:

- *Part 1: Non-coated PVC-U profiles with light coloured surfaces*
- *Part 2: PVC-U profiles covered with foils bonded with adhesives*
- *Part 3: PVC-U profiles with lacquered-coating (in preparation)*
- *Part 4: PVC-U profiles with coextruded coloured top-layer (in preparation)*
- *Part 5: PVC-U profiles with thermo-laminated foils (in preparation)*

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1 Scope

This document specifies the classifications, requirements and test methods for unplasticized poly(vinyl chloride) (PVC-U) profiles covered with foils designed for external uses bonded with adhesives which are intended to be used for the fabrication of windows and doors.

NOTE 1 For editorial reasons, in this document, the term “window” is used for window/door.

NOTE 2 Profiles made from PVC-U materials with reinforcements (e.g. glass fibres) are not covered by this document.

NOTE 3 For the purpose of production control, test methods other than those specified in this document can be used.

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 410, *Glass in building - Determination of luminous and solar characteristics of glazing*

EN 478, *Plastics - Poly(vinyl chloride) (PVC) based profiles - Determination of the appearance after exposure at 150 °C*

EN 479, *Plastics - Poly(vinyl chloride) (PVC) based profiles - Determination of heat reversion*

EN 513, *Plastics - Poly(vinylchloride) (PVC) based profiles - Determination of the resistance to artificial weathering*

EN 514, *Plastics - Poly(vinyl chloride) (PVC) based profiles - Determination of the strength of welded corners and T-joints*

EN 12608-1:2016+A1:2020, *Unplasticized poly(vinyl chloride) (PVC-U) profiles for the fabrication of windows and doors - Classification, requirements and test methods - Part 1: Non-coated PVC-U profiles with light coloured surfaces*

EN 17271, *Plastics - Poly(vinyl chloride) (PVC) based profiles - Determination of the peel strength of profiles laminated with foils*

EN 20105-A02, *Textiles - Tests for colour fastness - Part A02: Grey scale for assessing change in colour (ISO 105-A02)*

EN 17508, *Plastics - Unplasticized poly(vinyl chloride) (PVC-U) profiles for the fabrication of windows and doors - Terminology of PVC based materials*

EN ISO 105-A01:2010, *Textiles - Tests for colour fastness - Part A01: General principles of testing (ISO 105-A01:2010)*

EN ISO 178, *Plastics - Determination of flexural properties (ISO 178)*

EN ISO 179-1, *Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test (ISO 179-1)*

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EN ISO 306, *Plastics - Thermoplastic materials - Determination of Vicat softening temperature (VST) (ISO 306)*

EN ISO 2409, *Paints and varnishes - Cross-cut test (ISO 2409)*

EN ISO 4892-2:2013, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

EN ISO 8256, *Plastics - Determination of tensile-impact strength (ISO 8256)*

EN ISO/CIE 11664-4, *Colorimetry - Part 4: CIE 1976 L*a*b* colour space (ISO/CIE 11664-4)*

EN ISO 21306-2:2019, *Plastics - Unplasticized poly(vinyl chloride) (PVC-U) moulding and extrusion materials - Part 2: Preparation of test specimens and determination of properties (ISO 21306-2:2019)*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 12608-1 (except for material definitions), EN 17508 and the following apply.

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

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

3.1 base profile

profile without covering foil intended for lamination

3.2 laminated profile

profile covered with foil

3.3 foil

plastics layer for external uses intended to cover surfaces of a base profile

Note 1 to entry: Foil can be lacquered or not.

3.4 adhesive system

material or combination of materials which assures the adhesion of the foil on the base profile

EXAMPLES Primer and glue.

3.5 base layer (of the foil)

layer of the foil with or without further surface treatment which is in contact with the adhesive system

4 Classifications

4.1 General

This document establishes the following classifications:

- a) Classification of main base profiles according to the wall thickness of the external walls (see 4.2);
- b) Classification of main base profiles according to resistance to impact by falling mass (see 4.3);
- c) Classification of base profile materials according to the resistance to artificial weathering (see 4.4);
- d) Classification of foils according to the resistance to artificial weathering (see 4.5).

The selection of appropriate classes necessary to fulfil national requirements may be given in the national foreword of this document.

4.2 Classification of main base profiles according to the wall thickness of the external walls

For the wall thickness of the external walls, the main base profiles shall be classified according to EN 12608-1:2016+A1:2020, 4.4 (Figure 2 and Table 3).

4.3 Classification of main base profiles according to the resistance to impact by falling mass

For the resistance to impact by falling mass, the main base profiles shall be classified according to EN 12608-1:2016+A1:2020, 4.3.

4.4 Classification of base profile materials according to the resistance to artificial weathering

Resistance to artificial weathering of base profile materials shall be determined according to Annex A. There are two possibilities for the classification of base profile materials which are used for the profile's surface according to the resistance to artificial weathering:

- a) for UV resistant materials (UVM) classification according to climatic zones conforming to EN 12608-1:2016+A1:2020, 4.2, applies (classes M and S);
- b) for reduced-UV resistant materials the class "RUVM" applies.

4.5 Classification of foils according to the resistance to artificial weathering

The resistance to artificial weathering of foils shall be classified according to Table 1 after testing according to 6.3.

