



Institut luxembourgeois de la normalisation  
de l'accréditation, de la sécurité et qualité  
des produits et services

## ILNAS-EN 169:2002

### **Personal eye-protection - Filters for welding and related techniques - Transmittance requirements and recommended use**

Protection individuelle de l'oeil - Filtres  
pour le soudage et les techniques  
connexes - Exigences relatives au facteur  
de transmission et utilisation

Persönlicher Augenschutz - Filter für das  
Schweißen und verwandte Techniken -  
Transmissionsanforderungen und  
empfohlene Anwendung



## National Foreword

This European Standard EN 169:2002 was adopted as Luxembourgish Standard ILNAS-EN 169:2002.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

### **THIS PUBLICATION IS COPYRIGHT PROTECTED**

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

English version

**Personal eye-protection - Filters for welding and related techniques - Transmittance requirements and recommended use**

Protection individuelle de l'oeil - Filtres pour le soudage et les techniques connexes - Exigences relatives au facteur de transmission et utilisation recommandée

Persönlicher Augenschutz - Filter für das Schweißen und verwandte Techniken - Transmissionsanforderungen und empfohlene Anwendung

This European Standard was approved by CEN on 2 October 2002.

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 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 Management Centre 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, Malta, Netherlands, Norway, Portugal, 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.....	4
4 Designation and identification.....	4
5 Requirements .....	5
5.1 General.....	5
5.2 Transmittance requirements.....	5
5.3 Oculars with enhanced colour recognition (optional) .....	6
5.4 Oculars with enhanced reflectance in the infrared (optional).....	6
5.5 Additional requirements for welding filters with dual scale number .....	6
5.5.1 Difference in scale number .....	6
5.5.2 Transmittance.....	6
5.5.3 Dimensions.....	6
Annex A (informative) Guidance on selection and use .....	7
A.1 General.....	7
A.1.1 Scale numbers to be used for gas welding and braze welding .....	7
A.1.2 Scale numbers to be used for oxygen cutting.....	8
A.1.3 Scale numbers to be used for plasma jet cutting.....	8
A.1.4 Scale numbers to be used for electric arc welding or air-arc gouging .....	8
A.1.5 Scale numbers of filters to be used by welders' assistants.....	10
A.1.6 Filters with enhanced colour recognition .....	10
A.1.7 Filters with enhanced reflectance in the infrared .....	10
A.2 Remarks .....	10
Annex B (normative) Relative visual attenuation quotient for signal light recognition.....	11
B.1 Definition of relative visual attenuation quotient for signal light recognition.....	11
B.2 Spectral functions for the calculation of luminous transmittance and relative visual attenuation quotients .....	12
Annex C (informative) Uncertainty of measurement and results interpretation .....	13
C.1 Test report and uncertainty of measurement .....	13
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives .....	15
Bibliography .....	16

## Foreword

This document (EN 169:2002) 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 May 2003, and conflicting national standards shall be withdrawn at the latest by May 2003.

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 EU Directive(s).

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

The annexes A and C are informative. Annex B is normative.

In the revision of this European Standard, and that of EN 379, which was performed concurrently, it was decided to remove from EN 379 welding filters with dual scale numbers and include them within this European Standard.

This document supersedes EN 169:1992.

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

## 1 Scope

This European Standard specifies the scale numbers and transmittance requirements for filters intended to protect operators performing work involving welding, braze-welding, air-arc gouging and plasma jet cutting. It also includes requirements for welding filters with dual scale numbers.

The other applicable requirements for these types of filters are given in EN 166. The requirements for the frames/mountings to which they are intended to be fitted are given in EN 175.

Guidance on the selection and use of these filters are given in Annex A.

The specifications for welding filters with switchable luminous transmittance are given in EN 379.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at 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 it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 165, *Personal eye-protection – Vocabulary*.

EN 166, *Personal eye-protection - Specifications*.

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

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

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

## 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 165 and the following apply.

### 3.1

#### **welding filter with dual scale number**

a protective filter with two different scale numbers (light and dark zones) which are divided into a maximum of three areas of the filter. The light zone is used for brief viewing when setting the electrode to the weld and igniting it. The dark zone is used for viewing the welding process

## 4 Designation and identification

The complete table of numbering of filters is given in EN 166.

The marking of oculars and frame is described in EN 166.

The scale number of these filters comprises only the shade number corresponding to the filter, from 1,2 to 16 (see Table 1).