

AS/NZS 2381.1:2005
(Incorporating Amendment Nos 1, 2 and 3)

AS/NZS 2381.1:2005

Australian/New Zealand Standard™

Electrical equipment for explosive gas atmospheres—Selection, installation and maintenance

Part 1: General requirements



AS/NZS 2381.1:2005

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-014, Electrical Equipment in Hazardous Areas. It was approved on behalf of the Council of Standards Australia on 5 April 2005 and on behalf of the Council of Standards New Zealand on 11 February 2005. This Standard was published on 5 May 2005.

The following are represented on Committee EL-014:

Auckland Regional Chamber of Commerce
Australian Association of Certification Bodies
Australian Chamber of Commerce and Industry
Australian Gas Association
Australian Industry Group
Australian Liquefied Petroleum Gas Association
Australian Paint Manufacturers Federation
Department of Labour New Zealand
Department of Natural Resources and Mines (Qld)
Electricity Supply Association of Australia
Gas Association of New Zealand
Institute of Electrical Inspectors
Institute of Instrumentation and Control Australia
Institution of Engineers Australia
LPG Association of New Zealand
Ministry of Economic Development (New Zealand)
National Electrical and Communications Association
New Zealand Association of Marine, Aviation and Power Engineers
New Zealand Chemical Industry Council
New Zealand Oil Companies
Victorian WorkCover Authority
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 Standards may also be withdrawn.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 04437.

AS/NZS 2381.1:2005
(Incorporating Amendment Nos 1, 2 and 3)

Australian/New Zealand Standard™

Electrical equipment for explosive gas atmospheres—Selection, installation and maintenance

Part 1: General requirements

Originated in Australia as AS 1076.1—1977.
Revised and redesignated as AS 2381.1—1991.
Jointly revised and redesignated as AS/NZS 2381.1:1999.
Third edition 2005.
Reissued incorporating Amendment No. 1 (September 2005).
Reissued incorporating Amendment No. 2 (December 2006).
Reissued incorporating Amendment No. 3 (October 2007).

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 6678 1

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-014, *Electrical Equipment in Hazardous Areas*, to supersede AS/NZS 2381.1:1999 and Amendment 1:2004.

This Standard incorporates Amendment No. 1 (September 2005), Amendment No. 2 (December 2006) and Amendment No. 3 (October 2007). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The Joint Committee EL-014 has endorsed the adoption of the IEC 60079 Gases and vapours and IEC 61241 Dusts series of Standards as Joint Australian/New Zealand Standards. The different Zones are identified as Zone 0, 1, 2 for explosive gases atmospheres and Zones 20, 21, 22 for explosive dust atmospheres.

The significant changes in this edition are as follows:

- (a) The removal of all references to combustible dusts other than references in the Clauses 1.2 and 2.5 stating that the requirements for dusts are given in AS/NZS 61241.14.
- (b) Clauses 1.6, 2.4.6, 2.6, 3.8.4, 3.8.15.1.2, 3.11.2, 4.2, 4.3.1 and 5.10 were reworded.
- (c) Clauses 3.2.6 and 4.3.2 were added.
- (d) Appendices B and F were deleted.
- (e) Appendix G has changed title and content.
- (f) Appendix I has been added.

All permitted explosion-protection techniques for electrical equipment for Zones 0, 1 and 2 and the respective applicable Standards are summarized in Table 2.1.

This Standard necessarily deals with existing conditions, but it is not intended to discourage invention or to exclude materials, equipment and methods which may be developed in the future.

This revision which is to accommodate the introduction of AS/NZS 61241.14 for dusts, will have a relatively short currency, since it is planned to replace it with modified versions of IEC 60079-14 and IEC 60079-17 as AS/NZS 60079.14 and AS/NZS 60079.17, as part of a strategy for alignment with IEC Standards. Publication of AS/NZS 60079.14 and AS/NZS 60079.17, is expected for early 2007.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	6
1.2 APPLICATION	6
1.3 REFERENCED DOCUMENTS	6
1.4 DEFINITIONS	7
1.5 STATUTORY REGULATIONS	11
1.6 DOCUMENTATION.....	11
1.7 QUALIFICATIONS OF PERSONNEL.....	12
1.8 CLASSIFICATION OF HAZARDOUS AREAS.....	12
1.9 OTHER CONSIDERATIONS.....	13
1.10 PREVENTION OF EXPLOSION.....	14
1.11 PRECAUTIONS.....	15
SECTION 2 SELECTION OF ELECTRICAL EQUIPMENT	
2.1 SCOPE OF SECTION	17
2.2 SPECIFIC EQUIPMENT NOT PERMITTED IN HAZARDOUS AREAS	17
2.3 PERMITTED EQUIPMENT	17
2.4 ZONE 0, 1 AND 2 HAZARDOUS AREAS	17
2.5 ZONES 20, 21 AND 22 HAZARDOUS AREAS	21
2.6 ASSURANCE OF CONFORMITY OF APPARATUS	21
2.7 SELECTION OF REPAIRED OR EXISTING EQUIPMENT.....	23
SECTION 3 INSTALLATION	
3.1 SCOPE OF SECTION.....	25
3.2 GENERAL INSTALLATION REQUIREMENTS	25
3.3 EARTHING*	25
3.4 EQUIPOTENTIAL BONDING*	27
3.5 ELECTRICAL PROTECTION*	27
3.6 ELECTRICAL ISOLATION*	28
3.7 EMERGENCY SWITCH-OFF*	28
3.8 WIRING SYSTEMS—GENERAL REQUIREMENTS.....	28
3.9 EQUIPMENT —GENERAL REQUIREMENTS	34
3.10 ADDITIONAL REQUIREMENTS FOR INSTALLATIONS IN ZONE 0 AREAS... 36	36
3.11 ADDITIONAL REQUIREMENTS FOR INSTALLATIONS IN ZONE 1 AREAS... 36	36
3.12 ADDITIONAL REQUIREMENTS FOR INSTALLATIONS IN ZONE 2 AREAS... 38	38
3.13 SPECIFIC OCCUPANCIES	38
3.14 TRACE HEATING.....	42
SECTION 4 INSPECTION AND TESTING INCLUDING COMMISSIONING	
4.1 GENERAL	43
4.2 DOCUMENTATION.....	43
4.3 INSPECTION.....	43
4.4 ITEMS REQUIRING INSPECTION	47
4.5 TESTING	47

* These Clauses do not apply to intrinsically safe installations.

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](#)
-