AS/NZS 60079.13:2019

Australian/New Zealand Standard™

Explosive atmospheres

Part 13: Equipment protection by pressurized room 'p' and artificially ventilated room 'v' (IEC 60079-13:2017 (ED 2.0), MOD)

STANDARDS Australia

STANDARDS NEW ZEALAND PAEREWA AOTEAROA

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 23 July 2019 and by the New Zealand Standards Approval Board on 3 July 2019.
This Standard was published on 15 August 2019.

The following are represented on Committee EL-014:

Auckland Regional Chamber of Commerce
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Australian Institute of Petroleum
Australian Petroleum Production and Exploration Association
Australian Pipelines and Gas Association
Aviation and Marine Engineers Association
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Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Site at www.standards.org.au or Standards New Zealand web site at www.standards.govt.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

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 Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 60079.13:2019.

Australian/New Zealand Standard™

Explosive atmospheres

Part 13: Equipment protection by pressurized room 'p' and artificially ventilated room 'v' (IEC 60079-13:2017 (ED 2.0), MOD)

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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 1482—1985, *Electrical equipment for explosive atmospheres—Protection by ventilation—Type of protection v*.

The objective of this Standard is to provide requirements for the design, construction, assessment, verification and marking of rooms used to protect internal equipment by pressurization or artificial ventilation (or both as applicable) when located in an explosive gas atmosphere or combustible dust atmosphere hazardous area. Such rooms may be with or without an internal source of flammable gas or vapour and may provide a means of protection for installations associated with explosive atmospheres.

This Standard also includes requirements related to safety devices and controls necessary to ensure that artificial ventilation, purging and pressurization is established and maintained.

This Standard does not specify the methods that may be required to ensure adequate air quality for personnel with regard to toxicity and temperature within the room. National or other regulations and requirements may exist to ensure the safety of personnel in this regard.

Protection of rooms by using an inert gas or a flammable gas is outside of the scope of this Standard. It is recognized that such applications are special cases, which in part may be addressed using the principles from AS/NZS 60079.2, but in all probability will also be the subject of additional, stringent engineering standards, procedures and practices. Pressurized enclosures for equipment that are not intended to facilitate the entry of personnel are addressed in AS/NZS 60079.2, and are not in the scope of this Standard.

This Standard is an adoption with national modifications, and has been reproduced from, IEC 60079-13:2017 (ED. 2.0), *Explosive atmospheres — Part 13: Equipment protection by pressurized room 'p' and artificially ventilated room 'v'*. The modifications are additional requirements and are set out in Appendix ZZ which has been added at the end of the source text.

Appendix ZZ lists the variations to IEC 60079-13:2017 (ED. 2.0) for the application of this Standard in Australia and New Zealand.

As this document has been reproduced from an International Standard, the following applies:

(a) In the source text 'this part of IEC 60079' should read 'this Australian/New Zealand Standard'.

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

It is intended that both AS 1482 and AS 2380.4 will be withdrawn 3 years from the date of publication of AS/NZS 60079.13. AS 1482 and AS 2380.4 may be used, as relevant to the application, until they are withdrawn.

It is also intended that AS 1482 Appendix A will be transferred to form part of a supplement, proposed to accompany the next edition of AS/NZS 60079.10.1.

It is considered that the requirements for protection of rooms in Zone 2 only by ventilation in IEC 60079-13 are not sufficiently developed. On this basis, the AS/NZS adoption has removed this as an approach as part of the adoption of IEC 60079-13.

In such cases, the use of other Standards such as NFPA 496 and EN 50381 could be followed and may be accepted.

It is also noted that the application of protection by ventilation requires careful administration and understanding of other Standards, including AS/NZS 60079.10.1 and AS/NZS 60079.14.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms ‘normative’ and ‘informative’ are used in Standards to define the application of the appendices or annexes to which they apply. A ‘normative’ appendix or annex is an integral part of a Standard, whereas an ‘informative’ appendix or annex is only for information and guidance.

