

# ILNAS

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

**ILNAS-EN 60079-10:2003**

## **Electrical apparatus for explosive gas atmospheres -- Part 10: Classification of hazardous areas**

Matériel électrique pour atmosphères  
explosives gazeuses -- Partie 10:  
Classement des emplacements  
dangereux

Elektrische Betriebsmittel für  
gasexplosionsgefährdete Bereiche -- Teil  
10: Einteilung der explosionsgefährdeten  
Bereiche

**04/2003**



## National Foreword

This European Standard EN 60079-10:2003 was adopted as Luxembourgish Standard ILNAS-EN 60079-10:2003.

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

**Electrical apparatus for explosive gas atmospheres**  
**Part 10: Classification of hazardous areas**  
 (IEC 60079-10:2002)

Matériel électrique pour atmosphères  
 explosives gazeuses  
 Partie 10: Classement des emplacements  
 dangereux  
 (CEI 60079-10:2002)

Elektrische Betriebsmittel für  
 gasexplosionsgefährdete Bereiche  
 Teil 10: Einteilung der  
 explosionsgefährdeten Bereiche  
 (IEC 60079-10:2002)

This European Standard was approved by CENELEC on 2002-12-01. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
 Comité Européen de Normalisation Electrotechnique  
 Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of the International Standard IEC 60079-10:2002, prepared by SC 31J, Classification of hazardous areas and installation requirements, of IEC TC 31, Electrical apparatus for explosive atmospheres, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 60079-10 on 2002-12-01 without any modification.

This European Standard supersedes EN 60079-10:1996.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2003-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-12-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, Annex ZA is normative and Annexes A, B and C are informative.

Annex ZA has been added by CENELEC.

---

## Endorsement notice

The text of the International Standard IEC 60079-10:2002 was approved by CENELEC as a European Standard without any modification.

---

**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

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).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| <u>Publication</u> | <u>Year</u> | <u>Title</u>   | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|--------------|-------------|
| IEC 60050-426      | 1990        | International Electrotechnical Vocabulary (IEV)<br>Chapter 426: Electrical apparatus for explosive atmospheres | -            | -           |
| IEC 60079-4        | 1975        | Electrical apparatus for explosive gas atmospheres<br>Part 4: Method of test for ignition temperature          | -            | -           |
| IEC 60079-4A       | 1970        | Part 4: Method of test for ignition temperature – First supplement   | -            | -           |
| IEC 60079-20       | 1996        | Part 20: Data for flammable gases and vapours, relating to the use of electrical apparatus                     | -            | -           |

**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**60079-10**

Quatrième édition  
Fourth edition  
2002-06

---

---

**Matériel électrique pour atmosphères  
explosives gazeuses –**

**Partie 10:  
Classement des emplacements dangereux**

**Electrical apparatus for explosive gas  
atmospheres –**

**Part 10:  
Classification of hazardous areas**



Numéro de référence  
Reference number  
CEI/IEC 60079-10:2002

## Numérotation des publications

Depuis le 1er janvier 1997, les publications de la CEI sont numérotées à partir de 60000. Ainsi, la CEI 34-1 devient la CEI 60034-1.

## Editions consolidées

Les versions consolidées de certaines publications de la CEI incorporant les amendements sont disponibles. Par exemple, les numéros d'édition 1.0, 1.1 et 1.2 indiquent respectivement la publication de base, la publication de base incorporant l'amendement 1, et la publication de base incorporant les amendements 1 et 2.

## Informations supplémentaires sur les publications de la CEI

Le contenu technique des publications de la CEI est constamment revu par la CEI afin qu'il reflète l'état actuel de la technique. Des renseignements relatifs à cette publication, y compris sa validité, sont disponibles dans le Catalogue des publications de la CEI (voir ci-dessous) en plus des nouvelles éditions, amendements et corrigenda. Des informations sur les sujets à l'étude et l'avancement des travaux entrepris par le comité d'études qui a élaboré cette publication, ainsi que la liste des publications parues, sont également disponibles par l'intermédiaire de:

