AS/NZS 60079.0:2012
IEC 60079-0, Ed. 6.0 (2011)

AS/NZS 60079.0:2012

Australian/New Zealand Standard™

Explosive atmospheres

Part 0: Equipment—General requirements

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-014, Equipment for Explosive Atmospheres. It was approved on behalf of the Council of Standards Australia on 3 February 2012 and on behalf of the Council of Standards New Zealand on 31 January 2012.
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The following are represented on Committee EL-014:

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Australian Chamber of Commerce and Industry
Australian Coal Association
Australian Industry Group
Australian Institute of Petroleum
Australian Institute of Refrigeration, Air Conditioning and Heating
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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 60079.0.

Australian/New Zealand Standard™

Explosive atmospheres

Part 0: Equipment—General requirements

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, Equipment for Explosive Atmospheres, to supersede AS/NZS 60079.0:2008.

The objective of this Standard is to specify the general requirements for construction, testing and marking of electrical equipment and Ex Components intended for use in explosive atmospheres.

This Standard is identical with, and has been reproduced from IEC 60079-0, Ed. 6.0 (2011), *Explosive atmospheres*, Part 0: *Equipment—General requirements.*

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' and 'IEC 60079-0' should read 'this part of AS/NZS 60079' and 'AS/NZS 60079.0' respectively.

(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/New Zealand Standard*	
IEC		AS	
60034	Rotating electrical machines	60034	Rotating electrical machines
60034-1	Part 1: Rating and performance	60034.1	Part 1: Rating and performance
60034-5	Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP Code)—Classification	60034.5	Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP Code)—Classification
60529	Degrees of protection provided by enclosures (IP Code)	60529	Degrees of protection provided by enclosures (IP Code)
60947	Low-voltage switchgear and controlgear	60947	Low-voltage switchgear and controlgear
60947-1	Part 1: General rules	60947.1	Part 1: General rules
IEC		AS/NZS	
60079	Explosive atmospheres	60079	Explosive atmospheres
60079-1	Part 1: Equipment protection by flameproof enclosures "d"	60079.1	Part 1: Equipment protection by flameproof enclosures 'd'
60079-2	Part 2: Equipment protection by pressurized enclosures "p"	60079.2	Part 2: Equipment protection by pressurized enclosures 'p'
60079-5	Part 5: Equipment protection by powder filling "q"	60079.5	Part 5: Equipment protection by powder filling 'q'
60079-6	Part 6: Equipment protection by oil-immersion "o"	60079.6	Part 6: Equipment protection by oil-immersion 'o'
60079-7	Part 7: Equipment protection by increased safety "e"	60079.7	Part 7: Equipment protection by increased safety 'e'
60079-11	Part 11: Equipment protection by intrinsic safety "i"	60079.11	Part 11: Equipment protection by intrinsic safety 'i'
60079-15	Part 15: Equipment protection by type of protection "n"	60079.15	Part 15: Equipment protection by type of protection 'n'
60079-18	Part 18: Equipment protection by encapsulation "m"	60079.18	Part 18: Equipment protection by encapsulation 'm'

Reference to International Standard		*Australian/New Zealand Standard*	
IEC		AS/NZS	
60079-25	Part 25: Intrinsically safe electrical systems	60079.25	Part 25: Intrinsically safe electrical systems
60079-26	Part 26: Equipment with equipment protection level (EPL) Ga	60079.26	Part 26: Equipment with equipment protection level (EPL) Ga
60079-28	Part 28: Protection of equipment and transmission systems using optical radiation	60079.28	Part 28: Protection of equipment and transmission systems using optical radiation
60079-30-1	Part 30-1: Electrical resistance trace heating—General and testing requirements	60079.30.1	Part 30.1: Electrical resistance trace heating—General and testing requirements.
60079-31	Part 31: Equipment dust ignition protection by enclosure ‘t’	60079.31	Part 31: Equipment dust ignition protection by enclosure ‘t’
60896-2	Stationary lead-acid batteries—General requirements and test methods Part 2: Valve regulated types	4029.2	Stationary batteries—Lead-acid Part 2: Valve regulated types
61241-4	Electrical apparatus for use in presence of combustible dust— Part 4: Type of protection ‘pD’	61241.4	Electrical apparatus for use in presence of combustible dust— Part 4: Type of protection ‘pD’
62013-1	Caplights for use in mines susceptible to firedamp— Part 1: General requirements—Construction and testing in relation to the risk of explosion	62013.1	Caplights for use in mines susceptible to firedamp— Part 1: General requirements—Construction and testing in relation to the risk of explosion
ISO		AS	
4014	Hexagon head bolts—Product grades A and B	1110.1	ISO metric hexagon bolts and screws—Product grades A and B— Part 1: Bolts
4017	Hexagon head screws—Product grades A and B	1110.2	ISO metric hexagon bolts and screws—Product grades A and B— Part 2: Screws
ISO		AS/NZS	
4026	Hexagon socket set screws with flat point	1421	ISO metric hexagon socket set screws
4027	Hexagon socket set screws with cone point	1421	ISO metric hexagon socket set screws
4028	Hexagon socket set screws with dog point	1421	ISO metric hexagon socket set screws
4029	Hexagon socket set screws with cup point	1421	ISO metric hexagon socket set screws

