

Australian/New Zealand Standard™

Explosive atmospheres

Part 29.2: Gas detectors—Selection, installation, use and maintenance of detectors for flammable gases and oxygen



AS/NZS 60079.29.2:2008

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.

The following are represented on Committee EL-014:

Association of Consulting Engineers Australia
Auckland Regional Chamber of Commerce
Australian Chamber of Commerce and Industry
Australian Coal Association
Australian Electrical and Electronic Manufacturers Association
Australian Industry Group
Australian Institute of Petroleum
Australian Institute of Refrigeration Air Conditioning and Heating
Australian Petroleum Production and Exploration Association
Committee EL-023
Electrical Compliance Testing Association
Electrical Regulatory Authorities Council
Energy Networks Association
Engineers Australia
Environmental Risk Management Authority of New Zealand
Institute of Electrical Inspectors
Institute of Instrumentation, Control and Automation Australia
Mining Electrical and Mining Mechanical Engineering Society
Ministry of Economic Development, New Zealand
NSW Department of Primary Industries, Mineral Resources
National Electrical and Communications Association
New Zealand Association of Marine, Aviation and Power Engineers
New Zealand Employers and Manufacturers Association
Simtars (Department of Mines and Energy)
WorkCover New South Wales

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. 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 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 07331.

AS/NZS 60079.29.2:2008

Australian/New Zealand Standard™

Explosive atmospheres

Part 29.2: Gas detectors—Selection, installation, use and maintenance of detectors for flammable gases and oxygen

Originated as AS/NZS 61779.6:2000.
Revised and redesignated as AS/NZS 60079.29.2:2008.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 8553 0

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, Equipment for Explosive Atmospheres, to supersede AS/NZS 61779.6.

The objective of this Standard is to provide guidance on, and recommended practice for, the selection, installation, safe use and maintenance of electrically operated group II apparatus intended for use in industrial and commercial safety applications for the detection and measurement of flammable gases complying with the requirements of AS/NZS 60079.29.1.

This Standard is identical with, and has been reproduced from IEC 60079-29-2, Ed. 1.0 (2007), *Explosive atmospheres – Part 29-2: Gas detectors—Selection, installation, use and maintenance of detectors for flammable gases and oxygen*.

This first edition of AS/NZS 60079.29.2 supersedes AS/NZS 61779.6 and constitutes a technical revision.

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

- (a) Introduction was modified to provide a reference table for application of the particular document sections to specific job related functions.
- (b) Clause 4, *Basic information on the properties, behaviour, and detection of gases and vapours* was added for user guidance on characteristics of gases and vapours.
- (c) Clause 5, *Measuring principles*, Clause 6, *Selection of apparatus*, Clause 7, *Behaviour of gas releases*, Clause 8, *Design and installation of fixed gas detection systems*, Clause 9, *Use of portable and transportable flammable gas detection apparatus*, Clause 10, *Training of operational personnel*, and Clause 11, *Maintenance, routine procedures and general administrative control* were modified to reflect the text from EN 50073 and Chapter 14 of HB 13:2007.
- (d) Annex A, *Flammable limits (LFL and UFL) of certain flammable gases and vapours* was removed and replaced by a detailed review of measuring principles.
- (e) Annex B, *Environmental parameters* was added to provide a summary of the minimum required environmental parameters for gas detection apparatus.

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 60079.29.1, *Explosive atmospheres, Part 29.1: Gas detectors—Performance requirements of detectors for flammable gases*.

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

- (A) In the source text ‘IEC 60079-29-2’ should read ‘AS/NZS 60079.29.2’.
- (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.

CONTENTS

	<i>Page</i>
Introduction	v
1 Scope	1
2 Normative references	2
3 Terms and definitions	3
4 Basic information on the properties, behaviour, and detection of gases and vapours	8
4.1 Detecting gases and vapours – General	8
4.2 Some common properties of gases and vapours	10
4.3 The differences between detecting gases and vapours	11
4.4 Oxygen deficiency	15
5 Measuring principles	17
5.1 Catalytic sensors	17
5.2 Thermal conductivity sensors	19
5.3 Infrared sensors	21
5.4 Semiconductor sensors	22
5.5 Electrochemical sensors	23
5.6 Flame ionization detectors (FID)	25
5.7 Flame temperature analysers (FTA)	26
5.8 Photo ionisation detector (PID)	26
5.9 Paramagnetic oxygen detector	28
6 Selection of apparatus	28
6.1 General	29
6.2 Selection criteria	29
6.3 Miscellaneous factors affecting selection of apparatus	33
7 Behaviour of gas releases	34
7.1 Nature of a release	34
7.2 Buildings and enclosures	36
7.3 Unventilated buildings and enclosures	36
7.4 Ventilated buildings and enclosures	36
7.5 Natural ventilation	37
8 Design and installation of fixed gas detection systems	38
8.1 Basic considerations for the installation of fixed systems	38
8.2 Location of detection points	39
8.3 Access for calibration and maintenance	42
8.4 Additional considerations for sample lines	42
8.5 Summary of considerations for the location of sensors or sampling points	43
8.6 Installation of sensors	44
8.7 Integrity and safety of fixed systems	44
8.8 Timing of installation during construction operations	45
8.9 Commissioning	45
8.10 Operating instructions, plans and records	46

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-