

Title	Demonstrate knowledge of hazardous areas and their electrical requirements		
Level	4	Credits	3

Purpose	<p>This unit standard and covers background knowledge relating to hazardous areas, for use in training electrical workers.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – identify hazardous areas; – explain the properties of hazardous materials; – identify and describe sources of ignition; and – demonstrate knowledge of the standards and codes of practice relating to hazardous areas.
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Classification	Electrical Engineering > Core Electrical
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Available grade	Achieved
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Guidance Information

- 1 This unit standard has been developed for learning and assessment off-job.
- 2 Achievement of this unit standard does not by itself imply competency in performing work in hazardous areas.
- 3 For competency in hazardous areas work see unit standards 17054 to 17056, 17058, 17059 and 17068 to 17074.
- 4 References
 Electricity Act 1992;
 Electricity (Safety) Regulations 2010;
 Hazardous Substances and New Organisms Act 1996;
 Health and Safety at Work Act 2015, and associated regulations;
 AS 1939-1990, *Degrees of protection provided by enclosures for electrical equipment (IP Code)*;
 AS/NZS 60079.14:2017, *Electrical equipment for explosive atmospheres – Design selection, erection and initial inspection*;
 AS/NZS 3000:2018, *Electrical installations (known as the Australian/New Zealand Wiring Rules) including Amendment 1*;
 AS/NZS 60079.10.1:2009, *Explosive atmospheres – Part 10.1 Classification of areas - Explosive gas atmospheres*;
 Standards Australia HB 13-2007, *Electrical equipment for hazardous areas*;
 and all subsequent amendments and replacements.

- 5 The term *current regulations and standards* is used in this unit standard to refer to the requirements of the above references.

Outcomes and performance criteria

Outcome 1

Identify hazardous areas.

Performance criteria

- 1.1 The term *hazardous area* is defined in accordance with current regulations and standards.
- 1.2 The classification of hazardous areas is described, and examples of each are stated.
- Range zones – 0, or 1, or 2;
divisions – 1 and 2.
- 1.3 Typical types of hazards that may be present in the hazardous area zones are described.
- Range gas, vapour, liquid, dust, metallic, powder.
- 1.4 The system of classifying electrical equipment for use in hazardous areas is explained according to current standards.
- 1.5 Protection methods are described.
- Range flame-proof, increased safety, intrinsically safe, non-sparking.

Outcome 2

Explain the properties of hazardous materials.

Performance criteria

- 2.1 System of gas grouping is described.
- Range flammable gases, non-flammable gases, reactive gases, toxic gases.
- 2.2 Properties of flammable gases are described.
- Range upper explosive limit, lower explosive limit, flash point, ignition temperature.
- 2.3 Hazards of non-flammable and reactive gases are described.
- Range oxidisers, fluorine, chlorine, acetylene, vinyl chloride.

2.4 Properties of dust mixtures are described.

Range particle size, dust concentration, presence of impurities, oxygen concentration, ignition temperature, minimum energy of ignition.

2.5 Sources of data for hazardous materials are identified.

Range tables, chemical data sheets, labels, material safety data sheet.

Outcome 3

Identify and describe sources of ignition.

Performance criteria

3.1 Principles of combustion are explained.

Range fire triangle – oxygen, fuel, ignition; chemical reaction.

3.2 Potential sources of ignition are stated.

Range flames, welding, sparking, hot surfaces, auto ignition.

3.3 Electrical sources of ignition are stated.

Range overload, short circuit, static electricity.

Outcome 4

Demonstrate knowledge of the standards and codes of practice relating to hazardous areas.

Performance criteria

4.1 Standards and codes of practice used in New Zealand are identified and described.

Range New Zealand Electrical Codes of Practice; New Zealand standards; international standards.

4.2 International standards used in New Zealand are stated.

Range Australian, British, American.

4.3 Requirements of New Zealand standards and codes of practice applicable to hazardous areas are identified and explained.

4.4 Legal responsibilities are identified and explained.

Range Electrical Codes of Practice, Hazardous Substances and New Organisms Act 1996, Electricity Act 1992, Health and Safety at Work Act 2015, local authority requirements.

- 4.5 Requirements of AS/NZS 60079.14:2017 for submitting hazardous area drawings for approval are explained.
- 4.6 Certification abilities of test authorities are described according to current regulations and standards.
- 4.7 Consequences of non-compliance with prescribed procedures are explained.

Range Electrical Codes of Practice, Hazardous Substances and New Organisms Act 1996, Electricity Act 1992, Health and Safety at Work Act 2015, local authority requirements.

Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 April 1996	31 December 2013
Review	2	10 February 1999	31 December 2013
Review	3	26 May 2005	N/A
Rollover and Revision	4	15 March 2012	N/A
Revision	5	15 January 2014	N/A
Rollover and Revision	6	28 January 2021	N/A

Consent and Moderation Requirements (CMR) reference	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.