

# Australian/New Zealand Standard™

## Explosive atmospheres

### Part 29.1: Gas detectors—Performance requirements of detectors for flammable gases



### **AS/NZS 60079.29.1:2008**

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 16 November 2007 and on behalf of the Council of Standards New Zealand on 16 November 2007. This Standard was published on 19 February 2008.

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### Part 29.1: Gas detectors—Performance requirements of detectors for flammable gases

Originated in Australia as AS 1827—1975.  
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AS/NZS 61779.3:2000, AS/NZS 61779.4:2000 and AS/NZS 61779.5:2000.  
Jointly revised, amalgamated and redesignated as AS/NZS 60079.29.1:2008.

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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 61779.1 to AS/NZS 61779-5.

The objective of this Standard is to provide general requirements for construction, testing and performance, and describes the test methods that apply to portable, transportable and fixed apparatus for the detection and measurement of flammable gas or vapour concentrations with air. The apparatus, or parts thereof, are intended for use in potentially explosive atmospheres and in mines susceptible to firedamp.

This Standard is identical with, and has been reproduced from IEC 60079-29-1, Ed. 1.0 (2007), *Explosive atmospheres – Part 29-1: Gas detectors—Performance requirements of detectors for flammable gases*.

This first edition of AS/NZS 60079.29.1 supersedes AS/NZS 61779.1 to AS/NZS 61779.5 (inclusive) and constitutes a technical revision.

The main changes with respect to the superseded documents are listed below:

- (a) Subclause 4.2.3, *Alarm or output functions* was modified to ensure alarm devices cannot be adjustable outside their measuring range and to include requirements for de-activation of alarm devices.
- (b) Subclause 4.2.7, *Stand-alone gas detection apparatus for use with separate control units* was added to allow separate evaluation of detection apparatus providing an industry recognized output signal.
- (c) Subclause 4.2.8, *Separate control units for use with stand-alone gas detection apparatus* was added to allow separate evaluation of control unit apparatus using an industry recognized input signal.
- (d) Subclause 4.2.9, *Software-controlled apparatus* was added to the document for improved evaluation of software. The added text is based upon the guiding principles and requirements of EN 50271.
- (e) Subclause 4.5, *Diffusion sensors* was removed from the document based upon the redundant protection allowance for equipment used in Zone 0 areas, such as Ex ‘d’ ‘ia’ rated equipment.
- (f) Subclause 5.2.1.1 was modified to require the center wavelength of the optical filters of two apparatus at the minimum and maximum limit of this Standard.
- (g) Subclause 5.2.1.2 was modified to allow the order of testing within each block to be conducted at the discretion of the test laboratory.
- (h) Subclause 5.3.11, *Communications options* was added to ensure maximum transaction rates are applied during testing.
- (i) Subclause 5.3.12, *Gas detection apparatus as part of systems* was added to ensure maximum transaction rates are applied during testing.
- (j) Subclause 5.4.6, *Alarm set point(s)* was modified to include text related to alarms that are activated at decreasing concentrations.
- (k) Subclause 5.4.10, *Air velocity* was modified to include testing at 3 m/s and 6 m/s.
- (l) Subclause 5.4.16, *Time of response (not applicable to spot-reading apparatus)* was modified to exclude recovery time test requirements for Group II apparatus with a volume fraction up to 100% LFL indication.

- (m) Subclause 5.4.18, *High gas concentration operation above the measuring range* was modified to define the sequence of tests.
- (n) Annex A, *Performance requirements* has undergone major modifications by eliminating the gas/vapour table and replacing the annex with the performance requirements of Parts 2 to 5 of the former edition. Additionally, performance requirements of Parts 2 to 5 were adjusted for consistency as appropriate. The intent of this change is to condense Parts 1 to 5 within a single Standard.

This part of AS/NZS 60079.29 is to be used in conjunction with the following Standards:

- (i) AS/NZS 60079.0, *Electrical apparatus for explosive gas atmospheres, Part 0: General requirements*
- (ii) AS/NZS 60079.29.2, *Explosive atmospheres, Part 29-2: Gas detectors—Selection, installation, use and maintenance of detectors for flammable gases and oxygen.*

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

- (A) In the source text ‘IEC 60079-29-1’ should read ‘AS/NZS 60079.29.1’.
- (B) A full point should be substituted for a comma when referring to a decimal marker.

The terms ‘normative’ and ‘informative’ are used 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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