

## 40371 Perform gas tests in an energy and chemical plant

<b>Kaupae   Level</b>	4
<b>Whiwhinga   Credit</b>	5
<b>Whāinga   Purpose</b>	<p>This skill 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 skill standard are able to: describe 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> <p>This skill standard can be used in the New Zealand Energy and Chemical qualifications at Levels 4 and above.</p>

### Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

<b>Hua o te ako   Learning outcomes</b>	<b>Paearu aromatawai   Assessment criteria</b>
1. Describe gas testing and related hazards in the energy and chemical industry.	a. Describe reasons for gas testing in terms of atmospheric hazards and maintaining a safe working atmosphere.
	b. Identify and describe site-specific hazardous gases in terms of their sources and effects.
	c. Identify and describe site-specific gas detection equipment in terms of the fundamental principles of operation.
	d. Describe gas testing in terms of limitations on the accuracy of gas detectors.
	e. Describe the units of measurement used by site-specific gas detectors in terms of unit name and the meaning of the units.
	f. Identify alarm set points for site-specific gas detectors.

Hua o te ako   Learning outcomes	Paearu aromatawai   Assessment criteria
2. Perform gas tests in an energy and chemical plant.	a. Match testing equipment to gas type in accordance with organisational requirements.
	b. Carry out gas detector pre-start checks in accordance with organisational requirements.
	c. Carry out gas testing in accordance with organisational requirements.
	d. Monitor and retest the tested environment in accordance with organisational requirements.
3. Interpret and respond to gas test results in an energy and chemical plant.	a. Interpret test results in accordance with organisational requirements.
	b. Take actions where atmosphere does not comply with organisational requirements.
	c. Document and report results to the site supervisor in accordance with organisational requirements.

### Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

#### Assessment specifications:

- evidence for the practical components of this skill standard must be supplied from the workplace.
- 1a: atmospheric hazards include but are not limited to – toxic, flammable, oxygen level, inert gas;
- 1c: equipment includes but is not limited to – tube, chip management system, electrochemical sensor, catalytic sensor, infrared sensor.
- 1d: 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.
- Learning Outcome 2: evidence for a minimum of three (3) gas tests is required.
- 3b: evidence may be collected in a real or a simulated situation.

#### 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.

**Ngā momo whiwhinga** | Grades available

Achieved.

**Ihirangi waitohu** | Indicative content

Terminology, such as – vapour density, flash point, workplace exposure standards, high and low explosive limits, oxygen percentage, Short Term Exposure Limit (STEL), Time-Weighted Average (TWA).

**Rauemi** | Resources

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.

**Pārongo Whakaū Kounga** | Quality assurance information

<b>Ngā rōpū whakatau-paerewa</b>   Standard Setting Body	Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council
<b>Whakaritenga Rārangi Paetae Aromatawai</b>   DASS classification	Manufacturing > Energy and Chemical Plant > Safety and Legislation for Energy and Chemical Plant
<b>Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga</b>   CMR	0079

<b>Hātepe</b>   Process	<b>Putanga</b>   Version	<b>Rā whakaputa</b>   Review Date	<b>Rā whakamutunga mō te aromatawai</b>   Last date for assessment
<b>Rēhitatanga</b>   Registration	1	30 January 2025	N/A
<b>Kōrero whakakapinga</b>   Replacement information	This skill standard replaced unit standard 3058.		
<b>Rā arotake</b>   Planned review date	31 December 2029		

Please contact Hanga-Aro-Rau Engineering, Manufacturing and Logistics Workforce Development Council at [qualifications@hangaarorau.nz](mailto:qualifications@hangaarorau.nz) to suggest changes to the content of this skill standard.