AS/NZS 60079.31:2011
IEC 60079-31 Ed. 1.0 (2008)
IEC 60079-31 Ed. 1.0 Cor.1 (2009)

AS/NZS 60079.31:2011

Australian/New Zealand Standard™

Explosive atmospheres

Part 31: Equipment dust ignition protection by enclosure ‘t’

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 19 July 2011 and on behalf of the Council of Standards New Zealand on 15 July 2011.
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The following are represented on Committee EL-014:

Auckland Regional Chamber of Commerce
Australian Chamber of Commerce and Industry
Australian Coal Association
Australian Industry Group
Australian Institute of Petroleum
Australian Institute of Refrigeration Air Conditioning and Heating
Australian Petroleum Production and Exploration Association
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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.

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Australian/New Zealand Standard™

Explosive atmospheres

Part 31: Equipment dust ignition protection by enclosure ‘t’

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, Explosive Atmospheres.

The objective of this Standard is to establish the specific requirements for design, construction and testing of electrical equipment protected by enclosure and surface temperature limitation for use in explosive dust atmospheres and is intended to be read in conjunction with AS/NZS 60079.0.

This Standard is identical with, and has been reproduced from IEC 60079-31 Ed. 1.0 (2008), *Explosive atmospheres—Part* 31: Equipment *dust ignition protection by enclosure 't'* and its Corrigendum (2009) which is incorporated into the source text.

This Standard forms the first edition of AS/NZS 60079.31, and is intended to replace AS/NZS 61241.1:2005, *Electrical apparatus for use in the presence of combustible dust*. Part 1: *Protection by enclosures 'tD*' two years from date of publication. During this period both standards will run in parallel.

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/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
		AS/NZS	
60079	Explosive atmospheres	60079	Explosive atmospheres
60079-0	Part 0: Equipment—General requirements	60079.0	Part 0: Equipment—General requirements
60079-7	Part 7: Equipment protection by increased safety 'e'	60079.7	Part 7: Equipment protection by increased safety 'e'

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

CONTENTS

FOREWORD

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

– Title changed to Equipment dust ignition protection by enclosure "t"
– Combination and rationalisation of practice A and B into a single practice, and some constructional requirements that may have applied to only one practice now apply to all enclosures
– Introduction of three levels of protection, “ta”, “tb” and “tc”
– Defined test voltage ranges and overload conditions for thermal tests.
– Introduction of a pressure test prior to the IP test
– Restrictions on power and voltage levels for level of protection “ta”
– Introduction of a variant of the IP6X test for level of protection “ta”
– Compulsory dust layer thermal test for protection level “ta” by surrounding the enclosure with dust to a depth of at least 500 mm on all available surfaces

AUSTRALIAN/NEW ZEALAND STANDARD

Explosive atmospheres

Part 31:
Equipment dust ignition protection by enclosure ‘t’

1 Scope

This part of IEC 60079 is applicable to electrical equipment protected by enclosure and surface temperature limitation for use in explosive dust atmospheres. It specifies requirements for design, construction and testing of electrical equipment.

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

This standard does not apply to dusts of explosives, which do not require atmospheric oxygen for combustion, or to pyrophoric substances.

This standard does not apply to electrical equipment intended for use in underground parts of mines as well as those parts of surface installations of such mines endangered by firedamp and/or combustible dust.

This standard does not take account of any risk due to an emission of flammable or toxic gas from the dust.

NOTE 1 The application of electrical equipment in atmospheres, which may contain combustible dust as well as explosive gas, whether simultaneously or separately, may require additional protective measures.

NOTE 2 Where the equipment has to meet other environmental conditions, for example, protection against ingress of water and resistance to corrosion, additional methods of protection may be necessary. The method used should not adversely affect the integrity of the enclosure.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60079-0, *Explosive atmospheres – Part 0: Equipment – General requirements*

IEC 60079-7, *Explosive atmospheres – Part 7: Equipment protection by increased safety “e”*

IEC 60127 series, *Miniature fuses*

IEC 60691, *Thermal-links – Requirements and application guide*

ISO 965-1, *ISO general-purpose metric screw threads – Tolerances – Part 1: Principles and basic data*

ISO 965-3, *ISO general-purpose metric screw threads – Tolerances – Part 3: Deviation for constructional screw threads*