

Title	Prepare and produce wort for beer fermentation		
Level	3	Credits	8

Purpose	This unit standard is for people who are currently working, or who intend to work, in jobs which require the use of automated production equipment to produce wort for beer fermentation. People credited with this unit standard are able to: use safe working practices; prepare equipment and raw materials; produce wort; and remove and finish wort.
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Classification	Food and Related Products Processing > Food Production - Beverages
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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 the: Health and Safety in Employment Act 1992; Health and Safety in Employment Regulations 1995; Food Act 1981; Food Hygiene Regulations 1974; Food (Safety) Regulations 2002; Resource Management Act 1991; and their associated regulations and subsequent amendments.
- 2 *Beer fermentation* may be continuous or batch.
- 3 Definitions
Organisational procedures refer to documents that include: worksite rules, codes, and practices; equipment operating instructions; production specifications; documented quality management systems; and health and safety requirements.
Equipment refers to items such as: brewing vessels, mash tun, lauter tun, mash filter, wort, kettle boiler, heat controllers, raking systems, stirrers, extraction fans, pipe work, pumps, valves, taps, heat exchanger, wort cooler, hot water storage tanks, hop strainer, wort filter, whirl pool.
Raw materials refer to items such as: water, hops, grains, barley, malt, corn, malted barley, rice, wheat, sugars, adjunct sugars, acids, enzymes, yeast cofactors, kettle finings, treatment agents.
Beer refers to any of: ales, lagers, stouts.
PPE refers to personal protective equipment and may include but is not limited to: protective clothing, gloves, safety glasses/headwear/footwear, hearing protection, safety devices.
- 4 Competence is to be demonstrated on three occasions of preparing and producing wort for beer fermentation.

Outcomes and performance criteria

Outcome 1

Use safe working practices.

Performance criteria

- 1.1 PPE is used in accordance with organisational procedures.
- 1.2 Work environment is clean and free from hazards in accordance with organisational procedures.
- Range hazards to – personnel, product, plant.
- 1.3 Documentation is referred to and/or completed in accordance with organisational procedures.

Outcome 2

Prepare equipment and raw materials.

Performance criteria

- 2.1 Preparation of equipment and raw materials is in accordance with organisational procedures.
- 2.2 Equipment for wort production is in correct configuration in accordance with production specifications.
- 2.3 Water for wort preparation is filtered, complies with production specifications, and is correct quantity for scheduled and anticipated production in accordance with organisational procedures.
- Range specifications may include but are not limited to – pH, chlorine content, suspended solids, temperature, microbiological content.
- 2.4 Correct, authorised, ground grain is available in correct quantity for wort production in accordance with organisational procedures.
- 2.5 Correct hop variety is available, in correct form, and in sufficient quantity for scheduled and anticipated production in accordance with organisational procedures.
- Range form may include but is not limited to – pellets, leaf hops, liquid.
- 2.6 Additional materials are correct for recipe, and are available in sufficient quantity for anticipated and scheduled production, in accordance with organisational procedures.

- 2.7 Potential problems in preparing equipment and raw materials for wort production are identified, rectified and/or reported in accordance with organisational procedures.

Range problems may include but are not limited to – grain supply, additional material supply, equipment.

Outcome 3

Produce wort.

Performance criteria

- 3.1 Production of wort is in accordance with organisational procedures.
- 3.2 Materials are added in correct sequence and quantity, in accordance with production specifications.
- 3.3 Raking system is operated in accordance with organisational procedures to optimise wort clarity and extract recovery.
- 3.4 Wort is boiled for agreed time, and manner of boiler operation maintains product integrity in accordance with organisational procedures.
- 3.5 Mash and lautered wort meets product specifications.
- Range specifications may include but are not limited to – pH, temperature, starch content, specific gravity, clarity, extract recovery.
- 3.6 Potential problems during wort production are identified, rectified and/or reported in accordance with organisational procedures.
- Range problems may include but are not limited to – related to mash tun-stirrer, valve operation, temperature, grain supply, raw material supply; related to lauter tun- flow rate, amount of fines, amount of whole grains; related to boiling: filter operation, temperature.

Outcome 4

Remove and finish wort.

Performance criteria

- 4.1 Removing and finishing of wort is in accordance with organisational procedures.
- 4.2 Wort is removed from boiling vessel in accordance with production specifications.
- 4.3 Finishing equipment for removing solids from boiled wort is operational, and configuration meets technical and product specifications.

- 4.4 Finishing equipment for removing solids from boiled wort is free from contamination in accordance with organisational procedures.
- 4.5 Spent grain and trub are removed from brewing vessels and disposed of in accordance with production specifications.
- 4.6 Wort is sterile and meets specifications for downstream operations in accordance with organisational procedures.
- Range specifications may include but are not limited to – temperature, solids content, pH, colour, specific gravity, bitterness; downstream operations may include but are not limited to – fermentation, storage.
- 4.7 Destination of finished wort is correct for downstream production.
- 4.8 Potential problems in removing and finishing wort are identified, rectified and/or reported in accordance with organisational procedures.
- Range potential problems may include but are not limited to – equipment availability, performance, product.

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	27 August 1996	31 December 2022
Revision	2	15 May 1998	31 December 2022
Review	3	19 August 2004	31 December 2022
Review	5	28 January 2021	31 December 2022

Consent and Moderation Requirements (CMR) reference	0111
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.