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FOREWORD

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International Standard IEC 60079-13 has been prepared by IEC technical committee 31: Equipment for explosive atmospheres

This second edition cancels and replaces the first edition published in 2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) modification of the title of this document to include artificially ventilated room "v" in addition to pressurized room "p";
b) addition of types of protection "pb", "pc", and "vc" and removal of types of protection "px", "py", "pz" and "pv";
c) definition of the differences between pressurization and artificial ventilation types of protection;

d) removal of protection of rooms with an inert gas or a flammable gas from the scope of this document;

e) addition of an informative annex to include examples of applications where types of protection pressurization or artificial ventilation or pressurization and artificial ventilation can be used and associated guidelines.

The text of this document is based on the following documents:

FDIS	Report on voting
31/1309/FDIS	31/1317/RVD

Full information on the voting for the approval of this document can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This document is to be used in conjunction with the principles of hazardous area classification from IEC 60079-10-1 and artificial ventilation for the protection of analyser(s) houses from IEC 60079-16.

A list of all parts in the IEC 60079 series, published under the general title *Explosive atmospheres*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This part of IEC 60079 gives requirements for the design, construction, assessment, verification and marking of rooms used to protect internal equipment by pressurization or artificial ventilation or both as applicable when located in an explosive gas atmosphere or combustible dust atmosphere hazardous area with or without an internal source of a flammable gas or vapour. It also includes a room located in a non-hazardous area that has an internal source of release of a flammable gas or vapour.

This document deals with rooms that are partially constructed in a manufacturer’s facility and intended to have the final installation completed on-site, as well as rooms that are constructed completely on-site. Rooms partially constructed in a manufacturer’s facility may include third-party verification. For rooms built on-site, this document can be used by plant operators as a guide for assessment of those facilities.

This document represents a major technical revision of the requirements for equipment protection by pressurized room "p" and artificially ventilated room "v" and should be considered as introducing all new requirements.

AUSTRALIAN/NEW ZEALAND STANDARD

Explosive atmospheres

Part 13:
Equipment protection by pressurized room ‘p’ and artificially ventilated room ‘v’ (IEC 60079-13:2017 (ED 2.0), MOD)

1 Scope

This part of IEC 60079 gives requirements for the design, construction, assessment, verification and marking of rooms used to protect internal equipment:

– located in a Zone 1 or Zone 2 or Zone 21 or Zone 22 explosive atmosphere (an area normally requiring an equipment protection level (EPL) Gb, Gc, Db or Dc) without an internal source of gas/vapour release and protected by pressurization;
– located in a Zone 2 explosive atmosphere (an area normally requiring EPL Gc) with or without an internal source of gas/vapour release and protected by artificial ventilation;
– located in a non-hazardous area, containing an internal source of gas/vapour release and protected by artificial ventilation;
– located in a Zone 1 or Zone 2 or Zone 21 or Zone 22 explosive atmosphere (an area normally requiring EPL Gb, Gc, Db or Dc), containing an internal source of gas/vapour release and protected by both pressurization and artificial ventilation.

The term "room" used in this document includes single rooms, multiple rooms, a complete building or a room contained within a building. A room is intended to facilitate the entry of personnel and includes inlet and outlet ducts. An acoustic hood and other like enclosures designed to permit the entry of personnel can be considered as a room.

This document also includes requirements related safety devices and controls necessary to ensure that artificial ventilation, purging and pressurization is established and maintained.

A room assembled or constructed on site, can be either on land or off-shore. The room is primarily intended for installation by an end-user but could be constructed and assessed at a manufacturer’s facility, where the final construction such as ducting can be completed on site.

Rooms can be located in an explosive gas atmosphere requiring EPL Gb or Gc, or a combustible dust atmosphere requiring EPL Db, or Dc.

This document does not specify the methods that may be required to ensure adequate air quality for personnel with regard to toxicity and temperature within the room. National or other regulations and requirements may exist to ensure the safety of personnel in this regard.

Protection of rooms by using an inert gas or a flammable gas is outside of the scope of this document. It is recognized that such applications are special cases, which in part may be addressed using the principles from IEC 60079-2, but in all probability will also be the subject of additional, stringent engineering standards, procedures and practices. Pressurized enclosures for equipment that are not intended to facilitate the entry of personnel are addressed in IEC 60079-2, and are not in the scope of this document.

NOTE Maintenance recommendations are contained in Annex A until they can be included in IEC 60079-17.

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