

Australian/New Zealand Standard™

**Competencies for working with
electrical equipment for hazardous
areas (EEHA)**

Part 1: Competency Standards



AS/NZS 4761.1:2008

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee P-012, Hazardous Areas Competency Standards Advisory Panel. It was approved on behalf of the Council of Standards Australia on 23 May 2008 and on behalf of the Council of Standards New Zealand on 9 April 2008. This Standard was published on 30 June 2008.

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Australian Coal Association
Australian Electrical and Electronic Manufacturers Association
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Australian Petroleum Production and Exploration Association
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This Standard was issued in draft form for comment as DR 07373.

Australian/New Zealand Standard™

Competencies for working with electrical equipment for hazardous areas (EEHA)

Part 1: Competency Standards

Originated as part of AS/NZS 4761.1(Int):2000, AS/NZS 4761.2(Int):2000,
AS/NZS 4761.3(Int):2000 and AS/NZS 4761.4(Int):2000.
Previous edition AS/NZS 4761.1:2003.
Second edition 2008.

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

ISBN 0 7337 8786 X

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee, P-012, Hazardous Areas Competency Standards Advisory Panel, to supersede AS/NZS 4761.1:2003 in accordance with its charter.

An equivalent set of competency (unit) Standards has been formatted for the New Zealand's National Qualifications Framework (NQF) by the ElectroTechnology Industry Training Organization (ETITO), and endorsed by the Joint Committee P-012. The Unit Standards are registered with the New Zealand Qualifications Authority (NZQA), under the domain *Electrical Equipment for Hazardous areas*.

The objective of this Standard is to set out the generic cross-industry competencies needed for work associated with electrical equipment for hazardous areas; these competencies are intended for use by any industry sector or enterprise with regard to explosion-protection related to the relevant functional areas.

These Competency Standards are a replica of those included in the EE-Oz Training Standards *National Electrotechnology Training Package*, endorsed by the National Training Quality Council (NTQC) (the endorsing body). To ensure consistency and concurrence between the two sets of documents (this series of Standards and the National Electrotechnology Training Package), maintenance and revision of these documents will always be carried out simultaneously through the established Joint Standards Committee P-012, Hazardous areas Competency Standards Advisory Panel, and amendments thereto processed in accordance with the respective organizational requirements. However, it should be noted that from time to time there may be instances where there are differences between versions and therefore appears to be a lack of consistency. This is caused by the processes used by Standards Australia and Standards New Zealand and the NTQC in finalizing approval of their respective documents. In all instances it is recommended that the latest version be used.

This Standard forms part of a series covering the competencies for working with equipment for hazardous areas and the training materials/components supporting such competencies.

The series is as follows:

AS/NZS	
4761	Competencies for working with electrical equipment for hazardous areas (EEHA)
4761.1	Part 1: Competency Standards
4761.2	Part 2: Guide to assessing competency

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

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FOREWORD

Although various Australian and New Zealand Standards and the relevant statutory/regulatory requirements lay down standard criteria for the manufacture, installation, use and maintenance of explosion-protected electrical equipment in hazardous areas, no such reference exists for the competencies needed for work associated with such equipment for hazardous areas.

In the context of this Series, ‘hazardous areas’ are areas in which an explosive atmosphere may be present. Unless electrical equipment situated in such areas is constructed, installed and maintained in a special way, it may provide the energy and temperature necessary to ignite the atmosphere, usually with devastating results. The special design features of electrical equipment and systems used for these ‘hazardous areas’ are known as explosion-protection. They form part of the risk management strategies to ensure a safe and healthy working environment.

The development of Competency Standards for electrical equipment for hazardous areas arose from concern as to the variability in skills of electrical workers and others dealing with this equipment. Although training has been available, it was usually confined to the technical aspects and there was no national strategy to provide this specific training.

The concern over competence was heightened by the trend away from prescriptive regulations towards performance-based regulations. The performance-based approach places the ‘duty of care’ responsibilities on enterprises and individuals, which, in turn, is said to promote self-monitored quality assurance. This results in greater compliance with requirements than is the case with the inspectoral methods that accompany prescriptive regulations.

