Federal Democratic Republic of Ethiopia

OCCUPATIONAL STANDARD

BEVERAGE PRODUCTION OPERATION

NTQF Level II and III

Ministry of Education
July 2013

Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopia Occupational Standards (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET-Qualification Framework (NTQF). They are national Ethiopian standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopia Occupational Standard which comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title and NTQF level
- Unit title
- Unit code
- Unit descriptor
- Elements and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the respective level (Unit of Competence Chart) including the Unit Codes and the Unit titles
- contents of each Unit of Competence (competence standard)
- occupational map providing the Technical and Vocational Education and Training (TVET) providers with information and important requirements to consider when designing training programs for this standards and for the individual, a career path

UNIT OF COMPETENCE CHART

Occupational Standard: Beverages Production Operation

Occupational Code: IND BPO

NTQF Level II

IND BPO2 01 0613 Receive and Handle Raw Materials for Processing	IND BPO2 02 0613 Prepare Malted Grain	IND BPO2 03 0613 Perform the Crushing Process
IND BPO2 04 0613 Operate the Pressing Process	IND BPO2 05 0613 Operate a Wort Production Process	IND BPO2 06 0613 Prepare and Monitor Yeast Propagation Processes
IND BPO2 07 0613 Perform Fermentation Operations	IND BPO2 08 0613 Perform Maturation Process	IND BPO2 09 0613 Prepare and Make Additions and Finings
IND BPO2 10 0613 Operate Clarification by Separation (Centrifugation, Decantation) Process	IND BPO2 11 0613 Perform a Filtration Process	IND BPO2 12 0613 Perform a De-aeration, Mixing and Carbonation Process
IND BPO2 13 0613 Perform Distillation Operations	IND BPO2 14 0613 Perform a Heat Treatment Process	IND BPO2 15 0613 Operate the Bottle Sealing Process
IND BPO2 16 0613 Perform a Water Purification Process	IND BPO2 17 0613 Operate a Syrup Production Process	IND BPO2 18 0613 Operate a Bottle Washing Machine
IND BPO2 19 0613 Participate in Workplace Communication	IND BPO2 20 0613 Work in Team Environment	IND BPO2 21 0613 Develop Business Practice

IND BPO2 22 0613
Standardize and Sustain 3S

NTQF Level III

IND BPO3 01 0613 Apply Raw Materials, Ingredient and Process Knowledge to Production Problems	IND BPO3 02 0613 Set up a Production or Packaging Line for Operation	IND BPO3 03 0613 Operate the Bottle Filling Process
IND BPO3 04 0613 Operate the Labelling Process	IND BPO3 05 0613 Operate Interrelated Processes in a Production System	IND BPO3 06 0613 Use Computer Technology for Laboratory Applications
IND BPO3 07 0613 Operate the Concentration Process	IND BPO3 08 0613 Operate the Continuous Clarification by Separation Process	IND BPO3 09 0613 Perform Rectification (Continuous Still) Process
IND BPO3 10 0613 Perform Basic Tests	IND BPO3 11 0613 Evaluate Beverage Standard	IND BPO3 12 0613 Use Inventory Systems to Organize Stock Control
IND BPO3 13 0613 Participate in a HACCP Team	IND BPO3 14 0613 Monitor Implementation of Work Plan/Activities	IND BPO3 15 0613 Apply Quality Control
IND BPO3 16 0613 Lead Workplace Communication	IND BPO3 17 0613 Lead Small Team	IND BPO3 18 0613 Improve Business Practice
IND BPO3 19 0613 Prevent and Eliminate MUDA		

NTQF Level II

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Receive and Handle Raw Materials for Processing**
Unit Code	**IND BPO2 01 0613**
Unit Descriptor	This unit covers the specific skills and knowledge required for on-site receiving of raw materials (grain, yeast, malt, grape, sugar, molasses, technical alcohol, adjunct, hope...Etc) intended for processing different kinds of beverages from viticulture, road, rail or sea transport including checking of documentation, weighing, conduct of pest, contamination and other initial checks, and placement of grain into storage.

Elements	Performance Criteria
1 Receive raw materials from transport	1.1 Delivery documentation is checked. 1.2 Required tests for received ***raw materials*** are determined from standard operating procedures, supervisor instruction or other source. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Samples of raw materials are tested*** for the required parameters to determine if the delivery is within specifications. 1.5 ***Procedures for rejected raw materials*** are followed according to enterprise procedures.
2 Weigh and screen accepted raw materials	2.1 Raw materials are off loaded from ***transport*** and routed to screens. 2.2 Intake raw materials are passed through screens. 2.3 Fitness of raw materials for the intended products is monitored. 2.4 Foreign materials (dust, stem, leaves etc) ***control procedures*** are followed 2.5 ***Equipment is monitored*** to confirm operating condition. 2.6 Raw materials are passed through metal removal equipment. 2.7 Raw materials are weighed/measured.
3 Store intake raw materials	3.1 Moisture, protein, extract, total acidity, total fermentable sugar, ash content, turbidity, floc, TDS content, P^H, reducing sugar, technical alcohol grade, . . .etc content of raw materials are determined. 3.2 Screened raw materials are routed to batch bins or other containers.

4. Record information	4.1 ***Workplace information*** is recorded in appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate Immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Raw Materials	May include but not limited to: • 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. • Sugar: Crystalline white substance made from cane or beat used as a sweetener in soft drinks and ingredient in beer, alcohol production. • Molasses: Dark brown viscous liquid /cane sugar by-product intended for use in pure (potable) alcohol production • Technical alcohol: Industrial alcohol /not potable intended for use in pure (potable) alcohol production • Grape: Ripen wine grape • Grain: can be barley, wheat, sorghum, corn, rice..etc
Services	include power, gas, water, steam and compressed air.
Sampling and testing procedures	include tests for: • grain size and weight • protein • moisture • nitrogen • pests • taint • weather damage e.g., sprouting, black-tip • metal and other foreign objects • total fermentable sugar • reducing sugar • acidity • colour • turbidity • ash • floc test • extract • Calcium & magnesium as sulphate • Brix (Total dissolved solid content) • Sieving test • Thousand corn weight

	• Hectolitre weight • Germinating capacity • Technical alcohol grade
Procedures for rejected raw materials	may include: • isolation of rejected raw materials • Directing transport operator to remove raw materials off site or on site to damping location. • fumigation or other treatment of materials before isolation or off site transport • completion of appropriate documentation • dispose according to MSDS (material safety data sheet)
Transport	modes of transport: • road • rail • sea • conveyor from off site storage e.g. a grain elevator
Control points	Refers to the key points in a work 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	includes ensuring that hygiene and sanitation standards are met, all safety guards are in place, and that equipment is operational and performing to specification.
Workplace information	may include: • Standard Operating Procedures (SOPs); specifications and production schedules • Information systems may be print or screen based.

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • access workplace information to identify raw material receiving procedures includes: ➢ specifications ➢ required sampling and tests ➢ reporting arrangements • select, fit and use personal protective clothing and equipment • confirm equipment status and condition • set up, start, operate and monitor raw material transfer and weighing /measuring equipment • undertake required sampling and testing of raw material according to enterprise procedures • apply enterprise procedures for rejection of out of

	specification raw material • monitor critical control points in work area • apply dust & other foreign bodies control in work area • maintain workplace procedures, recordings & documentations
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • raw material delivery arrangements and transport modes relevant to the enterprise • location and types of storage available for received raw material relevant to the enterprise • enterprise procedures for rejected grain • identification, avoidance and safe handling of accidentally residues of insect treatment from ex-site storages (e.g. phosphin bags) • other contamination avoidance and removal procedures including ➢ jewellery and loose objects in work area ➢ security and access procedures to work areas ➢ pest control procedures ➢ personal hygiene ➢ metal and other foreign objects detection and removal ➢ foreign matter control procedures ➢ cleaning requirements associated with changeovers and types of shutdowns ➢ procedures for reporting problems ➢ relevant sampling and testing procedures ➢ cleaning and sanitation procedures relevant to the enterprise
Underpinning Skills	Demonstrate skills to: • undertake standard tests on received raw material for insects, taint, other contaminants and foreign objects as well as any required specific scientific tests e.g. near infra-red(NIR) visual inspection etc... • interpret and apply enterprise procedures and specifications for receiving raw materials • set up, use and monitor , receiving, weighing, metal detection and drying equipment including using process control interfaces where required • apply dust / control procedures to grain receiving and storage work areas • monitor control points • identify OHS hazards and controls • comply with procedures and responsibilities for reporting problems • comply with environmental procedures and controls • follow waste handling requirements and procedures • record required quality and production data

	• undertake routine maintenance procedures • collect samples and conduct tests according to enterprise 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Prepare Malted Grain**
Unit Code	**IND BPO2 02 0613**
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.

Elements	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 perform kilning process 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.

4 .Record information	4.1 ***Workplace information*** is recorded in appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate, immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	**Range**
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 CO^2 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
Equipment is monitored	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.
Malt	includes: • malt intended for use in beer production, distilling malts, specialty malts such as crystal and roasted malts, and malt for food production
Workplace information	May include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
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.

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence 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
Underpinning Knowledge and Attitudes	Demonstrate 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

Underpinning Skills	Demonstrate skills 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform the Crushing Process**
Unit Code	**IND BPO2 03 0613**
Unit Descriptor	This specialist unit has been developed for the cellar stream of the wine sector. It covers the skills and knowledge required to prepare for and operate the crushing process.

Elements	Performance Criteria
1. Prepare the crushing process for operation	1.1 Product and materials are confirmed and available to meet crushing requirements. 1.2 ***Product and materials*** are prepared to meet crushing requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Equipmen***t is checked to ***confirm readiness*** for use. 1.5 The ***process is set*** to meet crushing requirements.
2. Operate and monitor the crushing process	2.1 The crushing process is started up according to workplace procedures. 2.2 ***Control points*** are ***monitored*** to confirm performance is maintained within specification. 2.3 Product that meet specification is crushed. 2.4 Equipment is monitored to confirm operating condition. 2.5 Out-of-specification crushed product, process and equipment performance are identified, rectified and/or reported.
3. Shut down the crushing process	3.1 The process is shut down according to workplace procedures. 3.2 Equipment is dismantled and prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with ***workplace environmental guidelines***.
4. Contribute to continuous improvement of the system	4.1 Quality or process outputs are assessed against specifications. 4.2 Opportunities are identified and investigated for improvement. 4.3. Proposals for improvements are developed and implemented company planning arrangements and according to company procedures.

5. Record information	5.1 ***Workplace information*** is recorded in the appropriate format. 5.2 Workplace information is documented in the appropriate place. 5.3 All records are signed. 5.4 Record information is communicated to appropriate immediate supervisor.

