

<b>Title</b>	<b>Demonstrate knowledge of the raw materials used to produce beer</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>3</b>

<b>Purpose</b>	People credited with this unit standard are able to: explain the nature and use of barley, malt, adjuncts and process aids; explain the nature of hops and their use in brewing; describe the sources, treatment and uses of water in brewing; and describe the factors which influence different beer styles.
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<b>Classification</b>	Food and Related Products Processing > Food Production - Beverages
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<b>Available grade</b>	Achieved
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**Guidance Information**

- 1 This unit standard is a general introduction to raw materials. For more specific information that relates to actual performance of sampling and evaluation of raw materials see the level 3 unit standard 9827. For more on running a grain store see unit standard 7705. For more on understanding water and effluent treatments see unit standards 7818, 7720, 9833 and 8039.
- 2 The following beer styles (or similar) may be used to illustrate the effects of raw materials on style:  
*Ales: mild ale, bitter ale, pale ale, brown ale, dark ale.*  
*Lagers: premium lager, pale lager, pilsner.*  
*High adjunct beers.*  
*Sorghum and wheat beers.*

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**Outcomes and performance criteria**

**Outcome 1**

Explain the nature and use of barley, malt, adjuncts, and process aids.

**Performance criteria**

- 1.1 The explanation identifies at least two varieties of two row barley and indicates why it is preferred for brewing, in terms of suitability for malting and suitability for New Zealand growing conditions.
- 1.2 A diagram is produced illustrating the main parts of the barley grain together with a description of their role in brewing.  
  

Range	husk, embryo, endosperm.
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- 1.3 The explanation includes the purpose of malting barley for brewing, and outlines the stages of the malting process.
- Range stages – preparation, steeping, germination, kilning.
- 1.4 The explanation states the advantages and use of types of adjuncts available within a brewery.
- Range adjuncts – unprocessed solids, processed solids, liquids.
- 1.5 The explanation identifies at least two different special malts or extracts that can be used in brewing in terms of their effect on the characteristics of beer.
- Range special malts or extracts may include but are not limited to – caramel, malt syrups, coloured malt, roasted barley, malted wheat.
- 1.6 The explanation identifies at least two examples of process aids or enzymes which can be used in brewing in terms of the reasons for their use.
- Range process aids or enzymes may include but are not limited to – finings, antifoam or foam stabilisers, haze inhibitors, diatomaceous earth.
- 1.7 The storage requirements of malt, adjuncts, and process aids to ensure they are fit for brewing are explained, in accordance with the storage plan of a brewery.

## Outcome 2

Explain the nature of hops and their use in brewing.

### Performance criteria

- 2.1 The explanation describes the growth of hops, describes why only sterile female plants are grown, and identifies the source of flavour compounds used in brewing.
- 2.2 The preparation, quality parameters, and storage of raw hops are described in accordance with the procedures used in the New Zealand brewing industry.
- 2.3 The explanation includes the reason for the processing of hop products and describes the types, quality parameters, and storage requirements of processed hop products used in a brewery.
- 2.4 The explanation identifies the major bitterness compounds in hops, and describes the stages in brewing when they are most effectively released.
- Range bitterness compounds – essential oils, acids, resins and tannins; brewing stages – main wort boiling, end of wort boil, at filtration or dry hopping.

### Outcome 3

Describe the sources, treatment and uses of water in brewing.

#### Performance criteria

- 3.1 The description identifies sources of water for breweries, and classifies these according to suitability of use.
- Range three of the following sources – surface water, sub-surface water, mains supply water, town supply water; classification for use – product water, cleaning water, service water.
- 3.2 The characteristics and requirements of a reliable brewery water supply are described in terms of volume and analytical consistency.
- 3.3 The use of water in brewing and its ancillary processes are described in terms of product, cleaning, and service.
- 3.4 Water storage methods and processes used for the treatment of water are described in terms of their use within a typical New Zealand brewery.
- Range processes may include but are not limited to – demineralisation, sterilisation, deaeration, conditioning, service treatments.

### Outcome 4

Describe the factors which influence different beer styles.

#### Performance criteria

- 4.1 Factors are described that, along with raw materials, can affect beer style.
- Range factors – fermentation, processing, packaging.
- 4.2 Different styles of beer are described in terms of the impact of malt and adjuncts, water characteristics, bitterness and alcohol content.
- Range styles of beer may include but are not limited to – mild ales, bitter ales, pale ales, brown beers, stouts, porters, lagers, pilsner, high adjunct beers, sorghum beers, weissbier; evidence of three is required.

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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	6 May 1999	31 December 2022
Review	2	19 August 2004	31 December 2022
Review	3	28 January 2021	31 December 2022

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

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