

Title	Use and maintain the integrity of portable gas detection devices in hazardous areas		
Level	4	Credits	2

Purpose	<p>This unit standard is intended for competent people who require entry to a designated hazardous area to undertake repair, maintenance, or construction work.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – prepare to use a portable gas detection device – establish safety of the area with regard to the presence of gases or vapours – monitor gas detection devices for the presence of gases or vapours, and – follow procedures to maintain the integrity of gas detection devices.
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Classification	Explosive Atmospheres > Electrical Apparatus in Explosive Atmospheres - Operations
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Available grade	Achieved
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Guidance Information

- 1 This unit standard has been designed for training and assessment on-job or off-job in a simulated environment which includes explosion-protected apparatus and wiring systems similar to those encountered in a real workplace. It is recommended candidates achieve Unit 26741, *Demonstrate underpinning knowledge of gas detection equipment in explosive atmospheres*, or demonstrate equivalent knowledge and skills, prior to enrolment in this unit standard.
- 2 This unit standard is intended to be assessed against in conjunction with other competencies appropriate to the work to be done, such as operation, installation, maintenance, or servicing of plant or machinery in explosive atmospheres.
- 3 References
 - AS/NZS 1826:2008, *Electrical equipment for explosive gas atmospheres – Special protection – Type of protection 's'*
 - AS/NZS 3000 (version as cited in the Electricity (Safety) Regulations), *Electrical installations (known as the Australian/New Zealand Wiring Rules)*
 - AS/NZS 4641:2018, *Electrical apparatus for detection of oxygen and other gases and vapours at toxic levels – General requirements and test methods*
 - AS/NZS 4761.1 (version as cited in the Electricity (Safety) Regulations), *Competencies for working with electrical equipment for hazardous areas (EEHA) Part 1 – Competency standards*

- AS/NZS 60079.0 (version as cited in the Electricity (Safety) Regulations), – *Explosive atmospheres – Equipment – General requirements*
- AS/NZS 60079.1:2015, *Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures 'd'*
- AS/NZS 60079.10.1 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Classification of areas – Explosive gas atmospheres*
- AS/NZS 60079.11 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety 'i'*
- AS/NZS 60079.14 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Electrical installations design, selection and erection*
- AS/NZS 60079.17 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Electrical installations inspection and maintenance;*
- AS/NZS 60079.20.1:2012, *Explosive atmospheres – Part 20.1: Material characteristics for gas and vapour classification - Test methods and data*
- AS/NZS 60079.29.1:2017, *Explosive atmospheres – Part 29.1: Gas detectors – Performance requirements of detectors for flammable gases*
- AS/NZS 60079.29.2 (version as cited in the Electricity (Safety) Regulations), *Explosive atmospheres – Gas detectors – Selection, installation, use and maintenance of detectors for flammable gases and oxygen*
- Electricity Act 1992
- Electricity (Safety) Regulations 2010
- Health and Safety at Work Act 2015
- *Workplace Exposure Standards and Biological Exposure Indices Edition 13*, available from WorkSafe New Zealand www.worksafe.govt.nz, and associated regulations

and their subsequent amendments and replacements.

4 Definitions

Appropriate personnel – individuals with responsibilities for co-ordination, design, installation, maintenance, production, or servicing activities. This can include: site managers, project managers, engineers and technicians, technical experts, line managers or supervisors, regulatory personnel, team leaders, other personnel designated by an organisation or enterprise.

Established procedures – formal documented arrangements of an organisation, enterprise or statutory authority in regard to how work is to be done and by whom and may include but are not limited to – quality management systems, safety management systems, work clearance systems, work instructions, reporting systems, and arrangements for dealing with emergencies.

Explosion-protected apparatus – electrical apparatus to which specific measures are applied to avoid ignition of a surrounding explosive atmosphere.

- 5 Range
- a Assessment is to take account of variations between the industry sectors and enterprises. For example, apparatus used in dust-explosive atmospheres will be different in some respects from that used in a petrochemical plant.
 - b Health and safety policies and procedures may include but are not limited to – work permits and clearances, hazard monitoring, evacuation procedures, plant and electrical isolation.
 - c Established maintenance procedures must be followed.
 - d All activities and evidence presented for all outcomes and performance criteria in this unit standard must be in accordance with safe working principles and practices, legislation, policies, procedures, ethical codes and Standards, safe and sound practice, and industry practice; and, where appropriate, manufacturers' instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Prepare to use a portable gas detection device.

Performance criteria

- 1.1 Identify the gas or vapour to be detected from plant or site records or appropriate personnel.
- 1.2 Check the calibration and response of gas detection devices for the gas or vapour to be detected in accordance with manufacturer's instructions, to ensure their integrity.
- 1.3 Check the gas detection device factors that could nullify the Ex rating.

Range damaged or incorrectly assembled casing, use of incorrect batteries and/or chargers, use of incorrect spare parts and accessories, evidence or knowledge of any maintenance which is not explicitly described in the manufacturer's instructions.

Outcome 2

Establish safety of the area with regard to the presence of gases or vapours.

Range monitor hazards, follow evacuation procedures.

Performance criteria

- 2.1 Use gas detection device in accordance with manufacturer's instructions and with regard to environmental conditions.
- 2.2 Record observations of gas detection readings in accordance with established procedures.

- 2.3 When a safe-to-work condition is determined from the gas detection reading, issue clearance to work in accordance with established procedures.

Range gas or vapour level in a work area is at a safe level from explosion, toxicity, and/or oxygen deficiency.

Outcome 3

Monitor gas detection devices for the presence of gases or vapours.

Performance criteria

- 3.1 Determine the frequency of monitoring from the nature of the gas or vapour and the effects of environmental, propagation, and local conditions.

Range ambient temperature rise, density of gas or vapour, flash point, dew point, detector poisons.

- 3.2 Instruct other people in procedures to carry out monitoring for a particular type of gas detector and industrial situation and document these instructions.

Outcome 4

Follow procedures to maintain the integrity of gas detection devices.

Performance criteria

- 4.1 Store gas detection devices in accordance with manufacturers' recommendations.

- 4.2 Formally check and calibrate gas detection devices periodically in accordance with instrument accuracy and established site requirements.

- 4.3 Maintain storage, use, and calibration record of gas detection devices in accordance with established procedures.

Planned review date	31 December 2027
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	20 May 2011	31 December 2025
Review	2	2 March 2023	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 Waihanga Ara Rau Construction and Infrastructure Workforce Development Council qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.