Variable	**Range**
Product and materials	may include: • a range of grape varieties • additions, including enzymes, sulphur dioxide (in various forms), acids, diammonium phosphate and yeast
Services	may include: • power • water • compressed air • inert gas
Equipment	may include: • roller crusher, roller crusher-de-stemmer, de-stemmer-roller crusher, and beater-de-stemmer
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration status of measuring instrumentation
Process set up, operation and monitoring functions	may be: • manual or involve the use of a process control system
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	may involve: • the use of production data
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS)

	• manufacturer instructions • verbal direction from manager, supervisor or senior operator
Information systems	may be: • print or screen based
Work hazards	may involve exposure to: • chemical, dangerous or hazardous substances

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures • check crushing equipment status and condition before commencing operation • monitor crushing process control points and equipment during crushing • take corrective action in response to out-of-specification results or non-compliance • demonstrate knowledge of OHS hazards, controls and emergency procedures • sort, collect, treat, recycle or dispose of waste • record information appropriately
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of crushing • link to related processes • stages and changes which occur during crushing • effect of crushing stages on end product • quality characteristics and uses of crushed product and materials • product and materials preparation requirements and effect of variation on the process • main methods used in crushing • process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • Occupational Health and Safety (OHS) hazards and controls, specifically confined space entry • lock-out and tag-out procedures • procedures and responsibility for reporting problems

	• environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • waste handling requirements and procedures • recording requirements and procedures • routine maintenance procedures where relevant • preparing and making additions and finings where relevant • inert gas handling procedures where relevant • sampling techniques where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify crushing requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product, materials and services • bridge with other work areas • prepare product and materials as required. This may include: ➢ positioning and aligning the tipper vessels ➢ releasing free run juice before opening tailgate ➢ preparing pre-mix additives and loading into hoppers • confirm equipment status and condition. This may include: ➢ checking for exposed or reactive metal parts ➢ checking for lubricating or hydraulic fluid leaks ➢ checking capacity of receival vessels ➢ checking must pump operation ➢ removing matter other than grape (MOG) ➢ checking magnet operation ➢ flushing with water and/or caustic ➢ confirming operation of fruit unloading system • set up and start up the process • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring: ➢ hopper screw speed ➢ roller settings ➢ destemmer speed ➢ must pump speed ➢ dosage of additions ➢ dilution and oxidation ➢ additions ➢ product loss ➢ relevant product characteristics (e.g. harvest method, berry size, slip skin, variety, quality, stem removal and berry maceration)

	• monitor supply and flow of product and materials to and from the process • take corrective action in response to out-of-specification results or non-compliance • conduct product and batch changeovers • report and/or record corrective action as required • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements • record workplace information • maintain work area to meet housekeeping standards • follow confined space entry policies and procedures • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • identify, rectify and/or report environmental non-compliance • carry out routine maintenance according to enterprise procedures • prepare and make additions and finings according to enterprise procedures • handle inert gas according to enterprise procedures • take samples according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Operate the Pressing Process**
Unit Code	**IND BPO2 04 0613**
Unit Descriptor	This specialist unit has been developed for the cellar stream of the wine sector. It covers the skills and knowledge required to prepare for and operate the pressing process.

Elements	Performance Criteria
1. Prepare the pressing process for operation	1.1 Product and materials are confirmed and available to meet pressing requirements. 1.2 ***Product and materials*** are prepared to meet pressing requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Equipment*** is checked to ***confirm readiness for use***. 1.5 The ***process is set*** to meet pressing requirements.
2. Operate and monitor the pressing process	2.1 The pressing process is started up according to workplace procedures. 2.2 ***Control points*** are ***monitored*** to confirm performance is maintained within specification. 2.3 Pressed product meets specification. 2.4 Equipment is monitored to confirm operating condition. 2.5 Out-of-specification product, process and equipment performance is identified, rectified and/or reported.
3. Shut down the pressing process	3.1 The process is shut down according to workplace procedures. 3.2 Equipment is dismantled and prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with ***workplace environmental guidelines***.
4. Contribute to continuous improvement of the system	4.1 Quality or process outputs are assessed against specifications. 4.2 Opportunities for improvement are identified and investigated. 4.3 Proposals for improvements are developed and implemented company planning arrangements and according to company procedures.
5. Record information	5.1 ***Workplace information*** is recorded in the appropriate format. 5.2 All records are signed.

	5.3 Record information is communicated to appropriate immediate supervisor. 5.4 Workplace information records are kept in appropriate place.

Variable	Range
Product and materials	may include: • Must (Macerated (for red wine)) • a range of crushed grape varieties (must) • whole fruit bunches • additions, including sulphur dioxide and pressing aids (e.g. cellulose and grape stalks)
Services	may include: • power • water • compressed air • inert gas • steam
Equipment	may include: • basket press • horizontal hydraulic press • horizontal screw press • continuous screw press • pneumatic press
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration status of measuring instrumentation
Process set up, operation and monitoring	may be: • manual or involve the use of a process control system
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	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
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	include: • Standard Operating Procedures (SOPs) • specifications

	• production schedules or instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator • print or screen based
Work hazards	may involve exposure to: • chemical, dangerous or hazardous substances

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures • check supply and status of product, additions and finings before operating press • check pressing equipment status and condition before commencing operation • monitor pressing process control points and equipment during pressing • take corrective action in response to out-of-specification results or non-compliance • demonstrate knowledge of OHS hazards, controls and emergency procedures • sort, collect, treat, recycle or dispose of waste • record information appropriately.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of pressing • link to related processes • stages and changes which occur during pressing • effect of process stages on end product • quality characteristics and uses of pressing product and materials (e.g. grape variety) • product and materials preparation requirements and effect of variation on the process • main methods used in pressing • pressing techniques that may be used to manipulate the characteristics of the wine. These may include: ➢ degree of pressing and/or pressure ➢ blending and/or separating free run juice from first and later pressings ➢ press type (e.g. bladder versus screw) • process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant

	• services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • OHS hazards and controls, specifically confined space entry • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • waste handling requirements and procedures • recording requirements and procedures • sampling techniques where relevant • preparing and making additions and finings where relevant • cleaning and sanitising procedures where relevant • inert gas handling procedures where relevant • routine maintenance procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify pressing requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product and materials and services • liaise with other work areas • confirm equipment status and condition. This may include checking for: ➢ exposed or reactive metal parts ➢ lubricating or hydraulic fluid leaks ➢ screen fit and condition ➢ bag and/or screw fit and condition ➢ receival vessels and must processing operations (availability and schedule) ➢ setting speed of screw ➢ attaching hoses and/or opening valves ➢ setting pumps and lines from collection trays into receival tanks • set up and start up the process • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring: ➢ press program ➢ press pressure ➢ pressing effectiveness ➢ dosage of additions ➢ product loss ➢ dilution

	➢ oxidation ➢ speed of screw ➢ free run quality and/or flow ➢ inclines quality and/or flow ➢ pressings quality and/or flow ➢ relevant product characteristics (marc moisture, solids content and press fractions) • monitor supply and flow of product and materials to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as required • conduct product or batch changeovers • follow confined space entry policies and procedures when required • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements • record workplace information • maintain work area to meet housekeeping standards • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • identify, rectify and/or report environmental non-compliance • take samples according to enterprise procedures • prepare and make additions and finings according to enterprise procedures • clean and sanitise equipment according to enterprise procedures • handle inert gas according to enterprise procedures • carry out routine maintenance according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Operate a Wort Production Process**
Unit Code	**IND BPO2 05 0613**
Unit Descriptor	This unit covers the milling and mashing of malted grain, wort separation, wort treatment and the addition of adjuncts in beer production.

Elements	Performance Criteria
1. Prepare the wort production process for operation	1.1 Production requirements are checked in accordance with work or target. 1.2 Availability of required ***materials*** is confirmed in line with job specification and workplace guideline. 1.3 Availability of ***services*** is confirmed according to company procedures. 1.4 Pre-operational checks of equipment are conducted according to manufacturer's manual. 1.5 The ***wort production process*** is set to meet production requirements.
2. Operate and monitor the wort production system	2.1 The wort production system is started up according to company procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 ***Required tests*** are undertaken according to SOPs. 2.4 System and sub-system outputs meet specification. 2.5 ***Equipment*** is ***monitored*** to confirm operating condition. 2.6 Out-of-specification wort and/or syrup, process and equipment performance is identified, rectified and/or reported.
3. Shut down the wort production system	3.1 The wort production system is shut down according to company procedures. 3.2 Equipment is cleaned and maintained to meet cleaning schedules and procedural requirements. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of or recycled according to company procedures.
4. Contribute to continuous improvement of the wort	4.1 Quality or process outputs are assessed against specifications. 4.2 Opportunities for improvement are identified and investigated. 4.3 Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures.

5. Record information	5.1 Production and other ***workplace information*** are recorded in appropriate format. 5.2 All records are signed. 5.3 Record information is communicated to appropriate immediate supervisor. 5.4Workplace information records are kept in appropriate place.

Variable	**Range**
Materials and ingredients	may include: • malted cereals • hops • water • liquid and solid adjuncts such as sugars • process aids • Oxygen.
Services	May include: • power • gas • water • steam • compressed air • refrigeration
Wort production process	May include: • receiving raw ingredients • measuring raw ingredients • milling malted grain to produce grist • whirlpool (wort clarification) • mashing conversion to create fermentable wort • wort separation • boiling • cooling process • wort oxygenation • production quality checks • transferring to fermentation vessels.
Control points	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.
Required tests	may include: • starch testing (mash tun) • gravity (cool wort) • acidity (cool wort)

	• colour spectrometer (cool wort) • bitterness (cool wort).
Wort production equipment	may include • brew house mill • malt batch weighers • storage systems (silos etc.) • whirlpools • mash tuns • mash conversion vessels and mash cookers • lauter tuns • automated hops addition systems • heat exchangers • aeration equipment • filters • coppers and kettles • valves • pumps • water treatment systems • tanks • mixing, blending and cleaning equipment • spent grain handling equipment • equipment accessories • monitoring instruments (starch, gravity, acidity, colour and bitterness) • transfer systems and equipment.
Equipment is monitored	includes ensuring that hygiene and sanitation standards are met, all safety guards are in place, and that equipment is operational. It may also include the calculation of raw materials.
Workplace information	May include: • Standard Operating Procedures (SOPs); specifications and production schedules. • Information systems may be print or screen based.

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • access workplace information to identify production requirements for the wort production process • interpret the schedules and specifications • confirm the supply of necessary materials and services to the wort production process • confirm equipment status and condition • set up and start specified equipment including any process control systems • monitor the wort production process and equipment operation to identify out-of-specification results • monitor supply and flow of materials to and from the process

	• take corrective action in response to out-of-specification results or non-compliance • conduct product/beer type changeovers • Maintain workplace records.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of the wort production process • relationship between the wort production process and the fermentation process • stages and changes which occur during wort production • requirements of wort production • purpose of malt, hops, Sugar, water, adjuncts and the preparation procedure • correct procedures for handling dangerous goods • dust explosion hazards and control procedures • quality characteristics to be achieved • wort process specifications, procedures and operating parameters • the importance of temperature, temperature control systems and temperature intervals during wort production • Purpose of equipment and instrumentation components • significance and methods of monitoring control points within the wort production process • common causes of variation and corrective action required • cleaning requirements associated with changeovers and types of shutdowns • procedures for reporting problems • sampling and testing procedures where relevant • cleaning and sanitation procedures where relevant
Underpinning Skills	Demonstrate skills to: • set up and start the milling/Dissolving process • set up and start the mashing and lautering process • set up and start the wort separation process • set up and start the wort boiling and cooling process • add raw materials e.g. hops, malt, sugar, filter aids, operate a heat exchange procedure • operate a cool wort aeration procedure • transfer fluids and materials between vessels • handle dangerous goods • operate and monitor equipment associated with wort production • monitor control points • identify OHS hazards and controls • select, fit and use personal protective clothing and equipment • undertake shutdowns and changeovers

	• comply with procedures and responsibilities for reporting problems • comply with environmental procedures and controls • follow waste handling requirements and procedures • record required production data • undertake routine maintenance procedures • collect samples and conduct tests according to enterprise 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Prepare and Monitor Yeast Propagation Processes**
Unit Code	**IND BPO2 06 0613**
Unit Descriptor	This specialist unit has been developed for the alcoholic beverage industry. It covers the skills and knowledge required to prepare and monitor yeast cultures with respect to yeast propagation production processes.

