



National Standards Authority of Ireland

IRISH STANDARD

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ICS 83.080.20
83.140.99

**UNPLASTICIZED POLYVINYLCHLORIDE
(PVC-U) PROFILES FOR THE FABRICATION
OF WINDOWS AND DOORS -
DETERMINATION OF THE RESISTANCE TO
ARTIFICIAL WEATHERING**

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English version

Unplasticized polyvinylchloride (PVC-U) profiles for the
fabrication of windows and doors - Determination of the
resistance to artificial weathering

Profilés de polychlorure de vinyle non plastifié (PVC-U)
pour la fabrication des fenêtres et des portes -
Détermination de la résistance au vieillissement artificiel

Profile aus weichmacherfreiem Polyvinylchlorid (PVC-U)
zur Herstellung von Fenstern und Türen - Bestimmung der
Wetterechtheit und Wetterbeständigkeit durch künstliche
Bewitterung

This European Standard was approved by CEN on 7 June 1999.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 33 "Doors, windows, shutters and building hardware", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2000, and conflicting national standards shall be withdrawn at the latest by January 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

The requirements are incorporated in the appropriate Product Standard.

This draft European Standard is based on the results of extensive research and inter-laboratory testing comparing artificial and natural weathering. From the results it was concluded that the requirements for the retention of mechanical properties after long term artificial weathering were best defined using one method, and Charpy impact strength testing was chosen. In addition, the spray cycles for moderate and severe climates have been chosen.

Annex A, which is informative, gives the reasons for the choice of exposure conditions.

This standard reflects the state of the art at the time of publication. Further research may necessitate amendments to this standard.

1 Scope

This European Standard specifies a method for exposing test pieces from an unplasticized polyvinylchloride (PVC-U) profile for the fabrication of windows and doors to a Xenon arc laboratory light source, in order to assess changes in impact strength and colour. The method given in 8.10 (b) is the reference method of colour measurement.

2 Normative references

This European Standard incorporates by dated or undated references, provisions from other publications listed hereafter. These normative references are cited in the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 20105-A03	Textiles - Tests for colour fastness. Part AO3 : Grey scale for assessing staining (ISO 105-A03:1993)
EN ISO 179	Plastics - Determination of Charpy impact strength (ISO 179:1993)
ISO 4892 - 1 : 1994	Plastics - Methods of exposure to laboratory light sources - Part 1 : General guidance
ISO 4892 - 2	Plastics - Methods of exposure to laboratory light sources - Part 2 : Xenon-arc sources
ISO 7724 - 1	Paints and varnishes - Colorimetry - Part 1 : Principles
ISO 7724 - 2	Paints and varnishes - Colorimetry - Part 2 : Colour measurement
ISO 7724 - 3	Paints and varnishes - Colorimetry - Part 3 : Calculation of colour differences
CIE Publication 15.2	Colorimetry

3 Principle

Test pieces taken from the sight surface of the profiles are exposed in a Xenon arc artificial weathering apparatus at a specified irradiance, Black and White Standard Temperatures, relative humidity and spray cycle.

After specified radiation doses, the changes in Charpy impact strength and colour of the test pieces are determined.

4 Apparatus

4.1 Artificial weathering apparatus with a Xenon arc light source

The apparatus shall comply with ISO 4892 Part 1 and 2 and with the requirements of this standard. Accordingly, each apparatus shall include the following :

4.1.1 A Xenon arc source in accordance with method A of ISO 4892 Part 2 with a spectral irradiance in the band pass of 280 nm to 800 nm of $(550 \pm 55) \text{ W/m}^2$ and a spectral irradiance in the band pass of 280 nm to 400 nm of $(60 \pm 12) \text{ W/m}^2$.

4.1.2 A test enclosure which contains a frame carrying test piece holders.

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