



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 1836:2005+A1:2007

ICS 13.340.20

**PERSONAL EYE-EQUIPMENT - SUNGLASSES  
AND SUNGLARE FILTERS FOR GENERAL  
USE AND FILTERS FOR DIRECT  
OBSERVATION OF THE SUN**

National Standards  
Authority of Ireland  
Glasnevin, Dublin 9  
Ireland

Tel: +353 1 807 3800  
Fax: +353 1 807 3838  
<http://www.nsai.ie>

**Sales**  
<http://www.standards.ie>

*This Irish Standard was  
published under the authority  
of the National Standards  
Authority of Ireland and  
comes into effect on:  
12 October 2007*

**NO COPYING WITHOUT NSAI  
PERMISSION EXCEPT AS  
PERMITTED BY COPYRIGHT  
LAW**

© NSAI 2007

**Price Code N**

Údarás um Chaighdeáin Náisiúnta na hÉireann

*This page is intentionally left BLANK.*

EUROPEAN STANDARD

**EN 1836:2005+A1**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2007

ICS 13.340.20

Supersedes EN 1836:2005

English Version

## Personal eye-equipment - Sunglasses and sunglare filters for general use and filters for direct observation of the sun

Équipement de protection individuelle de l'oeil - Lunettes solaires et filtres de protection contre les rayonnements solaires pour usage général et filtres pour observation directe du soleil

Persönlicher Augenschutz - Sonnenbrillen und Sonnenschutzfilter für den allgemeinen Gebrauch und Filter für die direkte Beobachtung der Sonne

This European Standard was approved by CEN on 28 July 2005 and includes Amendment 1 approved by CEN on 3 August 2007 and the Corrigendum issued in 2006.

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

# Contents

	Page
Foreword.....	3
1 Scope .....	4
2 Normative references .....	4
3 Terms and definitions .....	5
4 Filter requirements .....	9
4.1 Transmittance .....	9
4.2 Optical power of oculars .....	13
4.3 Scattered light .....	14
4.4 Material and surface quality .....	15
4.5 Robustness .....	15
4.6 Resistance to radiation .....	15
4.7 Ignition .....	16
5 Requirements for complete sunglasses (frames with filters) .....	16
5.1 General.....	16
5.2 General construction.....	16
5.3 Mechanical requirements.....	16
5.4 Ignition .....	16
5.5 Materials for the manufacture of complete sunglasses .....	17
6 Testing .....	17
6.1 General.....	17
6.2 Transmittance .....	17
6.3 Optical power values .....	22
6.4 Scattered light.....	22
6.5 Material and surface quality .....	22
6.6 Robustness .....	23
6.7 Resistance to radiation .....	23
6.8 Ignition .....	24
6.9 Conditioning and test conditions for complete sunglasses .....	24
6.10 Test for mechanical requirements for complete sunglasses.....	25
7 Information and labelling .....	27
7.1 General.....	27
7.2 Complete sunglasses.....	27
7.3 Uncut finished lenses and replacement lenses (unmounted sunglass filters).....	29
7.4 Transmittance or reflectance claims .....	29
7.5 Robustness claims .....	29
Annex A (normative) Cut-on filter for UV filtering .....	30
Annex B (normative) Spectral functions for the calculation of luminous transmittance and relative visual attenuation coefficients (quotients).....	32
Annex C (normative) Spectral functions for the calculation of solar UV transmittance values and blue-light transmittance .....	34
Annex D (normative) Spectral function for the calculation of infrared transmittance .....	36
Annex E (informative) Use of sunglare filters.....	38
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC.....	41
Bibliography .....	43

## Foreword

This document (EN 1836:2005+A1:2007) has been prepared by Technical Committee CEN/TC 85 “Eye-protective equipment”, 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 March 2008, and conflicting national standards shall be withdrawn at the latest by March 2008.

This document supersedes A1 EN 1836:2005 A1.

This document includes Amendment 1, approved by CEN on 2007-08-03 and the Corrigendum issued in 2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

The modifications of the related CEN Corrigendum have been implemented at the appropriate places in the text and are indicated by the tags AC AC.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this document.

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

## EN 1836:2005+A1:2007 (E)

### 1 Scope

This European Standard specifies physical properties (mechanical, optical etc.) for sunglasses and sunglare filters of nominal plano power which are not prescription lenses, intended for protection against solar radiation for general use, for social and domestic purposes, including road use and driving. This European Standard specifies also requirements for filters for the direct observation of the sun (e.g. during eclipses). Guidance for selection and use of these filters is given in Annex E. For sunglasses and sunglare filters for industrial use, EN 166 and EN 172 apply.

This European Standard does not apply to eyewear for protection against radiation from artificial light sources, such as those used in solaria. EN 170 applies for these filters.

This European Standard does not apply to ski goggles, for which EN 174 applies, or other types of eye protection used for leisure activities.

This European Standard does not apply to sunglasses and filters that have been medically prescribed for attenuating solar radiation.

### 2 Normative references

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

EN 165:2005 <sup>A1</sup>, *Personal eye protection - Vocabulary*

EN 166:2001, *Personal eye protection - Specifications*

EN 167:2001, *Personal eye protection - Optical test methods*

EN 168:2001, *Personal eye protection - Non-optical test methods*

EN 1811, *Reference test method for release of nickel from products intended to come into direct and prolonged contact with the skin*

EN 12472, *Method for the simulation of wear and corrosion for the detection of nickel release from coated items* <sup>A1</sup>

CIE 85:1989, *Solar spectral irradiance*

ISO 8624:2002, *Ophthalmic optics -- Spectacle frames -- Measuring system and terminology*

ISO/CIE 10526:1999, *CIE standard illuminants for colorimetry*

ISO/CIE 10527:1991, *CIE standard colorimetric observers*

IEC 60050-845:1987, <sup>A1</sup> *International Electrotechnical vocabulary – Chapter 845: Lighting* <sup>A1</sup>

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-