Elements	Performance Criteria
1. Prepare for propagation	1.1 Propagation requirements are identified and confirmed. 1.2 Yeast cultures are prepared for use. 1.3 ***Product and materials*** are confirmed and available to meet propagation requirements. 1.4 Product is prepared to meet specified propagation requirements. 1.5 ***Services*** are confirmed as available and ready for operation. 1.6 The ***process is set*** to meet yeast propagation requirements.
2. Prepare equipment for culture preparation	2.1 Cleaning and sterilising ***equipment*** is checked to ***confirm*** readiness for use. 2.2 Propagation equipment is selected, cleaned and sterilised according to workplace procedures. 2.3 Transfer equipment is selected, cleaned and sterilised as required.
3. Maintain and monitor the propagation process	3.1 Transfer operations are conducted to meet propagation requirements. 3.2 The culture propagation process is conducted according to workplace procedures. 3.3 Scale-up additions are made according to workplace procedures. 3.4 ***Control points*** are monitored to confirm performance is maintained within specification. 3.5 Equipment is monitored to confirm operating condition. 3.6 Out-of-specification product, process and equipment performance are identified, rectified and/or reported. 3.7 ***Process is monitored*** to confirm product requirement using performance control chart, production data, etc.

4. Complete propagation activities	4.1 The propagation process is completed according to workplace procedures. 4.2 ***Equipment*** is dismantled and prepared for cleaning. 4.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 4.4 Work is conducted in accordance with ***workplace environmental guidelines***.
5. Contribute to continuous improvement of the system	5.1 Quality or process outputs are assessed against specifications. 5.2 Opportunities are identified and investigated for improvement. 5.3 Proposals are developed and implemented for improvements. 5.4 Company planning arrangements are done according to company procedures.
6. Record information	6.1 ***Workplace information*** is recorded in the appropriate format. 6.2 All records are signed. 6.3 Record information is communicated to appropriate immediate supervisor. 6.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Product and materials	may include: • culture yeast slopes • oxygenated wort / mash / (diluted molasses low brix in liquors) • yeast nutrients • Culture yeast or commercial yeast • oxygen supply • sterilisation materials and Conc.H_2SO_4
Services	may include: • electricity • water • steam • compressed air • oxygen.
Process set up, operation and monitoring functions	may be • manual or involve the use of a process control system.

Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the calibration status of measuring instrumentation.
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points.
Monitoring the process	may involve: • the use of production data • sampling • checking temperature, gravity, cell counts, viability, oxygen levels • visual inspection.
Equipment	may include: • propagation vessels • storage vessels • sterile filtration equipment for gases • hoses and fittings and tubing • pumps • dosing equipment • mixers/shakers • testing equipment (e.g. microscope with cell counter, density meter).
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator.
Information systems	Information systems may be print or screen based.
Work hazards	Work may involve exposure to chemical, dangerous or hazardous substances.

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures

	• check and prepare product and any additions, including check of quality of yeast cultures before use • check and confirm readiness of equipment before operation • start propagation process correctly • monitor propagation process control points for performance against specifications • take appropriate corrective action for out-of-specification process and equipment performance • collect waste and store, treat or dispose of appropriately • record information appropriately.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Purpose and principles of propagating yeast cultures • Relationship of propagation to alcoholic fermentation • Stages and changes which occur during culture propagation • Effect of process stages on end product • Quality characteristics and uses of yeast cultures • Product and materials preparation requirements and effect of variation on the process • Main methods used in propagating yeast for alcoholic beverage production • The fermentation reaction for yeast cultures • Techniques that may be used to manipulate the propagation process and end product characteristics, including: ➢ temperature ➢ yeast strain ➢ wort / grape juice/ mash (diluted molasses (low brix)) Brix ➢ additions (nutrients) ➢ oxygen • Process specifications, procedures and operating parameters • Equipment and instrumentation components, purpose and operation • Basic operating principles of process control systems where relevant • Services used • Significance and method of monitoring control points within the process • Common causes of variation and corrective action required • Occupational Health and Safety (OHS) hazards and controls, specifically confined space entry • Lock-out and tag-out procedures • Procedures and responsibility for reporting problems • Environmental issues and controls

	• Shutdown and cleaning requirements associated with changeovers and types of shutdowns • Waste handling requirements and procedures • Recording requirements and procedures • Routine maintenance procedures • Aseptic techniques
Underpinning Skills	Demonstrate skills to: • Access workplace information to identify culture propagation requirements • Select, fit and use personal protective clothing and/or equipment • Confirm supply of necessary product, materials and services • Liaise with other work areas • Prepare product and materials as required. This may include: ➢ culture yeast slopes ➢ oxygenated wort ➢ yeast nutrients ➢ oxygen supply and sterilisation ➢ wort heating ➢ wort sterilisation ➢ molasses dilution and acidification • Confirm equipment status and condition. This may include checking: ➢ cleaning and/or sterilisation requirements have been met ➢ position and alignment of valves ➢ integrity of door seals and small vessel tubing and condition of gas (oxy) filters • Start up the process • Monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve sampling and checking: • temperature (wort / diluted molasses (low brix) • wort /mash (diluted molasses (low brix)) Brix • wort /oxygenation levels • yeast cell counts • yeast viability • Monitor supply and flow of product and materials to and from the process • Take corrective action in response to out-of-specification results or non-compliance • Report and/or record corrective action as required • Conduct product and batch changeovers • Follow confined space entry policies and procedures when required

	• Sort, collect, treat, recycle or dispose of waste • Shut down equipment in response to an emergency situation • Shut down equipment in response to routine shutdown requirements • Record workplace information • Maintain work area to meet housekeeping standards • Prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for sanitation • Identify, rectify and/or report environmental non-compliance • Carry out routine maintenance • Use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform Fermentation Operations**
Unit Code	**IND BPO2 07 0613**
Unit Descriptor	This specialist unit has been developed for the beverage sector. It covers the skills and knowledge required to prepare for and operate the beverage fermentation process.

Elements	Performance Criteria
1. Prepare for fermentation operations	1.1 Product and materials are confirmed and available to meet production requirements. 1.2 ***Product and materials*** are prepared to meet production requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Equipment*** is checked to ***confirm readiness for use***. 1.5 The ***process is set*** to meet production requirements.
2. Operate and monitor fermentation operations	2.1 The ***fermentation process*** is started up according to workplace procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 Fermentation output that meets specification is monitored. 2.4 Equipment is monitored to confirm operating condition. 2.5 Out-of-specification product, process and equipment performance are identified, rectified and/or reported. 2.6 ***Process is monitored*** to confirm product requirement using performance control chart, production data, etc.
3. Complete fermentation operations	3.1 The process is completed according to workplace procedures. 3.2 Equipment is prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with ***workplace environmental guidelines***.
4. Contribute to continuous improvement of the system	4.1 Quality or process outputs are assessed against specifications. 4.2 Opportunities are identified and investigated for improvement. 4.3 Proposals for improvements are developed and implemented company planning arrangements and according to company procedures.

5. Record information	5.1 ***Workplace information*** is recorded in the appropriate format. 5.2 All records are signed. 5.3 Record information is communicated to appropriate immediate supervisor. 5.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Product and materials	may include: • a range of crushed grape varieties (must) • wort • sugar • propagated yeast • diluted molasses /mash / high brix • additions, including enzymes, sulphur dioxide (in various forms), acids, diammonium phosphate, anti foam, tannin, bentonite and oak chips
Services	may include: • power • water • steam • compressed air for instrument valves • inert gas • refrigeration
Equipment	may include: • rotary fermenters • open fermenters • potter fermenters • swept-arm fermenters • other fermentation vessels • small oak • jetting tanks • hoses and fittings • pumps • fermentation vessels • recovery vessels • separators • cleaning equipment • equipment accessories • valves • vacuum relief systems • aeration equipment • transfer systems • propagation vessels

Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration of measuring instrumentation
Process set up, operation and monitoring functions	may be: • manual or involve the use of a process control system
Fermentation process	may include: • receiving wort/ must/diluted molasses (high brix) • pitching • monitoring and adjusting pressure and temperature • yeast handling and removal • Transfer of the beer to maturation. • Transfer of the fermented wine to aging stage • Transfer of the fermented wine (for liquors) to distillation
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	may involve: • The use of production data checking temperatures, baumés (brix), pump-overs, cap conditions and cellar instructions use of production data such as performance control charts • Monitor for out-of-specification results or non-compliance. These may include: ➢ oxygen ➢ carbon dioxide ➢ gravity ➢ acidity ➢ colour ➢ bitterness ➢ bacteria ➢ chemicals ➢ temperature ➢ final brix and residual sugar
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes

	• Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator • print or screen based
Work hazards	may involve exposure to chemical, dangerous or hazardous substances

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures • prepare products including checks for temperature and alcoholic strength • prepare and confirm status of equipment before commencing fermentation process • propagate yeast (laboratory staff will usually undertake initial propagation) • add oxygen based upon instruction • monitor temperature • crop yeast for addition to wort/must/diluted molasses(high brix) • add adjuncts as required • monitor fermentation process control points and equipment, including taking of samples and conducting of tests • take corrective action in response to out-of-specification results or non-compliance • demonstrate knowledge of OHS hazards, controls and emergency procedures • record information appropriately
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of fermentation • link to related processes • stages and changes which occur during fermentation • effect of process stages on end product • quality characteristics and uses of fermentation product and materials • product and materials preparation requirements and effect of variation on the process • main methods used in fermentation operations • techniques that may be used to manipulate the fermentation process and characteristics, including: ➢ pressure ➢ temperature ➢ yeast variety or strain ➢ CO_2 ➢ skin contact ➢ type of fermentation vessel and additions

	• process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • OHS hazards and controls, specifically confined space entry • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • waste handling requirements and procedures • recording requirements and procedures • transfer operations where relevant • sampling procedures where relevant • cleaning and sanitation procedures • heat exchange procedures where relevant • testing procedures where relevant • routine maintenance procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify must processing requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product and materials and services • liaise with other work areas • prepare product and materials as required. This may include: ➢ chilling or warming must ➢ making additions of finings or enzymes ➢ re-yeasting ➢ adding juice • confirm equipment status and condition. This may include checking: ➢ cleaning and/or sanitising requirements have been met ➢ position and alignment of valves ➢ integrity of door seal • start up the process • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring: ➢ fill volumes ➢ programmed rotation (rotary fermenters)

	➢ number of pump-overs or drainer returns ➢ vessel pressure ➢ product loss ➢ dilution ➢ oxidation ➢ relevant product characteristics (e.g. temperature, skin contact, moisture, fermentation activity and baumé) • monitor supply and flow of product and materials to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as required • conduct product and batch changeovers • follow confined space entry policies and procedures when required • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements • record workplace information • maintain work area to meet housekeeping standards • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for sanitation • identify, rectify and/or report environmental non-compliance • perform transfer operations according to enterprise procedures • perform sampling procedures according to enterprise procedures • clean and sanitise according to enterprise procedures • conduct tests according to enterprise procedures • perform heat exchange operations according to enterprise procedures • carry out routine maintenance according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform Maturation Process**
Unit Code	**IND BPO2 08 0613**
Unit Descriptor	This unit covers the conditioning of green beer and fermented wine upon completion of the fermentation process including flavour maturation, clarification, stabilisation, aging, racking, conditioning, as well as use of additions and agents.

