

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

Purpose	<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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Classification	Energy and Chemical Plant > Safety and Legislation for Energy and Chemical Plant
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Available grade	Achieved
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Guidance Information

- 1 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.
- 2 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.
- 3 For the purposes of assessment:
 - evidence for the practical components of this unit standard must be supplied from the workplace.

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.

Replacement information	This unit standard was replaced by skill standard 40371.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

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	31 December 2026
Review	10	30 January 2025	31 December 2026

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