Since the early 1990s industries have expressed the need for a set of National Competency Standards to be used by any industry sector or enterprise with regard to explosion-protected equipment for hazardous areas.

To meet this need, a set of National Competency Standards for Electrical Equipment in Hazardous areas (EEHA) was developed in 1996 through the *National Utilities and Electrotechnology Industry Training Advisory Board* (NUEITAB) (now ElectroComms and Energy Utilities Industry Skills Council, trading as EE-Oz Training Standards) with support from the *Australian National Training Authority* (ANTA). ANTA’s functions were transferred to the Department of Education, Science and Training in July 2005. Standards Australia was an active participant in the preparation of these Competency Standards, which were endorsed by ANTA in December 1996.

From the early stages of this project, industries (mining and non-mining) were concerned with the correct implementation of the EEHA Competency Standards. Through their representatives on the different Standards Australia Committees dealing with electrical equipment and installations in hazardous areas, they have indicated the appropriateness of and need for a specific Standards Committee to overview, endorse and monitor the implementation of such Standards in Australia and New Zealand.

As a result the Joint Committee P-012, Hazardous areas Competency Standards Advisory Panel, was set up in 1998 to provide advice to and to assist the relevant bodies (industry, regulators and educators) in the continuous review of the Competency Standards and the preparation of the National Training Package (comprising all endorsed and non-endorsed components) and in monitoring its implementation, to ensure that industry’s needs and requirements are met.

As acknowledged then and now, organizations and enterprises are increasingly seeking conformance certification for their products.* Certifying bodies are using Standards developed by internationally recognized bodies, such as Standards Australia/Standards New Zealand, as the basis for this product certification. Requirements for 'competent persons' have been introduced in Australian/New Zealand Standards dealing with electrical equipment for hazardous areas; this led to certifying bodies expressing the need for formal Standards against which conformance of competencies can be measured. To fulfil this need, the Joint Committee P-012 has prepared this Series of Standards (previously issued as four Interim Standards on 8 June 2000 and later as two Standards on 21 January 2003).

For use in New Zealand training systems, an equivalent set of Unit Standards were prepared by the *ElectroTechnology Industry Training Organization* (ETITO) to match the requirements of the New Zealand Qualifications Authority (NZQA). These Unit Standards represent the same underpinning knowledge and practical skills, and equivalence was endorsed by the Joint Committee P-012. They were registered with the New Zealand's Qualifications Framework (NQF) under the domain *Electrical Equipment for Hazardous areas*.

* A product may be either a tangible item or a service, as defined in ISO/IEC Guide 65, *General requirements for bodies operating product certification systems*.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard

Competencies for working with electrical equipment for hazardous areas (EEHA)

Part 1: Competency Standards

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies the competencies required for work associated with electrical equipment for hazardous areas (commonly termed 'Ex' equipment) and the standards against which competency is to be assessed and attributed.

These competencies are never stand alone and must always be used in conjunction with other industry relevant competencies.

NOTE: Appendix A summarizes the specific pre-requisite competencies for achieving competencies in this Standard.

Additional competencies are required in specific industries; for example, marine, aviation and coal mining.

NOTE: Examples of technical Standards that may be required in specific industries are listed in Appendix H.

1.2 APPLICATION

This Standard applies to personnel dealing with explosion-protected and associated electrical equipment for hazardous areas, covering the following work functions:

- (a) Producing, processing or servicing functions in a hazardous area and not directly involved in installing, maintaining or repairing explosion-protected equipment and systems.
- (b) Installing and maintaining explosion-protected equipment and systems in the hazardous areas.
- (c) Overhauling, repairing and modifying explosion-protected equipment.
- (d) Developing/designing and maintaining explosion-protection strategies; this includes persons—
 - (i) classifying hazardous areas;
 - (ii) managing a hazardous area installation;
 - (iii) designing electrical systems for hazardous areas; and
 - (iv) inspecting hazardous areas equipment, systems and installations.

The Standard sets the minimum requirements for training programs developed by Registered Training Organizations (RTOs) that issue a Statement of Attainment or Qualification in the competencies described in this Standard. However, this Standard may also be referenced by—

- (i) bodies certifying overhaul and repair workshops; and