Elements	Performance Criteria
1 Prepare the maturation process for production	1.1 Maturation requirements are confirmed. 1.2 Clarification requirements are confirmed including specifications for any additions and agents. 1.3 **Materials** are confirmed and available to meet production requirements. 1.4 ***Services*** are confirmed as being ready for operation. 1.5 ***Equipment*** is checked to confirm readiness for use. 1.6 The ***maturation process*** is set to meet production requirements.
2 Operate and monitor beer/wine maturation equipment	2.1 Equipment is started up according to company procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 ***System*** and sub-system outputs are made to meet specification. 2.4 Equipment is monitored to confirm operating condition. 2.5 ***Out-of-specification product***, process, equipment performance is identified, rectified and/or reported. 2.6 Size and product changeovers are completed in accordance with batch instructions and standard operating procedures.
3 Shut down the system	3.1 The system is shut down according to company procedures. 3.2 Equipment is cleaned and maintained to meet the cleaning schedule and procedural requirements. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of or recycled according to company procedures.
4 Contribute to continuous improvement of the system	4.1 Quality or process outputs are assessed against specifications. 4.2 Opportunities for improvement are identified and investigated.

	4.3 Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures.
5 Record information	5.1 ***Workplace information*** is recorded in the appropriate format. 5.2 All records are signed. 5.3 Record information is communicated to appropriate immediate supervisor. 5.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Materials used include:	green beer (fermented wort) and fermented wine , any of the following: • clarifying agents • finings • sugar • colouring/caramel • hop extracts • head stabilising agents • carbon dioxide (CO_2).
Services	May include: • power • gas • water • steam • compressed air and refrigeration.
Maturation equipment	may include: • filters • valves • pumps • tanks • mixing and blending equipment • dosers • cellars • heat exchangers/chillers • cleaning equipment • equipment accessories • monitoring and chemical analysis instruments (oxygen, carbon dioxide, starch, gravity, acidity, colour and bitterness, residual sugar, free and total so_2 etc) • transfer systems. • Process equipment and operation and monitoring functions may be manual or involve the use of a process control system.

Maturation process	may include: • Receiving fermented 'green beer ,fermented wine' from the fermentation process • storing 'green beer' • Storing fermented wine • Racking • Aging • adding agents and additives • monitoring temperature • clarification • conditioning • stabilisation • filtration • production quality checks • transferring matured beer to bright beer tanks.
Control points	Control points to those key points in a work process which much be monitored and controlled. This includes food safety (critical) quality and regulatory control points as well as inspection points.
Maturation system controls	The maturation control system for operation and monitoring may be manual or involve the use of a process control system includes and may also involve the use of production data such as performance control charts.
Indicators of out of specification beer, wine & soft drink during maturation	may be indicated by: • haze • colour • bitterness • incorrect levels of: ➢ carbon dioxide ➢ oxygen ➢ proteins ➢ tannins ➢ Total Acidity ➢ Volatiles ➢ Organoleptic tests ➢ SO_2 level
Workplace information	may includes: • Standard Operating Procedures (SOPs), product and equipment manuals and specifications and production schedules. The information may be print or screen based.

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • access workplace information to identify production requirements and beer type for beer maturation process • confirm the supply of necessary materials and services to the maturation process

	• confirm equipment status and condition • set up and start the maturation process • receive green beer and fermented wine from the fermentation process or complete the maturation process in the fermentation tank • monitor the maturation process and equipment operation to identify out-of-specification results or non-compliance • take corrective action in response to out-of-specification results or non-compliance • monitor supply and flow of materials to and from the process • report and/or record corrective action as required • conduct product/beer-type changeovers • dispose of waste sediment
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of the maturation process • relationship between the maturation process, fermentation process and the filtration process • stages and changes which occur during maturation • requirements of maturation • purpose of temperature control and cold storage in the maturation process • purpose of protein absorbing agents • purpose of oxygen scavenging agents • purpose of tannin absorbing agents • procedures for vessel transfer • quality characteristics to be achieved • process specifications, procedures and operating parameters • significance and methods of monitoring control points within the maturation process • equipment and instrumentation components, purpose and operation • common causes of variation and corrective action required • OHS hazards and controls • environmental issues and controls • waste handling requirements and procedures • recording requirements and procedures • cleaning and sanitation procedures • purpose of finings • cask maturation • sampling and testing procedures • routine maintenance procedures
Underpinning Skills	Demonstrate skills to: • handle dangerous goods according to required procedures • monitor control points within the maturation process

	• confirming equipment status including checking that hygiene and sanitation standards are met and that all safety guards are in place and equipment is operational • operate equipment and controls to achieve specifications including: ➢ required temperature ➢ required concentration of finings and other additions ➢ transfers ➢ disposal of sediment and other waste • undertake corrective action in the event of variation to specification • identify OHS hazards and implement appropriate action • select, fit and use personal protective clothing and equipment • procedures and responsibilities for reporting and solving problems • environmental issues and controls • shutdown process and equipment and implement cleaning requirements associated with changeovers • waste handling requirements and procedures • record production and other data according to procedures • collect samples and conduct tests according to enterprise procedures • clean and sanitise equipment according to enterprise procedures • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Prepare and Make Additions and Finings**
Unit Code	**IND BPO2 09 0613**
Unit Descriptor	This specialist unit has been developed for the beverage sector. It covers the skills and knowledge required to prepare and make additions and finings

Elements	Performance Criteria
1. Prepare additions and finings	1.1 ***Product and materials*** are confirmed and available to meet production requirements. 1.2 Product and materials are weighed or measured to meet requirements. 1.3 Product and materials handling, ***mixing*** and blending ***equipment*** are checked to ***confirm readiness for use***. 1.4 ***Services*** are confirmed as available and ready for use. 1.5 The process is set to meet production requirements.
2. Make additions and finings	2.1 Product and materials are added in quantities and sequence specified by batch instructions. 2.2 The ***process*** is operated to meet addition requirements. 2.3 ***Control points*** are monitored to confirm performance is maintained within specification. 2.4 ***Work hazards*** that are reasonably expected to occur are identified for each process. 2.5 Additions and findings are made to meet specification. 2.6 Equipment is monitored to confirm operating condition. 2.7 Out-of-specification product, process and equipment performance are identified, rectified and/or reported. 2.8 ***Process is monitored*** to confirm product requirement using performance control chart, production data etc.
3. Complete additions and finings	3.1 The process is completed according to ***workplace procedures***. 3.2 Equipment is dismantled and prepared for cleaning. 3.3 Unused materials are stored in designated area. 3.4 Waste is collected, treated and disposed of, or recycled according to workplace procedures. 3.5 Work is conducted in accordance with workplace environmental guidelines.
4. Contribute to continuous	4.1 Quality or process outputs are assessed against specifications.

improvement of the system	4.2 Opportunities are identified and investigated for improvement. 4.3 Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures.
5. Record information	5.1 ***Workplace information*** is recorded in the appropriate format. 5.2 All records are signed. 5.3 Record information is communicated to appropriate immediate supervisor. 5.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Product and materials	may include: • a range of beverage products including fruit juice and water • pure alcohol and soft water in liquors • a range of different kinds of liquor and liqueur products • a range of additions (e.g. Flavours and preservatives for soft drinks and (essence, colour, sodium benzoate, citric acid, caramel and syrup in liquors)and fining agents allowable under Ethiopian regulations
Base or concentrate mixes	may be: • prepared for addition to bulk product and materials
Equipment	may include: • a range of equipments, including pumps, hoses and fittings, dosing equipment, mixers and manual handling equipment
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration status of measuring instrumentation
Services	may include: • power • water • compressed air • inert gas
Type of process control	may be done: • manually or involve the use of a PLC or computer process control system
Control points	This includes: • food safety (critical) • quality and regulatory control points

	• inspection points • liquor alcoholic grade and organoleptic test
Work hazards	may involve exposure to: • chemicals, dangerous or hazardous substances
Monitoring the process	may involve: • the use of production data
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Information systems	may be: • print or screen based

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • prepare products and materials, including weighing and measuring as required • set up and operate equipment • additions and findings are added according to specification • ensure control points are monitored and appropriate corrective action is taken for out-of-specification product, process and equipment performance • collect unused materials and waste, and store, treat or dispose of appropriately • use personal protective equipment and follow other OHS procedures • record information appropriately
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and properties of addition and fining agents • purpose and principles of preparing and making additions and finings • link to related processes • quality characteristics of product and materials used and effect on process outcome • effect of mixing on the end product • main methods of mixing, including: ➢ pumping over ➢ gas mixing

	➢ rummaging ➢ stirring ➢ venturi mixing ➢ submersible mixers ➢ in-place mixers ➢ dosing • cleaning and sanitation requirements of handling equipment • cross-contamination risks and consequences • batch specifications, procedures and operating parameters • equipment and instrumentation components purpose and operation • basic operating principles of process control systems where relevant • services used • significance and methods of monitoring control points within the process • common causes of variation and corrective action required • consequences of over addition e.g. stripping, wasting materials • OHS hazards and controls • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • waste handling requirements and procedures • recording requirements and procedures
Underpinning Skills	Demonstrate skills to: • access workplace information to identify batch requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product, materials and services • liaise with other work areas • confirm equipment status and condition. This may include: ➢ checking receival vessel (in transfer operations) ➢ checking pump operation and integrity ➢ checking for leaks ➢ checking seals of hoses and fittings ➢ introducing inert gas cover on tank ➢ ensuring that all equipment is clean and/or sanitised • set up and start up equipment to meet addition and fining requirements • prepare product and materials in correct quantities and sequence

	• monitor the preparation and mixing process. This may include monitoring:
	  ➢ mixing effectiveness
	  ➢ dosing rate
	  ➢ product loss
	  ➢ dilution
	  ➢ oxidation
	  ➢ speed of additions
	  ➢ relevant product characteristics (type)
	• monitor flow of product and materials to and from the process
	• transfer addition or fining to designated location
	• take corrective action in response to out-of-specification results or non-compliance
	• report and/or record corrective action as required
	• sort, collect, treat, recycle or dispose of waste
	• shut down equipment in response to an emergency situation
	• shut down equipment in response to routine shutdown requirement
	• maintain workplace records
	• maintain work area to meet housekeeping standards
	• prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation
	• use oral communication skills language 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

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competency may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Operate Clarification by Separation (Centrifugation, Decantation) Process**
Unit Code	**IND BPO2 10 0613**
Unit Descriptor	This specialist unit has been developed for the cellar stream of the wine sector. It covers the skills and knowledge required to prepare for and operate the clarification by separation (centrifugation, decantation) process.