For guidance regarding the selection of the appropriate foil class, see Annex B.

Table 1 — Classification of foils according to the resistance to artificial weathering

Class	M 8	M 12	M 20	M 30
Radiant exposure in wavelength range (300 to 800) nm	8 GJ/m ²	12 GJ/m ²	20 GJ/m ²	30 GJ/m ²

5 Requirements for base profiles

5.1 Base profiles in conformance with EN 12608-1

If the base profile is in accordance with EN 12608-1, no further requirements for the base profile apply.

5.2 Other base profiles

5.2.1 Materials

All requirements for materials of other base profiles than described in 5.1 are given in Annex A. To fulfil requirements according to Annex A materials of type rPVC may be re-stabilized and/or enhanced with additives (e.g. modifiers, pigments, lubricants) before use.

PVC based materials are defined according to EN 17508.

The use of these materials on surfaces of profiles is given in Table 2 and Figure 1.

It is permitted to use a reduced-UV resistant virgin material (RUVVM) on the surface when the sight surfaces of the profiles are covered with foil (see Table 2).

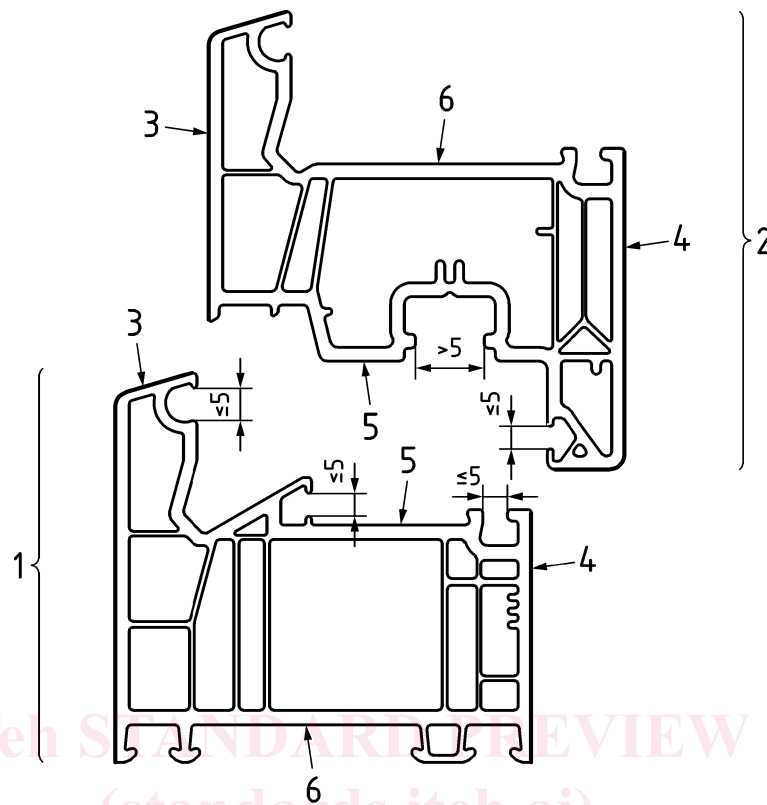
If PVC-U recyclate (rPVC) or non-UV resistant virgin material (NUVM) is used for the base profile the following shall apply:

- a) these materials may be used for the core of a profile, where any visible surfaces are completely covered by coextrusion with a virgin material (UVM), an UV resistant internally reused material (IRM) or a reduced-UV resistant virgin material (RUVVM); the thickness of the coextruded layer is determined according to EN 12608-1:2016+A1:2020, 6.4;
- b) for sight surfaces, the minimum value of thickness of the coextruded surface layer shall be 0,5 mm;
- c) for non-sight visible surfaces, the minimum thickness of the coextruded surface layer shall be 0,2 mm;
- d) there is no requirement for minimum thickness of the coextruded surface layer at the inside surface of grooves with an entry width ≤ 5 mm (see Figure 1).

Table 2 — Use of materials on surfaces of profiles

Authorized Material	Sight surface	Non-sight visible surface	Non-visible surface
UV resistant virgin material (UVM)	Yes	Yes	Yes
UV resistant internally reused material (IRM)	Yes	Yes	Yes
Reduced-UV resistant virgin material (RUVVM)	Yes (if covered with foil)	Yes	Yes
Non-UV resistant virgin material (NUVM)	No	No	Yes
PVC-U recyclate (rPVC)	No	No	Yes

Dimensions in millimetres

**Key**

- 1 frame profile
- 2 sash/casement profile
- 3 + 4 sight surfaces
- 5 non-sight visible surface
- 6 non-visible surface

NOTE Dimensions of grooves are given as examples only.

Figure 1 — Designation of profile surfaces

5.2.2 Appearance

The colour of the sight-surface of the base profile which is visible after lamination shall have a uniform colour when viewed in accordance with 9.1.

The surfaces of the base profile shall be smooth and free from pitting, impurities, cavities and other surface defects when viewed in accordance with 9.1. The appearance of the surface of the foiled profile shall not be adversely affected by the base profile.

The edges of the base profiles shall be clean and burr-free.

5.2.3 Dimensions and tolerances of main base profiles

Requirements concerning dimensions and tolerances of the main base profile shall be the same as for main base profiles according to 5.1.