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IRISH STANDARD

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National Standards  
Authority of Ireland  
Dublin 9  
Ireland

Tel (01) 807 3800  
Tel (01) 807 3838

**ELECTRICAL APPARATUS FOR  
POTENTIALLY EXPLOSIVE ATMOSPHERES -  
INTRINSIC SAFETY 'I'**

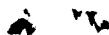
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EUROPEAN STANDARD

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EUROPÄISCHE NORM

June 2002

ICS 29 260 20

Supersedes EN 50020.1994

English version

## **Electrical apparatus for potentially explosive atmospheres - Intrinsic safety 'i'**

Matériel électrique  
pour atmosphères explosibles -  
Sécurité intrinsèque 'i'

Elektrische Betriebsmittel  
für explosionsgefährdete Bereiche -  
Eigensicherheit 'i'

This European Standard was approved by CENELEC on 2002-02-01. 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.

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# **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

This European Standard was prepared by SC 31-3, Intrinsically safe apparatus and systems "i", of Technical Committee CENELEC TC 31, Electrical apparatus for explosive atmospheres.

The text of the draft was submitted to the CENELEC Unique Acceptance Procedure and was approved by CENELEC as EN 50020 on 2002-02-01.

This European Standard supersedes EN 50020:1994 and its corrigendum February 1998.

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) 2003-02-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2003-06-30

This European Standard is to be read in conjunction with EN 50014:1997, *Electrical apparatus for potentially explosive atmospheres – General requirements*, and with the third editions of the European Standards for the specific types of protection.

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## **1 Scope**

1.1 This European Standard specifies the construction and testing of intrinsically safe apparatus, intended for use in potentially explosive atmospheres and for associated apparatus, which is intended for connection to intrinsically safe circuits which enter such atmospheres.

1.2 This European Standard supplements EN 50014 the requirements of which apply to intrinsically safe apparatus and to associated apparatus except as indicated in the following list.

If associated apparatus is protected by a type of protection listed in EN 50014, then the requirements of that method of protection together with the relevant parts of EN 50014 also apply to the associated apparatus. The list of exclusions which follows is directly applicable to associated apparatus intended for use in situations where there is no potentially hazardous atmosphere and in other circumstances should be used in combination with the requirements of the other method of protection.

Clause of EN 50014:1997		Clause excluded	
		Intrinsically safe apparatus	Associated apparatus
3.1	Electrical apparatus	Yes	Yes
4.2.2	Marking of maximum surface temperature	No	Yes
5.1	Maximum surface temperature	No	Yes
5.3	Surface temperature and ignition temperature	No	Yes
6.2	Enclosure opening delay	Yes	Yes
7.1.1	Definition of plastics material	No	Yes
7.1.2	Requirements of plastics material compliance	Yes	Yes
7.1.3	Verification of plastics material compliance	No	Yes
7.2	Thermal endurance	Yes	Yes
7.3	Electrostatic charges on plastics enclosures	No	Yes
7.4	Threaded holes in plastics	Yes	Yes
8.1	Light metal enclosure materials	No	Yes
8.2	Threaded holes in light metals	Yes	Yes
9	Fasteners	Yes	Yes
10	Interlocking devices	Yes	Yes
11	Bushings	Yes	Yes
12	Materials used for cementing	Yes	Yes
14	Connection facilities and terminal compartments	Yes	Yes
15	Connection facilities for earthing or bonding conductors	Yes	Yes
16	Cable and conduit entries	Yes	Yes
17 to 22	Supplementary requirements for certain electrical apparatus	Yes	Yes
23.4.3.1	Test for resistance to impact	Yes	Yes
23.4.3.2	Drop test (no prior impact test necessary)	No	Yes
23.4.3.3	Required results	No	Yes
23.4.5	Torque test for bushings	Yes	Yes
23.4.6.1	Temperature measurement	No	Yes
23.4.6.2	Thermal shock test	Yes	Yes
23.4.7.1 to 23.4.7.7	Tests on non-metallic enclosures	Yes	Yes
23.4.7.8	Insulation resistance test of parts of enclosures of plastics materials	No	Yes
Annex B	Ex cable entries	Yes	Yes

1.3 This standard is applicable to electrical apparatus in which the electrical circuits themselves are incapable of causing an explosion in the surrounding explosive atmosphere.

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