Elements	Performance Criteria
1. Prepare the clarification by separation (centrifugation) process for operation	1.1 Product is confirmed and available to meet clarification requirements. 1.2 ***Product*** is prepared to meet clarification requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Equipment*** is checked to ***confirm readiness for use***. 1.5 The ***process is set*** to meet clarification requirements.
2. Operate and monitor the clarification by separation (centrifugation) process	2.1 The clarification by separation (centrifugation, decantation) process is started up according to workplace procedures. 2.2 ***Control points*** are ***monitored*** to confirm performance is maintained within specification. 2.3 ***Work hazards*** that are reasonably expected to occur are identified for each process. 2.4 Clarified product meets specification. 2.5 Equipment is monitored to confirm operating condition. 2.6 Out-of-specification product, process and equipment performance is identified, rectified and/or reported. 2.7 ***Process is monitored*** to confirm product requirement using performance control chart, production data, etc.
3. Shut down the clarification by separation (centrifugation) process	3.1 The process is shut down according to workplace procedures. 3.2 Equipment is dismantled and prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with ***workplace environmental guidelines***.

4 Contribute to continuous improvement of the system	4.1 Quality or process outputs are assessed against specifications. 4.2 Opportunities for improvement are identified and investigated. 4.3 Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures.
5 Record information	5.1 ***Workplace information*** is recorded in the appropriate format. 5.2 All records are signed. 5.3 Record information is communicated to appropriate immediate supervisor. 5.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Product and materials	may include: • product to complete clarification by separation including juice, fortified product, red wine post-fermentation, ferments post settling, decanted wine (for liquor production) , and sparkling product
Services	may include: • power • water • compressed air • inert gas
Equipment	including: • associated in-line equipment, such as brush strainers, tanks, decanter ,hydro-cyclones and constant pressure valves
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration status of measuring instrumentation
Process set up, operation and monitoring functions	may be: • manual or involve the use of a process control system
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points

Work hazards	may involve exposure to: • chemical, dangerous or hazardous substances
Monitoring the process	may involve: • the use of production data, such as performance control charts
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Information systems	may be: • print or screen based

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • check and prepare product for centrifugation • check and confirm readiness of equipment before operation • start centrifugation equipment correctly • monitor centrifugation process control points for performance against specifications • take appropriate corrective action for out-of-specification process and equipment performance • collect waste and store, treat or dispose of appropriately • use personal protective equipment and follow other OHS procedures • record information appropriately
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of clarification by separation (centrifugation, decantation) • link to related processes • stages and changes which occur during clarification by separation ((centrifugation, decantation)) • effect of process stages on end product • quality characteristics and uses of clarified product • product preparation requirements and effect of variation on the process • main methods used in clarification by separation (centrifugation, decantation)

	• process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • Occupational Health and Safety (OHS) hazards and controls • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • waste handling requirements and procedures • recording requirements and procedures • testing procedures where relevant • sampling procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify clarification requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product and services • liaise with other work areas • prepare product as required • confirm equipment status and condition. This may include: ➢ checking integrity of pumps and lines ➢ checking hygiene and sanitation standards are met ➢ gassing receival tank ➢ checking product to be clarified against specification • set up and start up the process • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring: ➢ flow rate ➢ desludge settings (frequency, duration, type, ratios and displacement) ➢ pressures ➢ motor load (amperage) ➢ process control devices (self-thinker, electronically programmed emission (EPTE), photocell and monitek) ➢ product loss ➢ dilution

	➢ oxidation ➢ relevant product characteristics (turbidity, solids content and type) • monitor supply and flow of product to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as required • conduct product and batch changeovers • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements • record workplace information • maintain work area to meet housekeeping standards • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • identify, rectify and/or report environmental non-compliance • conduct tests according to enterprise procedures • take samples according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform a Filtration Process**
Unit Code	**IND BPO2 11 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down filtration equipment used to separate course particles from solutions.

Elements	Performance Criteria
1. Prepare the filtration equipment and process for operation	1.1. Materials are confirmed and available to meet operating requirements. 1.2. Cleaning and maintenance requirements and status are identified and confirmed. 1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements. 1.4. Processing/operating parameters are entered as required to meet safety and production requirements. 1.5. ***Equipment*** performance is checked and adjusted as required. 1.6. Pre-start checks are carried out as required by workplace requirements.
2. Operate and monitor the filtration process	2.1. The process is started and operated according to workplace procedures. 2.2. Equipment is monitored to identify variation in ***operating*** conditions. 2.3. Separation of solids from solution meets specifications. 2.4. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements. 2.5. The process is monitored to confirm that specifications are met. 2.6. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification. 2.7. The work area is maintained according to housekeeping standards. 2.8. Work is conducted in accordance with ***workplace environmental guidelines***. 2.9. Workplace records are maintained according to workplace recording requirements.

3. Shut down the filtration process	3.1. The appropriate ***shut down procedure*** is identified. 3.2. The process is shutdown according to workplace procedures. 3.3. Maintenance requirements are identified and reported according to workplace reporting requirements.

Variable	Range
Filtration equipment	may include: • Press filters and Candle filters • Polishers • Vibratory and rotary sieves • screens, and drum filters • The filtration process may consist of multiple in-line filters like strainers and filter sheet
Operation of equipment and processes	may require: • Diatomaous earth and kiesel (filter aid) • the use of process control panels and systems • Sample analysis
Policies and procedures	Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Shutdown procedures	may include cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew)
Workplace information	may include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • manufacturers' advice • standard forms and reports
Services	Typical examples include: • power • steam • water • vacuum • compressed and instrumentation air
Legislative requirements	industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity • When applied to the beverage industry, relevant Good Manufacturing Practice (GMP) codes apply in place of the Ethiopian Food Standards Code and reference to food safety is replaced by GMP

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for filtration • start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment • apply food safety procedures.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and basic principles of filtration, including stages and changes that occur during filtration • basic operating principles of filtration equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, including relevant screens and sieves as required by filtration equipment, and the purpose and location of sensors and related feedback instrumentation • services required for operation of filtration equipment used in the workplace • the flow of the filtration process and the effect of product output on downstream processes • effect of raw material characteristics on filtration performance • quality characteristics required of filtration process output • test methods used to monitor solids in in-feed and out-feed streams • operating requirements and parameters and corrective action required where operation is outside specified operating parameters • typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems such as screen or sieve damage • common causes of variation and corrective action required • spoilage and other food safety risks associated with filtration • occupation health and safety (OHS) hazards and controls, including the limitations of protective clothing and equipment relevant to the work process • requirements of different shutdowns as appropriate to the filtration process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage

	• cleaning procedures appropriate for the range of filtration components used • isolation, lock out and tag out procedures and responsibilities • product/batch changeover procedures • cleaning and sanitising methods and procedures • procedures and responsibility for reporting production and performance information • environmental issues and controls relevant to filtration, including handling of effluent • basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment
Underpinning Skills	Demonstrate skills to: • access workplace information to identify filtration processing requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary materials and services • conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting and fitting appropriate screens and equipment components, selecting settings and/or related parameters, cancelling isolation or lockouts as required, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational • start, operate, monitor and adjust filtration process and equipment to achieve required outcomes, including: ➢ flow rates ➢ residence time ➢ solids for in-feeds and out-feeds (this is typically done by conducting a spin test) • monitor supply and flow of materials to and from the filtration process • take corrective action in response to out-of-specification results, such as identifying and responding to sieve or screen blockages or tears • identify and correct or report equipment faults, such as confirming condition screens and sieves and replacing damaged components within level of responsibility • locate emergency stop functions on equipment • follow isolation and lock out/tag out procedures as required to take filtration and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility • clean and sanitise filtration equipment

	• conduct product/batch changeover • complete workplace records as required • maintain work area to meet housekeeping standards • use process control systems according to enterprise procedures • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform a De-aeration, Mixing and Carbonation Process**
Unit Code	**IND BPO2 12 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a process to de-aerated, mix and carbonate de-aerated soft drink products, champagne and beer prior to filling

Elements	Performance Criteria
1. Prepare the equipment and process for operation	1.1. Materials are confirmed and available to meet operating requirements. 1.2. Cleaning and sanitizing requirements and status are identified and confirmed. 1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements. 1.4. Processing or operating parameters are entered as required to meet safety and production requirements. 1.5. ***Equipment*** performance is checked and adjusted as required. 1.6. Pre-start checks are carried out as required by workplace requirements.
2. Operate and monitor the process	2.1. The process is started and operated according to work place procedures. 2.2. Equipment is monitored to identify variation in operating conditions. 2.3. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements. 2.4. The process is monitored specifications to confirm that are met at each stage. 2.5. Out-of-specification product or process outcomes are identified, rectified and/or reported to maintain the process within specification. 2.6. The work area is maintained according to housekeeping standards. 2.7. Work is conducted in accordance with workplace environmental guidelines. 2.8. Workplace records are maintained according to workplace recording requirements.

3. Shut down the process	3.1. The appropriate ***shutdown procedure*** is identified. 3.2. The process is shut down according to workplace procedures. 3.3. Maintenance requirements are identified and reported according to workplace reporting requirements.
4. Record information	4.1 ***Workplace information*** is recorded in appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Equipment	includes: • a de-aerator • Cooling unit • a continuous flow mixing process • a carbonator • Carbonation may include both direct injection through pipe work and/or gas absorption under refrigerated and pressurised conditions in a carbonator
Shutdown procedures	may include cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew)
Workplace information	may include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • manufacturers' advice • standard forms and reports
Policies and procedures	Work must be carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Legislative requirements	includes: • Food Standards the Code, including labelling, weights and measures legislation • covering food safety, environmental management, OHS, anti-discrimination and equal opportunity
Services	Typical examples include: • power • refrigerant • carbon dioxide • water • vacuum/pressure • compressed and instrumentation air

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for deaeration, mixing and carbonation • start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment • apply food safety procedures to work practices
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and basic principles of each stage of the process, including the relationships between variables, such as pressure, temperature and volume on processing outcomes • basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation • services required and action to take if services are not available • the flow of the de-aeration, mixing and carbonation process and the effect of outputs on downstream processes, including how each stage of the process affects related stages and how the outputs of this process affect the filling stage • quality characteristics to be achieved by each stage of the process, including the amount of dissolved air to be removed at de-aeration, the typical water: syrup ratios for product types and the volume of carbon dioxide to be dissolved in the aerated product • quality and condition requirements of inputs and effect of variation on process performance, such as the characteristics of different ingredients and how they behave when processed, e.g. the difference between processing products containing fruit juice compared with those that do not • operating requirements and parameters and corrective action required where operation is outside specified operating parameters • typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems

	• methods used to monitor the production process, including inspecting, measuring and testing as required by the process • inspection or test (control) points in the process and the related procedures and recording requirements, including test procedures for brix and carbonation and other tests as required by the process • contamination/food safety risks associated with the process and related control measures • common causes of variation and corrective action required • OHS hazards and controls • requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage • isolation, lock out and tag out procedures and responsibilities • product/process changeover procedures & responsibilities • procedures and responsibility for reporting production and performance information • environmental issues and controls relevant to the process, including waste/rework collection and handling procedures related to the process • basic operating principles of process control where relevant, including the relationship between control panels and systems and the physical equipment • routine maintenance procedures where relevant • cleaning and sanitation procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify processing requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary materials and services • conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, confirming operation of the vacuum pump on the deaerator, setting orifice plate and vernier to deliver syrup and water in the required proportions to the mixer, checking supply of refrigerant and carbon dioxide, setting required temperature and pressure settings, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational

	• start, operate, monitor and adjust process equipment to achieve required outcomes, such as monitoring control points and conducting inspections as required to confirm process remains within specification
	• on the deaerator, monitor:
	  ➢ water supply
	  ➢ vacuum pump operation
	  ➢ water level/vacuum level
	• at the mixing state, monitor:
	  ➢ correct blend ratio for product type
	  ➢ brix of the mix
	• at the carbonation state, monitor:
	  ➢ volume of carbon dioxide injected
	  ➢ temperature
	  ➢ speed of injection
	  ➢ testing carbonation of liquid
	• monitor supply and flow of materials to and from the process
	• take corrective action in response to out-of-specification results
	• for a given syrup: water ratio, determine required operating settings to achieve a given brix result
	• respond to and/or report equipment failure within level of responsibility
	• locate emergency stop functions on equipment
	• follow isolation and lock out/tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility
	• demonstrate batch/product changeovers
	• complete workplace records as required
	• maintain work area to meet housekeeping standards
	• use process control systems according to enterprise procedures
	• conduct routine maintenance according to enterprise procedures
	• clean and sanitise equipment according to enterprise procedures
	• 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

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform Distillation Operations**
Unit Code	**IND BPO2 13 0613**
Unit Descriptor	This specialist unit has been developed for the cellar stream of the beverage sector. It covers the skills and knowledge required to start up, operate and shut down a single column to strip alcohol from lees.

