

40390 Use chemicals for batch production in an energy and chemical plant

Kaupae Level	3
Whiwhinga Credit	3
Whāinga Purpose	<p>This skill standard is intended for boiler operators and energy and chemical process operators.</p> <p>People credited with this skill standard are able to: describe safety requirements for mixing chemicals in an energy and chemical plant; prepare to mix chemicals for batch production; mix and use chemicals for batch processing operations; and complete the batch; in an energy and chemical plant.</p> <p>This skill standard can be used in the New Zealand Energy and Chemical qualifications at Level 3 and above.</p>

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

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Describe safety requirements for mixing chemicals in an energy and chemical plant.	a. Describe safety requirements in terms of chemical identification.
	b. Describe hazards and risks associated with the handling and mixing of chemicals.
	c. Describe personal protective equipment used for handling the chemicals that are to be mixed in terms of their purpose.
	d. Describe safety requirements for neutralisation procedures.
	e. Describe the potential results of mixing incompatible chemicals.

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
2. Prepare to mix chemicals for batch production in an energy and chemical plant.	a. Assemble documentation required for chemical batch mixing before the procedure commences.
	b. Apply safety procedures for the mixing of chemicals.
	c. Select a suitable area free of contamination and any risks or hazards associated with the procedure of mixing chemicals.
	d. Prepare related services for operation prior to the work beginning.
	e. Confirm the equipment selected is suitable for mixing chemicals, is clean, and in safe and effective working order.
	f. Identify and select correct, non-expired chemicals in sufficient quantities for the mix of the batch.
3. Mix and use chemicals for batch processing operations in an energy and chemical plant.	a. Measure out chemicals for the batch, place in suitable containers, and label legibly with product and quantity.
	b. Carry out batch processing of chemicals.
	c. Apply controls to eliminate or minimise hazards and loss of materials during batch processing operations.
	d. Complete documentation for the chemical and/or batch at the time of manufacture.
	e. Maintain records of all adjustments and any abnormalities during chemical use.
4. Complete the batch in an energy and chemical plant.	a. Measure and record amounts of final product and unused chemicals.
	b. Transfer the product to storage in suitable containers with correct labelling to indicate content.
	c. Dismantle and store equipment.
	d. Store waste from the batch in suitable containers or areas designated for disposal purposes with correct labelling to indicate content.
	e. Decontaminate and clean the area to remove all residues.
	f. Complete and report documentation.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria**Assessment specifications:**

- evidence for the practical components of this unit standard must be supplied from the workplace.
- evidence for all outcomes must be presented in accordance with organisational requirements.
- 1a: manufacturer's labels, safety data sheets, manuals, textbooks, Hazchem data.
- 1c: aprons, face shields, goggles, gloves, chemical suits, breathing apparatus.
- 1e: exothermic, endothermic, oxidation, corrosion, pyrophoric, atmospheric.
- 2d: may include ventilation, heating, cooling.
- 4c: cleaned, decontaminated, packed, labelled.

Definitions:

Energy or 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.

Hazchem data – the Hazchem emergency action code of numbers, letters, and diamonds that give information to emergency services. Its use is required by NZS 5433 PARTS 1 & 2:2012 Transport of dangerous goods on land available from [Dangerous goods carried by transport operators](https://www.nzta.govt.nz/dangerous-goods), available at NZ Transport Agency Waka Kotahi ([nzta.govt.nz](https://www.nzta.govt.nz)).

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

None

Rauemi | Resources

Legislation relevant to this unit standard includes but is not limited to:

- Health and Safety at Work Act 2015;
- Health and Safety at Work (Hazardous Substances) Regulations 2017 (HSWA);
- Resource Management Act 1991;
- and any subsequent amendments.

Pārongo Whakaū Kouna | Quality assurance information

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

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	27 March 2025	N/A
Kōrero whakakapinga Replacement information	This skill standard replaced unit standard 9607.		
Rā arotake Planned review date	31 December 2029		

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