AS/NZS 60079.11:2011
IEC 60079-11, Ed. 6.0 (2011)
IEC 60079-11, Ed. 6.0 (2011)/Cor.1 (2012)
(Incorporating Amendment No. 1)

Australian/New Zealand Standard™

Explosive atmospheres

Part 11: Equipment protection by intrinsic safety 'i'

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-014, Explosive Atmospheres. It was approved on behalf of the Council of Standards Australia on 5 September 2011 and on behalf of the Council of Standards New Zealand on 5 August 2011.
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The following are represented on Committee EL-014:

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This Standard was issued in draft form for comment as DR AS/NZS 60079.11.

AS/NZS 60079.11:2011
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Australian/New Zealand Standard™

Explosive atmospheres

Part 11: Equipment protection by intrinsic safety ‘i’

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, Explosive Atmospheres, to supersede AS/NZS 60079.11:2006.

This Standard incorporates Amendment No. 1 (April 2013). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to establish the specific requirements for design, construction and testing of electrical equipment with protection by intrinsic safety 'i' for use in flammable gas and vapour atmospheres and explosive dust atmospheres. It is intended to be read in conjunction with AS/NZS 60079.0, *Explosive atmospheres*, Part 0: *Equipment—General requirements*.

A1 This Standard is identical with, and has been reproduced from IEC 60079-11, Ed.6.0 (2011), *Explosive atmospheres*—Part *11: Equipment protection by intrinsic* safety *'i'*, and its Corrigendum 1 (2012), which is added at the end of the source text.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text 'this part of IEC 60079' should read 'this part of AS/NZS 60079'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian or Australian/New Zealand Standard*	
IEC		AS	
60529	Degrees of protection provided by enclosures (IP Code)	60529	Degrees of protection provided by enclosures (IP Code)
		AS/NZS	
60079	Explosive atmospheres	60079	Explosive atmospheres
60079-0	Part 0: General requirements	60079.0	Part 0: General requirements
60079-7	Part 7: Equipment protection by increased safety 'e'	60079.7	Part 7: Equipment protection by increased safety 'e'
60079-25	Part 25: Intrinsically safe electrical systems	60079.25	Part 25: Intrinsically safe electrical systems
60112	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	60112	Method for the determination of the proof and the comparative tracking indices of solid insulating materials
62013	Caplights for use in mines susceptible to firedamp	62013	Caplights for use in mines susceptible to firedamp
62013-1	Part 1: General requirements—Construction and testing in relation to the risk of explosion	62013.1	Part 1: General requirements—Construction and testing in relation to the risk of explosion

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

It should be noted this edition merges the apparatus requirements of AS/NZS 60079.27 (FISCO) and AS/NZS 61241.11 (intrinsic safety for dusts), and therefore supersedes both standards. However many other parts of IEC 60079 and IEC 61241 are now published as identically-numbered parts of AS/NZS 60079 and AS/NZS 61241 respectively. The latter should be referenced when necessary.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

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FOREWORD

The significant changes with respect to the previous edition are listed below:

- Inclusion of non-edition specific references to IEC 60079-0.
- The merging of the apparatus requirements for FISCO from IEC 60079-27.
- The merging of the requirements for combustible dust atmospheres from IEC 61241-11.
- Clarification of the requirements for accessories connected to intrinsically safe apparatus; such as chargers and data loggers.
- Addition of new test requirements for opto-isolators.
- Introduction of Annex H about ignition testing of semiconductor limiting power supply circuits.

AUSTRALIAN/NEW ZEALAND STANDARD

Explosive atmospheres

Part 11: Equipment protection by intrinsic safety ‘i’

1 Scope

This part of IEC 60079 specifies the construction and testing of intrinsically safe apparatus intended for use in an explosive atmosphere and for associated apparatus, which is intended for connection to intrinsically safe circuits which enter such atmospheres.

This type of protection is applicable to electrical equipment in which the electrical circuits themselves are incapable of causing an explosion in the surrounding explosive atmospheres.

This standard is also applicable to electrical equipment or parts of electrical equipment located outside the explosive atmosphere or protected by another Type of Protection listed in IEC 60079-0, where the intrinsic safety of the electrical circuits in the explosive atmosphere may depend upon the design and construction of such electrical equipment or parts of such electrical equipment. The electrical circuits exposed to the explosive atmosphere are evaluated for use in such an atmosphere by applying this standard.

The requirements for intrinsically safe systems are provided in IEC 60079-25.

This standard supplements and modifies the general requirements of IEC 60079-0, except as indicated in Table 1. Where a requirement of this standard conflicts with a requirement of IEC 60079-0, the requirements of this standard shall take precedence.

If requirements in this standard are applicable to both intrinsically safe apparatus and associated apparatus the term “apparatus” is used throughout the standard.

This standard is for electrical equipment only; therefore the term “equipment” used in the standard always means “electrical equipment”.

If associated apparatus is placed in the explosive atmosphere, it shall be protected by an appropriate Type of Protection listed in IEC 60079-0, and then the requirements of that method of protection together with the relevant parts of IEC 60079-0 also apply to the associated apparatus.

Table 1 – Applicability of specific clauses of IEC 60079-0

Clause or subclause of IEC 60079-0			IEC 60079-0 clause application to IEC 60079-11		
			Intrinsically safe apparatus		Associated apparatus
Ed. 5.0 (2007) (informative)	Ed. 6.0 (2011) (informative)	Clause / Subclause title (normative)	Group I and Group II	Group III	
1	1	Scope	Applies	Applies	Applies
2	2	Normative references	Applies	Applies	Applies
3	3	Terms and definitions	Applies	Applies	Applies
4	4	Equipment grouping	Applies	Applies	Applies
4.1	4.1	Group I	Applies	Excluded	Applies
4.2	4.2	Group II	Applies	Excluded	Applies