Elements	Performance Criteria
1. Prepare the lees stripping process for operation	1.1 Product and materials are confirmed and available to meet production requirements. 1.2 ***Product and materials*** are prepared to meet production requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Equipment*** is checked to confirm readiness for use. 1.5 The ***process is set*** to meet production requirements.
2. Operate and monitor the lees stripping process	2.1 The lees stripping process is started up according to ***workplace procedures***. 2.2 ***Control points*** are ***monitored to confirm performance*** is maintained within specification. 2.3 Low wine product is made to meet specification. 2.4 ***Equipment is monitored to confirm*** operating condition. 2.5 Out-of-specification low wine product, process and equipment performance are identified, rectified and/or reported.
3. Shut down the lees stripping process	3.1 The process is shut down according to workplace procedures. 3.2 Equipment is dismantled and prepared for cleaning. 3.3 Work is conducted in accordance with workplace environmental guidelines.
4. Record information	4.1 ***Workplace information*** is recorded in the appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	Range
Product and materials	may include: • a range of wine • low wine • wine lees • marc
Services	may include: • power • water (hot and cold) • steam • fuel
Lees stripping equipment	may include: • analyser column • rectifier column • pumps, lines and fittings • valves • flow meters • heat exchangers • pressure vessels • compressors • condensers • receival vessels • test equipment (e.g. hydrometers and thermometers) • monitoring equipment
Process set up, operation and monitoring functions	may be: • manual or involve the use of a process control system
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	may involve: • the use of production data, such as performance control charts (manual or computerised) • sampling • sensory evaluation • analytical tests
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the calibration status of measuring instrumentation

Workplace information	include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Information	may be: • print or screen based
Work hazards	may involve exposure to: • chemical, dangerous or hazardous substances

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures • check product before commencing lees stripping operations. This may include checking temperature and alcoholic strength • prepare and confirm status of equipment before commencing lees stripping process • monitor process control points and equipment during lees stripping process • monitor feed and distillate for conformance to specifications • take corrective action in response to out-of-specification results or non-compliance • demonstrate knowledge of OHS hazards, controls and emergency procedures • undertake routine and emergency shutdowns • record information appropriately.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of distillation, including definition of the following terms: ➢ liquid ➢ vapour ➢ vapour pressure ➢ boiling point ➢ dew point ➢ bubble-point • operating principles of stripping (analyser) columns • link to related processes. This will include the source of the product to be distilled and any further processing requirements of the low wine distillate

	• stages and changes which occur during stripping operations. This will include critical temperatures and specific components affected • effect of process stages on low wine production • quality characteristics and uses of low wine • product and materials preparation requirements and effect of variation on the process • process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • sampling and testing procedures • services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • Occupational Health and Safety (OHS) hazards and controls. This will include: ➢ emergency flooding procedures ➢ emergency evacuation procedures • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • recording requirements and procedures • operation of Customs and Excise regulations • waste handling requirements and procedures where relevant • cleaning and sanitation procedures where relevant • routine maintenance procedures where relevant • transfer procedures where relevant • heat exchange procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify distillation requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product, materials and services. This may include checking temperature and alcoholic strength • liaise with other work areas • prepare product and materials as required. This may include heating the incoming product

	• confirm equipment status and condition. This may include checking:
	  ➢ monitoring equipment
	  ➢ air pressure from compressor
	  ➢ fuel intake
	  ➢ water flow to condensers
	  ➢ receiver vessel
	  ➢ integrity of lines and fittings
	• set up and start up the process. This will include any tests or procedures required to meet Customs and Excise regulations
	• monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring:
	  ➢ wine feed
	  ➢ alcohol content of the feed
	  ➢ cooling water flow rates to condensers
	  ➢ steam input flow rates
	  ➢ volume of charge
	  ➢ temperature of low wine distillate
	  ➢ alcoholic strength of low wine distillate
	  ➢ heat source
	  ➢ reflux temperatures
	  ➢ temperature of incoming wine
	  ➢ temperatures throughout still and/or column
	  ➢ temperature and strength at take-off point
	  ➢ evaporation rates
	  ➢ charge characteristics
	  ➢ pressure of still and/or column
	  ➢ condensate rate or flow
	• monitor supply and flow of product, materials and services to and from the process
	• take corrective action in response to out-of-specification results or non-compliance
	• report and/or record corrective action as required
	• conduct product or batch changeovers
	• take samples and conduct tests
	• shut down equipment in response to an emergency situation
	• shut down equipment in response to routine shutdown requirements
	• prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation
	• record workplace information. This will include meeting the requirements of customs and excise regulations

	• maintain work area to meet housekeeping standards • ensure that all Customs and Excise regulations are adhered to • sort, collect, treat, recycle or dispose of waste according to enterprise procedures • clean and sanitise equipment according to enterprise procedures • carry out routine maintenance according to enterprise procedures • perform transfer operations according to enterprise procedures • perform heat exchange operations according to enterprise procedures • identify, rectify and/or report environmental non-compliance according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform a Heat Treatment Process**
Unit Code	**IND BPO2 14 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a heat treatment process like sugar treatment in soft drink industry to kill microorganism, pasteurization in brewery and wine.

Elements	Performance Criteria
1. Prepare the heat treatment process for operation	1.1. Materials are confirmed and available to meet operating requirements. 1.2. Cleaning and maintenance requirements and status are identified and confirmed. 1.3. Processing/operating parameters are entered as required to meet safety and production requirements. 1.4. ***Equipment*** performance is checked and adjusted as required. 1.5. Pre-start checks are carried out as required by workplace requirements.
2. Operate and monitor the heat treatment process	2.1. The process is started and operated according to ***workplace procedures***. 2.2. Equipment is monitored to identify variation in operating conditions. 2.3. Variation in ***equipment operation*** is identified and maintenance requirements are reported according to workplace reporting requirements. 2.4. The process is monitored to confirm that temperature specifications are met. 2.5. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification. 2.6. The work area is maintained according to housekeeping standards. 2.7. Work is conducted in accordance with ***workplace environmental guidelines***. 2.8. Workplace records are maintained according to workplace recording requirements.
3. Shut down the heat treatment process	3.1. The appropriate ***shutdown procedure*** is identified. 3.2. The process is shut down according to workplace procedures. 3.3. Maintenance requirements are identified and reported according to workplace reporting requirements.

4. Record information	4.1 ***Workplace information*** is recorded in appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Heat treatment equipment	may include: • pumps • heat exchangers • tanks • Temperature gauges • holding and cooling stages • filters and clarifiers • direct or indirect steam injection equipment
Legislative requirements	industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, occupational health and safety, anti-discrimination and equal opportunity • When applied to the pharmaceutical industry, relevant Good Manufacturing Practice (GMP) codes apply in place of the Australian Food Standards Code and reference to food safety is replaced by GMP
Operation of equipment and processes	may require: • the use of process control panels and systems • Sampling Points
Policies and procedures	Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Shutdown procedures	may include cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew)
Workplace information	may include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instruction, • manufacturers' advice • standard forms and reports
Services	Typical examples include: • power • steam • water • vacuum • compressed and instrumentation air

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for heat treatment • start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment • apply food safety procedures
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and basic principles of heat treatment, including the effect of heat treatment on product and on microbiological characteristics • the relationship between time, temperature and pressure in the heat treatment process, such as associated holding and cooling profiles according to product requirements • basic operating principles of equipment, such as main equipment components, types and characteristics of heating mediums used, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation • the flow of the heat treatment process and the effect of product output on downstream processes • quality characteristics required of the heat treated product • effect of raw material characteristics on the heat treatment process, such as variation in viscosity/texture, microbial load and acidity • heat treatment requirements for food to be treated, such as low and/or high acid foods • operating requirements and parameters and corrective action required where operation is outside specified operating parameters • typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems • methods used to monitor the heat treatment process, such as inspecting, measuring and testing as required by the process • inspection or test points (control points) in the process and the related procedures and recording requirements

	• contamination/food safety risks associated with the process and related control measures • common causes of variation and corrective action required • Operational Health and Safety (OHS) hazards and controls, including the limitations of protective clothing and equipment relevant to the work process • requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage • isolation, lock out and tag out procedures and responsibilities • procedures and responsibility for reporting production and performance information • cleaning and sanitation procedures • environmental issues and controls relevant to the heat treatment process, including waste/rework collection and handling procedures related to the process • basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment • product/process changeover procedures and responsibilities where relevant • routine maintenance procedures where relevant • sampling and testing associated with process monitoring and control where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify heat treatment requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary materials and services • prepare materials as required • conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational • start, operate, monitor and adjust the heat treatment process and equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as:

	➢ time and temperature ➢ sight glass ➢ pressure ➢ Sample test results ➢ flow rates ➢ flow diversion • monitor supply and flow of materials to and from the process • take corrective action in response to out-of-specification results • respond to and/or report equipment failure within level of responsibility • locate emergency stop functions on equipment • follow isolation and lock out/tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility • demonstrate procedure to clean and sanitise equipment • complete workplace records as required • maintain work area to meet housekeeping standards • control related holding and cooling stages according to enterprise procedures • use process control systems according to enterprise procedures • conduct routine maintenance according to enterprise procedures • conduct product/batch changeovers according to enterprise procedures • collect samples and conduct tests according to enterprise procedures • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Operate the Bottle Sealing Process**
Unit Code	**IND BPO2 15 0613**
Unit Descriptor	This unit covers the skills and knowledge required to set up, operate and shut down a range of semi-automated and automated bottling and packaging equipment involved in the bottle sealing process.