It should be noted that 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’ are used to define the application of an 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.

CONTENTS

Page

Page

Page

Page

Page

AUSTRALIAN/NEW ZEALAND STANDARD

Explosive atmospheres

Part 0:
Equipment—General requirements

1 Scope

This part of IEC 60079 specifies the general requirements for construction, testing and marking of electrical equipment and Ex Components intended for use in explosive atmospheres.

The standard atmospheric conditions (relating to the explosion characteristics of the atmosphere) under which it may be assumed that electrical equipment can be operated are:

- temperature –20 °C to +60 °C;
- pressure 80 kPa (0,8 bar) to 110 kPa (1,1 bar); and
- air with normal oxygen content, typically 21 % v/v.

This standard and other standards supplementing this standard specify additional test requirements for equipment operating outside the standard temperature range, but further additional consideration and additional testing may be required for equipment operating outside the standard atmospheric pressure range and standard oxygen content, particularly with respect to types of protection that depend on quenching of a flame such as ‘flameproof enclosure “d”’ (IEC 60079-1) or limitation of energy, ‘intrinsic safety “i”’ (IEC 60079-11).

NOTE 1 Although the standard atmospheric conditions above give a temperature range for the atmosphere of -20 °C to +60 °C, the normal ambient temperature range for the equipment is –20 °C to +40 °C, unless otherwise specified and marked. See 5.1.1. It is considered that –20 °C to +40 °C is appropriate for most equipment and that to manufacture all equipment to be suitable for a standard atmosphere upper ambient temperature of +60 °C would place unnecessary design constraints.

NOTE 2 Requirements given in this standard result from an ignition hazard assessment made on electrical equipment. The ignition sources taken into account are those found associated with this type of equipment, such as hot surfaces, mechanically generated sparks, mechanical impacts resulting in thermite reactions, electrical arcing and static electric discharge in normal industrial environments.

NOTE 3 It is acknowledged that, with developments in technology, it may be possible to achieve the objectives of the IEC 60079 series of standards in respect of explosion prevention by methods that are not yet fully defined. Where a manufacturer wishes to take advantage of such developments, this International Standard, as well as other standards in the IEC 60079 series, may be applied in part. It is intended that the manufacturer prepare documentation that clearly defines how the IEC 60079 series of standards has been applied, together with a full explanation of the additional techniques employed. The designation “Ex s” has been reserved to indicate special protection. A standard for special protection “s”, IEC 60079-33, is in preparation.

NOTE 4 Where an explosive gas atmosphere and a combustible dust atmosphere are, or may be, present at the same time, the simultaneous presence of both should be considered and may require additional protective measures.

This standard does not specify requirements for safety, other than those directly related to the explosion risk. Ignition sources like adiabatic compression, shock waves, exothermic chemical reaction, self ignition of dust, naked flames and hot gases/liquids, are not addressed by this standard.

NOTE 5 Such equipment should be subjected to a hazard analysis that identifies and lists all of the potential sources of ignition by the electrical equipment and the measures to be applied to prevent them becoming effective.

This standard is supplemented or modified by the following standards concerning specific types of protection:

– IEC 60079-1: Gas – Flameproof enclosures "d";
– IEC 60079-2: Gas – Pressurized enclosures "p";