



Australian Government

Department of Education, Employment and Workplace Relations

FDFGR2012A Prepare malted grain

Release: 1

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Modification History

New Unit.

Unit Descriptor

This unit covers the skills and knowledge required for operating commercial equipment associated with preparing malted barley or wheat. It covers operating and monitoring steeping, germinating, and kilning equipment.

Application of the Unit

This unit applies to operators in commercial malting plants who are responsible for converting stored grain into malted barley or wheat. These operators are often known as maltsters. The unit covers the skills used in the malting process from after the grain is received and stored up to the malted barley or wheat being ready for blending, transport or storage. The skills covered by this unit are applied in accordance with enterprise procedures and to specifications determined by senior scientific or production management.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

FDFGR2010A Handle grain in a storage area

Employability Skills Information

This unit contains employability skills

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Steep grain	1.1 Grain is transferred from storage into steeping equipment 1.2 Hoses or other wetting equipment are placed correctly to ensure uniform hydration and to avoid damage to grain 1.3 Grain is immersed, drained and rested for the specified number of cycles 1.4 Moisture content of grain is monitored during air resting to determine when it is ready for transfer to germination vessels 1.5 Waste water is discharged to treatment or holding or other facilities according to enterprise and regulatory environmental guidelines
2 Germinate grain	2.1 Grain is fed into germination vessel or floor 2.2 Turning and air blowing equipment is set up, operated and monitored 2.3 Green grain is monitored for humidity, temperature, moisture, chitting/acrospires, and general condition 2.4 Rate of turning, humidity and temperature is adjusted as required to maintain green grain to specifications 2.5 Modified green grain is transferred to kiln according to specifications for malt type and results of laboratory testing
3 Operate kiln to produce malt	3.1 First drying of modified grain is conducted 3.2 Stopping of germination is confirmed 3.3 Modified grain is cured through correct combination of air flow and heat for malt product specification, in consultation with the production manager 3.4 Colour, moisture content and other required specifications are confirmed 3.5 Malt is cleaned 3.6 Separated culm is transferred to storage 3.7 Malt is transferred to storage

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills include:

Ability to:

- identify batch and recipe specifications and seeks assistance and relevant approvals when required
- achieve specified moisture content in grain through correct combinations of water/air/water steeping cycles
- germinate barley to different specifications through correct use of air, humidity and turning equipment
- avoid clumping of barley during germination through correct turning
- conduct acrospires evaluation and moisture testing
- correctly adjust kiln heat settings for drying or curing and for different types and grades of barley and malt
- follow specified shutdown processes and equipment and implement cleaning requirements associated with changeovers
- monitor control points
- undertake corrective action required in the event of variation to specifications and operating parameters
- identify OHS hazards and controls
- comply with enterprise procedures and responsibilities for reporting problems
- comply with enterprise environmental procedures and controls
- follow waste handling requirements and procedures
- record required production data
- undertake routine maintenance procedures
- follow dust control procedures
- clean and sanitise equipment according to enterprise procedures
- maintain work area to meet housekeeping standards
- use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning, active listening, asking for clarification and seeking advice from supervisor
- work cooperatively within a culturally diverse workforce

Required knowledge includes:

Knowledge of:

- changes to grain from the steeping process
- changes in grain during germination
- role of humidity and temperature in initiating and controlling germination of grain
- common variations in grain quality and type
- common customer malt "recipes" used in the enterprise and implications for malt production
- standard transfer times between stages e.g. receiving to steeping, steeping to germination,

germination to kilning

- procedures for dealing with contingencies, breakdowns and other non standard events
- contamination avoidance procedures including
- jewellery and loose objects in work area
- security and access procedures to work areas
- pest control procedures
- appearance of grains before and after cleaning (deculming)
- cleaning requirements associated with changeovers and types of shutdowns
- purpose of moisture and acrospires testing within the malting process
- equipment cleaning and sanitation procedures

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	Assessment must be carried out in a manner that recognises the cultural and literacy requirements of the assessee and is appropriate to the work performed. Competence in this unit requires that the learner be assessed against at least two different batches of barley or wheat with different specifications for steeping, germination and kilning.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of ability to: • access workplace information and consult with relevant personnel to identify batch requirements for steeping, germination, kilning and malt cleaning processes • select, fit and use personal protective clothing and equipment • confirm equipment status and condition • set up, start and monitor grain transfer equipment • control absorption of water by grain during steeping to achieve specified water content • supply fresh air, heating, cooling and ventilation to specification during germination • safely start and operate kilns to different heat requirements • undertake sampling and testing during steeping, germination and cleaning to determine if grain and malt is within specifications • monitor critical control points in work area • apply dust control procedures in work area • maintain workplace records.
Context of and specific resources for assessment	Assessment must occur in a real or simulated workplace where the assessee has access to: • personal protective clothing and equipment • work procedures including advice on safe work practices, food safety and environmental requirements • material data safety sheets where appropriate • steeping, germination, kilning and deculming equipment and control points. The steeping, germination, kilning equipment may be separate or

	combined • Steeping, germination and kilning specifications and procedures for at least two different malts • malted grain cleaning equipment.
Method of assessment	This unit should be assessed together with core units and other units of competency relevant to the function or work role. Examples could be: • FDFOP2003A Clean equipment in place • FDFOP2004A Clean and sanitise equipment • FDFOP2011A Conduct routine maintenance • FDFOP2013A Apply sampling procedures • FDFOP2030A Operate a process control interface • MSL973001A Perform basic tests.
Guidance information for assessment	To ensure consistency of performance, competency should be demonstrated on at least two occasions to different steeping, germinating and kilning specifications.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Malt	The term malt includes malt intended for use in beer production, distilling malts, specialty malts such as crystal and roasted malts, and malt for food production.
Services	Services include power, gas, water, steam and compressed air.
Equipment	Includes equipment used for: • storage e.g. bins, hoppers or silos • on site grain transport such as conveyors, blowers, chutes • weighing • metal detection • steeping vessels or towers • pumps, hoses and other wetting equipment • aeration and CO² extraction • germination vessels including circular or rectangular vessels or boxes • mechanical turning • kilning including tower and flat plant kilns • combined steeping, germination and kiln vessels • cleaning of malt (deculming).
Control points	Refers to the key points in the malting process which must be monitored and controlled. This includes food safety, (critical), quality, and regulatory control points as well as inspection points. Monitoring may involve the use of production data such as performance control charts. Process operation and monitoring functions may be manual or involve the use of a process control system.
Equipment is monitored	Equipment monitoring includes ensuring that hygiene and sanitation standards are met, all safety guards are in place, and that equipment is operational and performing to specification. It may also include the calculation of raw materials.
Workplace information may	Standard Operating Procedures (SOPs); specifications

include:	and production schedules. Information systems may be print or screen based.
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Unit Sector(s)

Grain processing