Elements	Performance Criteria
1. Prepare to operate bottle sealing equipment	1.1 Product and materials are confirmed and available to meet bottle sealing requirements. 1.2 ***Product and materials*** are prepared to meet bottle sealing requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 Bottle sealing ***equipment*** is prepared and checked to confirm readiness for use. 1.5 Equipment is set to meet bottle sealing requirements.
2. Operate and monitor the bottle sealing process	2.1 Bottle sealing equipment is started up according to workplace procedures. 2.2 ***Control points*** are ***monitored*** to confirm performance is maintained within specification. 2.3 Bottles are sealed according to specification. 2.4 Bottle sealing equipment is monitored to ***confirm operating condition***. 2.5 Out-of-specification end product, process and equipment performance is identified, rectified and/or reported.
3. Shut down the bottle sealing process	3.1 Bottle sealing equipment is shut down according to workplace procedures. 3.2 Bottle sealing equipment is prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with ***workplace environmental guidelines***.
4. Record information	4.1 ***Workplace information*** is recorded in appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	Range
Products and materials	may include: • bottles (any size) for still wine, sparkling wine, fortified wine, spirits and related drink products • ROTE seals • corks (natural or synthetic) • cork stoppers • wire muselet • crown seals
Services	may include: • power • compressed air • water • inert gas • steam • vacuum
Equipment	such as: • Stelvin • corks (natural or synthetic) • cork stoppers • cork and wire muselet to maintain sterile integrity and longevity of product • crown seals for bottle primary fermentation
Equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking operation or calibration of measuring instrumentation
Control points	These include: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	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
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	include: • Standard Operating Procedures (SOPs) • specifications

	• production schedules or instructions • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator • print or screen based

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for bottle sealing • start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of bottle sealing equipment • key features of bottle sealing equipment and components • links to related processes • stages and changes which occur during the process • effect of process stages on end product • quality characteristics and uses of end product • effect of product and materials on process outcomes • emergency and troubleshooting procedures • process specification, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • services required • significance and methods of monitoring control points • common causes of variation and corrective action required • Occupational Health and Safety (OHS) hazards and controls • routine maintenance requirements • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown sequence • shutdown and cleaning requirements associated with changeovers and types of shutdown • collection, treatment and handling requirement for waste generated by process and cleaning operation • recording requirements and procedures

	• cleaning and sanitation procedures where relevant • sampling procedures where relevant • testing procedures where relevant • routine maintenance procedures where relevant • spirit handling requirements and procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify bottle sealing requirements • select, fit and use appropriate personal protective clothing and/or equipment • confirm supply of necessary materials and services. This may include: ➢ checking sealing materials meet workplace specifications ➢ confirming gas, compressed air, water and power are available to equipment • liaise with other work areas, which may include: ➢ maintenance personnel ➢ materials supply ➢ cellar ➢ bottle supply operators ➢ bottle filling operators ➢ bottle capsuling operators ➢ labelling operators ➢ quality assurance personnel • confirm equipment status and condition. This may include completing a test run, making minor adjustments as required and confirming that: ➢ cleaning and sanitation processes are completed ➢ magazine, hoppers, chutes and guides are operational ➢ any adjacent coding equipment is set up and operational ➢ line controls (conveyors) are operational ➢ line lube is operational and being correctly applied ➢ torque testers are correctly calibrated ➢ equipment is set for correct bottle height ➢ vacuum pump is operational ➢ vacuum block and corker jaws are correctly lubricated ➢ bottle feeds are filled with correct screws and stars and accurately aligned • set up and start up the process • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This can involve monitoring: ➢ compressed air pressure ➢ torque on Roll On Tamper Evident (ROTE) seals ➢ cork depths as established by the workplace ➢ effective seal on crown seals ➢ correct vacuum is being applied to head space in bottle

	➢ consistent application of wire muselet ➢ clarity of wine in bottles being sealed ➢ the ongoing quality and appearance of sealing application ➢ the ongoing quality of materials used in the sealing process • monitor supply and flow of product and materials to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as instructed • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements. This may include removing product or consumables from the line • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • record workplace information • maintain work area to meet housekeeping standards • clean and sanitise equipment externally according to enterprise procedures • take samples according to enterprise procedures • conduct tests according to enterprise procedures • carry out routine maintenance according to enterprise procedures • handle spirits according to enterprise procedures • identify, rectify and/or report environmental non-compliance according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Perform a Water Purification Process**
Unit Code	**IND BPO2 16 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a water purification process to produce water to meet production requirements.

Elements	Performance Criteria
1. Prepare the water purification equipment and process for operation	1.1. Materials are confirmed and available to meet operating requirements. 1.2. Cleaning and sanitizing requirements and status are identified and confirmed. 1.3. Batch records or process documentation is completed. 1.4. Processing/operating parameters are entered and/or confirmed as required to meet safety and production ***requirements***. 1.5. Equipment performance is checked and adjusted as required. 1.6. Pre-start checks are carried out as required by workplace requirements.
2. Operate and monitor the water purification process	2.1. The process is started and operated according to workplace ***procedures***. 2.2. Equipment is monitored to identify variation in operating conditions from those indicated in workplace documents or standard operating procedures. 2.3. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements. 2.4. The ***process*** is monitored to confirm that ***purified water is produced*** to specification. 2.5. Out-of-specification process outcomes are identified, rectified and/or reported to maintain the process within specification. 2.6. The work area is maintained according to housekeeping standards.
3. Shut down the water purification process	3.1. The appropriate shut down procedure is identified. 3.2. The process is shut down according to workplace procedures. 3.3. Workplace and/or batch documentation is completed. 3.4. Maintenance requirements are identified and reported according to workplace reporting requirements.

4.Record information	4.1 Work is conducted in accordance with workplace ***information*** and environmental guidelines. 4.2 Workplace records are maintained according to workplace recording requirements. 4.3 ***Workplace information*** is recorded in appropriate format. 4.4 All records are signed. 4.5 Record information is communicated to appropriate immediate supervisor. 4.6 Workplace information records are kept in appropriate place.

Variable	**Range**
Requirements	industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity • When applied to the beverage industry, relevant GMP codes apply in place of the Ethiopian Food Standards Code and reference to food safety is replaced by GMP • WHO standard
Policies and procedures	• Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Operation of equipment and process	requires: • the use of process control panels and systems
Purification processes	are typically continuous processes
Water purification equipment	may include: • dosing equipment • storage tanks • pumps • valves • distillation systems • reverse osmosis systems • UV light • deionisation plants • softeners • carbon tanks • Sand filter • filters • Polisher

Water produced	may include, but is not limited to: • purified water • deionised water • reverse osmosis (RO) • distilled water • Water For Injection (WFI)
Workplace information	may include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • manufacturers' advice • standard forms and reports

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for water purification • start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment • apply food safety procedures
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and basic principles of the water purification process, including methods used to purify water appropriate to workplace requirements • basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation • services required and action to be taken if services are not available • the flow of the water purification process and the effect of outputs on downstream processes • quality characteristics to be achieved by the water purification process • quality requirements of inputs to the purification process and the effect of variation on process performance • operating requirements and parameters and corrective action required where operation is outside specified operating parameters

	• typical equipment faults and related causes, including following troubleshooting and problem solving guidelines, and recognising signs and symptoms of faulty equipment and early warning signs of potential problems • basic operating principles of process control as appropriate, including the relationship between control panels and systems and the physical equipment • methods used to monitor the water purification process, such as inspecting, measuring and testing as required by the process • inspection or test points (control points) in the water purification process and the related procedures and recording requirements • Good Manufacturing Practice (GMP)/food safety requirements (as appropriate) associated with the purification process and related control measures • common causes of variation and corrective action required • Operational Health and Safety (OHS) hazards and controls • requirements of different shutdowns as appropriate to the water purification process and workplace production requirements, including emergency and routine shutdowns • isolation, lock out and tag out procedures and responsibilities • cleaning and sanitation procedures • procedures and responsibility for reporting production and performance information • environmental issues and controls relevant to the water purification process • sampling and testing associated with water purification process monitoring and control where relevant • routine maintenance procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify water purification process requirements • select, fit and use personal protective clothing and/or equipment • respond appropriately to hazards, including chemical spills • confirm supply of necessary materials and services • conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for water purification process requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational

	• start, operate, monitor and adjust water purification process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as: ➢ flow rates ➢ pressure ➢ operation of dosing equipment (where relevant) ➢ alarms • monitor supply and flow of materials to and from the water purification process • take corrective action in response to out-of-specification results • maintain a purification system free of physical, chemical and biological contaminants • respond to and/or report equipment failure within level of responsibility • locate emergency stop functions on equipment • follow isolation and lock out/tag out procedures as required to take water purification process and related equipment off-line in preparation for cleaning/back flushing and/or maintenance within level of responsibility • carry out cleaning, sanitising, regenerating and back-flushing as required • complete workplace records as required • maintain work area to meet housekeeping standards • collect samples and conduct tests according to enterprise procedures • conduct routine maintenance according to enterprise procedures • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Operate a Syrup Production Process**
Unit Code	**IND BPO2 17 0613**
Unit Descriptor	This unit covers the sugar dissolving and syrup preparation for soft drink and liquor production.

Elements	Performance Criteria
1. Prepare the syrup production process for operation	1.1 Production requirements are checked. 1.2 Availability of required ***materials*** is confirmed. 1.3 Availability of ***services*** is confirmed. 1.4 Pre-operational checks of equipment are conducted. 1.5 The ***syrup production process*** is set to meet production requirements.
2. Operate and monitor the syrup production system	2.1 The syrup production system is started up according to company procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 ***Required tests*** are undertaken. 2.4 System and sub-system outputs are made to meet specification. 2.5 ***Equipment*** is ***monitored*** to confirm operating condition. 2.6 Out-of-specification syrup, process and equipment performance are identified, rectified and/or reported. 2.7 Production and other ***workplace information*** is recorded in the appropriate format.
3. Shut down the syrup production system	3.1 The syrup production system is shut down according to company procedures. 3.2 Equipment is cleaned and maintained to meet cleaning schedules and procedural requirements. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of or recycled according to company procedures.
4. Contribute to continuous improvement of the syrup production system	4.1 Quality or process outputs are assessed against specifications. 4.2 Opportunities are identified and investigated for improvement. 4.3 Proposals for improvements are developed and implemented within company planning arrangements and according to company procedures.

Variable	Range
Materials and ingredients	may include: • Sugar, flavours, additives, activated carbon • water • liquid and solid adjuncts such as sugars • process aid and citric acid(in liquors)
Services	May include: • power • gas • water • steam • compressed air and refrigeration
Syrup production process	may include: • Receive ingredients and sugar • Measuring Sugar and water required • Screening Sugar • Dissolving and treating sugar at 80 degree centigrade (if hot treatment is applied) in the presence of activated carbon and filter aid. • Concentrating dissolved sugar by using steam(in liquors) • Filtration through strainers and other filtration equipments, then cooling the dissolved sugar and transfer to final syrup tank. • addition of preservatives, flavours, citric acid and additives. • Perform quality check
Control points	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.
Required tests	may include: • Brix • Titrable acidity • Inverted brix • Taste, odor, appearance
Syrup production equipment	may include: • Syrup tank with agitator • Sugar dissolving tank with agitator • Pumps • Mixer • Heat exchanger • Coiled heaters • Strainer • Press filter or other filtration technique • Mixer for ingredients and flavour

Equipment is monitored	Includes ensuring that hygiene and sanitation standards are met, all safety guards are in place, and that equipment is operational. It may also include the calculation of raw materials.
Workplace information	May include: • Standard Operating Procedures (SOPs); specifications and production schedules. • Information systems may be print or screen based.

