

<b>Title</b>	<b>Demonstrate knowledge of gas testing, and perform gas tests in an energy and chemical plant</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	<p>This unit standard is intended for people working as boiler operators and energy and chemical process operators in an energy and chemical plant.</p> <p>People credited with this unit standard are able to: demonstrate knowledge of gas testing and related hazards in the energy and chemical industry; perform gas tests; and interpret and respond to gas test results, in an energy and chemical plant.</p>
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<b>Classification</b>	Energy and Chemical Plant > Safety and Legislation for Energy and Chemical Plant
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<b>Available grade</b>	Achieved
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### Guidance Information

- Legislation relevant to this unit standard includes but is not limited to:
  - Health and Safety at Work Act 2015;
  - Hazardous Substances and New Organisms Act 1996;
  - Resource Management Act 1991;
 and any subsequent amendments.
- Definitions
 

*Energy and chemical plant* may be in – petrochemical, agri-nutrient, power generation, dairy processing, meat processing, and wood fibre manufacturing, or other plants that operate with a combination of high temperatures, pressures, steam and/or chemicals in gas, liquid or solid form.

*Organisational requirements* – documented policies and procedures. These may include: equipment manufacturers' procedures; plant procedures; suppliers' instructions; site signage; codes of practice; company health and safety plans; on site briefings; and supervisor's instructions. This includes all regulatory and legislative obligations that apply to the plant.

*Plant* – the operational unit, equipment and /or workplace at which the person is working.
- For the purposes of assessment:
  - evidence for the practical components of this unit standard must be supplied from the workplace.

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## Outcomes and performance criteria

### Outcome 1

Demonstrate knowledge of gas testing and related hazards in the energy and chemical industry.

#### Performance criteria

- 1.1 Describe reasons for gas testing in terms of atmospheric hazards.
- Range atmospheric hazards include but are not limited to – toxic, flammable, oxygen level, inert gas.
- 1.2 Describe reasons for a safe working atmosphere.
- Range reasons include but are not limited to – oxygen levels, hazardous gases.
- 1.3 Describe terminology used in the energy and chemical industry in terms of gas testing.
- Range terminology includes but is not limited to – vapour density, flash point, workplace exposure standards.
- 1.4 Identify and describe site-specific hazardous gases in terms of their sources and effects.
- 1.5 Identify and describe site-specific gas detection equipment in terms of the fundamental principles of operation.
- Range equipment includes but is not limited to – tube, chip management system, electrochemical sensor, catalytic sensor, infrared sensor.
- 1.6 Describe gas testing in terms of limitations on the accuracy of gas detectors.
- Range testing includes but is not limited to – oxygen-rich atmosphere, oxygen-reduced atmosphere, liquid, calibration, bump testing, fit for purpose, atmospheric temperature, sample temperature, sample pressure, cross-sensitivity, contaminants.
- 1.7 Describe the units of measurement used by site-specific gas detectors in terms of unit name and the meaning of the units.
- 1.8 Identify alarm set points for site-specific gas detectors.

### Outcome 2

Perform gas tests in an energy and chemical plant.

Range evidence for a minimum of three gas tests is required.

**Performance criteria**

- 2.1 Match testing equipment to gas type in accordance with organisational requirements.
- 2.2 Carry out gas detector pre-start checks in accordance with organisational requirements.
- 2.3 Carry out gas testing in accordance with organisational requirements.
- 2.4 Monitor and retest the tested environment in accordance with organisational requirements.

**Outcome 3**

Interpret and respond to gas test results in an energy and chemical plant.

**Performance criteria**

- 3.1 Interpret test results in accordance with organisational requirements.
- 3.2 Take actions where atmosphere does not comply with organisational requirements.  
  
Range evidence may be collected in a real or a simulated situation.
- 3.3 Document and report results to the site supervisor in accordance with organisational requirements.

<b>Planned review date</b>	31 December 2024
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	8 November 1995	31 December 2014
Revision	2	15 December 1998	31 December 2014
Review	3	29 May 2000	31 December 2014
Revision	4	24 July 2002	31 December 2014
Review	5	27 June 2005	31 December 2014
Rollover and Revision	6	25 July 2006	31 December 2014
Review	7	22 May 2009	31 December 2016
Review	8	24 October 2014	31 December 2022
Review	9	27 February 2020	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0079
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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**Comments on this unit standard**

Please contact the Primary Industry Training Organisation [standards@primaryito.ac.nz](mailto:standards@primaryito.ac.nz) if you wish to suggest changes to the content of this unit standard.