- **Site web de la CEI ([www.iec.ch](http://www.iec.ch))**
- **Catalogue des publications de la CEI**  
Le catalogue en ligne sur le site web de la CEI ([www.iec.ch/catlg-f.htm](http://www.iec.ch/catlg-f.htm)) vous permet de faire des recherches en utilisant de nombreux critères, comprenant des recherches textuelles, par comité d'études ou date de publication. Des informations en ligne sont également disponibles sur les nouvelles publications, les publications remplacées ou retirées, ainsi que sur les corrigenda.
- **IEC Just Published**  
Ce résumé des dernières publications parues ([www.iec.ch/JP.htm](http://www.iec.ch/JP.htm)) est aussi disponible par courrier électronique. Veuillez prendre contact avec le Service client (voir ci-dessous) pour plus d'informations.
- **Service clients**  
Si vous avez des questions au sujet de cette publication ou avez besoin de renseignements supplémentaires, prenez contact avec le Service clients:  
Email: [custserv@iec.ch](mailto:custserv@iec.ch)  
Tél: +41 22 919 02 11  
Fax: +41 22 919 03 00

## Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

## Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

## Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site ([www.iec.ch](http://www.iec.ch))**
- **Catalogue of IEC publications**  
The on-line catalogue on the IEC web site ([www.iec.ch/catlg-e.htm](http://www.iec.ch/catlg-e.htm)) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.
- **IEC Just Published**  
This summary of recently issued publications ([www.iec.ch/JP.htm](http://www.iec.ch/JP.htm)) is also available by email. Please contact the Customer Service Centre (see below) for further information.
- **Customer Service Centre**  
If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre:  
Email: [custserv@iec.ch](mailto:custserv@iec.ch)  
Tel: +41 22 919 02 11  
Fax: +41 22 919 03 00

**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**60079-10**

Quatrième édition  
Fourth edition  
2002-06

---

---

**Matériel électrique pour atmosphères  
explosives gazeuses –**

**Partie 10:  
Classement des emplacements dangereux**

**Electrical apparatus for explosive gas  
atmospheres –**

**Part 10:  
Classification of hazardous areas**

© IEC 2002 Droits de reproduction réservés — Copyright - all rights reserved

Aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'éditeur.

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland  
Telephone: +41 22 919 02 11 · Telefax: +41 22 919 03 00 E-mail: [inmail@iec.ch](mailto:inmail@iec.ch) Web: [www.iec.ch](http://www.iec.ch)



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX XA  
PRICE CODE

*Pour prix, voir catalogue en vigueur  
For price, see current catalogue*



## CONTENTS

|   |     |
|---|-----|
| FOREWORD.....   | 5   |
| INTRODUCTION.....   | 7   |
| 1 General.....  | 9   |
| 1.1 Scope.....  | 9   |
| 1.2 Normative references.....   | 11  |
| 2 Definitions and terms.....  | 11  |
| 3 Safety and area classification.....   | 19  |
| 3.1 Safety principles.....  | 19  |
| 3.2 Area classification objectives.....                                       | 19  |
| 4 Area classification procedure.....  | 21  |
| 4.1 General.....  | 21  |
| 4.2 Sources of release.....   | 23  |
| 4.3 Type of zone.....   | 23  |
| 4.4 Extent of zone.....   | 25  |
| 4.4.1 Release rate of gas or vapour.....                                      | 25  |
| 4.4.2 Lower explosive limit ( <i>LEL</i> ).....                               | 27  |
| 4.4.3 Ventilation.....  | 27  |
| 4.4.4 Relative density of the gas or vapour when it is released.....          | 27  |
| 4.4.5 Other parameters to be considered.....                                  | 29  |
| 4.4.6 Illustrative examples.....  | 29  |
| 5 Ventilation.....  | 31  |
| 5.1 General.....  | 31  |
| 5.2 Main types of ventilation.....  | 31  |
| 5.3 Degree of ventilation.....  | 31  |
| 5.4 Availability of ventilation.....  | 31  |
| 6 Documentation.....  | 33  |
| 6.1 General.....  | 33  |
| 6.2 Drawings, data sheets and tables.....                                     | 33  |
| Annex A (informative) Examples of sources of release.....                     | 35  |
| Annex B (informative) Ventilation.....  | 39  |
| Annex C (informative) Examples of hazardous area classification.....          | 71  |
| Figure C.1 – Preferred symbols for hazardous area zones.....                  | 113 |
| Figure C.2 – Schematic approach to the classification of hazardous areas..... | 115 |