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • access workplace information to identify production requirements for the Syrup production process • interpret the schedules and specifications • confirm the supply of necessary materials and services to the Syrup production process • confirm equipment status and condition • set up and start specified equipment including any process control systems • monitor the Syrup production process and equipment operation to identify out-of-specification results • monitor supply and flow of materials to and from the process • take corrective action in response to out-of-specification results or non-compliance • conduct product/beer type changeovers • maintain workplace records
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of the Syrup production process • relationship between the Syrup production process and the fermentation process • stages and changes which occur during Syrup production • requirements of Syrup production • purpose of Sugar, water, citric acid ,adjuncts and the preparation procedure • correct procedures for handling dangerous goods • dust explosion hazards and control procedures • quality characteristics to be achieved • Syrup process specifications, procedures and operating parameters • the importance of temperature, temperature control systems and temperature intervals during Syrup production • Purpose of equipment and instrumentation components • significance and methods of monitoring control points within the Syrup production process • common causes of variation and corrective action required • cleaning requirements associated with changeovers and types of shutdowns • procedures for reporting problems

	• sampling and testing procedures where relevant • cleaning and sanitation procedures where relevant
Underpinning Skills	Demonstrate skills to: • set up and start the Dissolving process • Set up and start the syrup separation process • set up and start the syrup boiling and cooling process • Add raw materials e.g. sugar, filter aids, activated carbon. • operate a heat exchange procedure • transfer fluids and materials between vessels • handle dangerous goods • operate and monitor equipment associated with syrup production • monitor control points • identify OHS hazards and controls • select, fit and use personal protective clothing and equipment • undertake shutdowns and changeovers • comply with procedures and responsibilities for reporting problems • comply with environmental procedures and controls • follow waste handling requirements and procedures • record required production data • undertake routine maintenance procedures • collect samples and conduct tests according to enterprise 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Operate a Bottle Washing Machine**
Unit Code	**IND BPO2 18 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down a bottle and keg washing process.

Elements	Performance Criteria
1. Prepare the equipment and process for operation	1.1. ***Equipments and materials*** are confirmed and available to meet production requirements. 1.2. Cleaning and maintenance requirements and status are identified and confirmed. 1.3. Machine components and related attachments are fitted and adjusted to meet operating requirements. 1.4. Equipment performance is checked and adjusted as required. 1.5. Pre-start checks are carried out as required by workplace requirements. 1.6 ***Service*** is confirmed as available and ready for use.
2. Operate and monitor the bottle and keg washing process	2.1. The process is started and operated according to ***workplace procedures***. 2.2. Empty bottles and keg from market are inspected and washed to meet workplace specifications. 2.3. Washed bottles are transferred to empty bottle inspection. 2.4. Variation in ***equipment operation*** is identified and maintenance requirements are reported according to workplace reporting requirements. 2.5. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification. 2.6. The work area is maintained according to housekeeping standards. 2.7. Work is conducted in accordance with ***workplace environmental guidelines***. 2.8. Workplace records are maintained according to workplace recording requirements.
3. Shut down the bottle and keg washing process	3.1. The appropriate ***shutdown procedure*** is identified. 3.2. The process is shut down according to workplace procedures. 3.3. Maintenance requirements are identified and reported according to workplace reporting requirements.

4. Record information	4.1 ***Workplace information*** is recorded in appropriate format 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Washing equipment and Material	may include: • Bottle washer • Pumps • Heat exchanger • Conveyors • Cleaning agents • Additives (antifoam or other additives) • Water • Keg washer
Services	May need to be confirmed. These depend on the nature of the process. Typical examples include: • Power • Water • Steam • compressed/instrumentation air
Legislative requirements	are typically reflected in procedures and specifications. Legislation relevant to this industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity
Operation of equipment and processes	may require: • the use of process control panels and systems • Monitoring temperature and pressure of washing and rinsing • Monitoring concentration of cleaning agents
Policies and procedures	Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Shutdown procedures	may include: • Clean filters and spray jets • Change cleaning water and Sanitize pre-final rinse tanks
Workplace information	may include: • Standard Operating Procedures (SOPs)specifications • production schedules and instructions manufacturers' advice • standard forms and reports

Evidence Guide	
Critical Aspects of Competence	Must demonstrate skills and knowledge competence to: • conduct pre-start checks on bottle washer

	• start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment • apply food safety procedures
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and basic principles of the washing process, including water quality, the role of sanitisers in the washing process, basic operating principles of equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, and the purpose and location of sensors and related feedback instrumentation • services (principally water) required and action to take if services are not available • the flow of this process and the effect of outputs on downstream processes • quality characteristics to be achieved by both the washing , including consequence of out-of-specification moisture levels on further processing and final product • quality requirements of raw materials and effect of variation on process performance, including how variation in microbial load can affect the washing process • operating requirements, parameters and corrective action required where operation is outside specified operating parameters • typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems • methods used to monitor the washing process, such as inspecting, measuring and testing as required by the process • inspection or test points (control points) in the process and the related procedures and recording requirements • contamination/food safety risks associated with the process and related control measures • common causes of variation and corrective action required • Operational Health and Safety (OHS) hazards and controls • requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage • isolation, lock out and tag out procedures and responsibilities • product/process changeover procedures and responsibilities • procedures and responsibility for reporting production and performance information

	• environmental issues and controls relevant to the process, including waste/rework collection and handling procedures related to the process • basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment • sampling and testing associated with process monitoring and control where relevant • routine maintenance procedures where relevant • cleaning and sanitation procedures where relevant
Underpinning Skills	Demonstrate skills of: • access workplace information to identify production requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary raw materials and services • conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lockouts as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational • start, operate, monitor and adjust washing equipment to achieve required outcomes, including monitoring control points and conducting inspections to confirm process remains within specification, such as: ➢ operation of dosing equipment ➢ tank/bath or flume water levels ➢ related equipment operation (such as pumps/conveyors) ➢ concentration of cleaning chemical measurement ➢ temperatures ➢ water quality ➢ flow rates ➢ pressure ➢ inspection of spray jets ➢ carry over test ➢ filters check • take corrective action in response to out-of-specification results • respond to and/or report equipment failure within level of responsibility • locate emergency stop functions on equipment • follow isolation and lock out/tag out procedures as required to take process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility • demonstrate batch/product changeovers • complete workplace records as required • maintain work area to meet housekeeping standards

	• use process control systems according to enterprise procedures • collect samples and conduct tests according to enterprise procedures • conduct routine maintenance according to enterprise procedures • clean and sanitise equipment according to enterprise procedures • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Participate in Workplace Communication**
Unit Code	**IND BPO2 19 0613**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

Elements	Performance Criteria
1. Obtain and convey workplace information	1.1 Specific and relevant information is accessed from ***appropriate sources***. 1.2 Effective questioning , active listening and speaking skills are used to gather and convey information. 1.3 Appropriate ***medium*** is used to transfer information and ideas. 1.4 Appropriate non- verbal communication is used. 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed. 1.6 Defined workplace procedures for the location and ***storage*** of information are used. 1.7 Personal interaction is carried out clearly and concisely.
2. Participate in workplace meetings and discussions	2.1 Team meetings are attended on time. 2.2 Own opinions are clearly expressed and those of others are listened to without interruption. 2.3 Meeting inputs are consistent with the meeting purpose and established ***protocols***. 2.4 ***Workplace interactions*** are conducted in a courteous manner. 2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are asked and responded to. 2.6 Meetings outcomes are interpreted and implemented.
3. Complete relevant work related documents	3.1 Range of ***forms*** relating to conditions of employment is completed accurately and legibly. 3.2 Workplace data is recorded on standard workplace forms and documents. 3.3 Basic mathematical processes are used for routine calculations. 3.4 Errors in recording information on forms/ documents are identified and properly acted upon. 3.5 Reporting requirements to supervisor are completed according to organizational guidelines.

Variable	Range
Appropriate sources	May include but not limited to: • Team members

	• Suppliers • Trade personnel • Local government and Industry bodies
Medium	May include but not limited to: • Memorandum • Circular • Notice • Information discussion • Follow-up or verbal instructions • Face to face communication
Storage	May include but not limited to: • Manual filing system • Computer-based filing system
Protocols	May include but not limited to: • Observing meeting • Compliance with meeting decisions • Obeying meeting instructions
Workplace interactions	May include but not limited to: • Face to face • Telephone • Electronic and two way radio • Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
Forms	May include but not limited to: • Personnel forms, telephone message forms, safety reports

Evidence Guide	
Critical Aspects of Competency	Demonstrates skills and knowledge to: • Prepare written communication following standard format of the organization • Access information using communication equipment • Make use of relevant terms as an aid to transfer information effectively • Convey information effectively adopting the formal or informal communication
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Effective communication • Different modes of communication • Written communication • Organizational policies • Communication procedures and systems • Technology relevant to the enterprise and the individual's work responsibilities
Underpinning Skills	Demonstrate skills to: • Follow simple spoken language • Perform routine workplace duties following simple written notices

	• Participate in workplace meetings and discussions • Complete work related documents • Estimate, calculate and record routine workplace measures • Do basic mathematical processes of addition, subtraction, division and multiplication • relate to people of social range in the workplace • Gather and provide information in response to workplace Requirements
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Work in Team Environment**
Unit Code	**IND BPO2 20 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

Elements	Performance Criteria
1. Describe team role and scope	1.1 The ***role and objective of the team*** are identified from available ***sources of information***. 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources.
2. Identify own role and responsibility within team	2.1 Individual role and responsibilities within the team environment are identified. 2.2 Roles and responsibility of other team members are identified and recognized. 2.3 Reporting relationships within team and external to team are identified.
3. Work as a team member	3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives. 3.2 Effective and appropriate contributions are made to complement team activities and objectives, based on individual skills and competencies and ***workplace context***. 3.3 Protocols are observed in reporting using standard operating procedures. 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

Variable	Range
Role and objective of team	May include but not limited to: • Work activities in a team environment with enterprise or specific sector • Limited discretion, initiative and judgment maybe demonstrated on the job, either individually or in a team environment
Sources of information	May include but not limited to: • Standard operating and/or other workplace procedures • Job procedures • Machine/equipment manufacturer's specifications and instructions • Organizational or external personnel

	• Client/supplier instructions • Quality standards • OHS and environmental standards
Workplace context	May include but not limited to: • Work procedures and practices • Conditions of work environments • Legislation and industrial agreements • Standard work practice including the storage, safe handling and disposal of chemicals • Safety, environmental, housekeeping and quality guidelines

Evidence Guide	
Critical aspects of competence	Demonstrates skills and knowledge to: • Operate in a team to complete workplace activity • Work effectively with others • Convey information in written or oral form • Select and use appropriate workplace language • Follow designated work plan for the job • Report outcomes
Underpinning Knowledge and Attitude	Demonstrate knowledge of: • Communication process • Team structure • Team roles • Group planning and decision making
Underpinning Skills	Demonstrate skills to: • Communicate appropriately, consistent with the culture of the workplace
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Develop Business Practice**
Unit Code	**IND BPO2 21 0613**
Unit Descriptor	This unit specifies the outcomes required to establish a business operation from a planned concept. It includes researching the feasibility of establishing a business operation, planning the setting up of the business, implementing the plan and reviewing operations once commenced.

Elements	Performance Criteria
1. Identify business opportunity	1.1 ***Business opportunities*** are investigated and identified. 1.2 Feasibility study is undertaken to determine likely ***business viability*.** 1.3 Market research on product or service is undertaken. 1.4 Assistance with feasibility study of ***specialist and relevant parties*** is sought as required. 1.5 Impact of emerging or changing technology including e-commerce, on business operations is evaluated. 1.6 Practicability of business opportunity is assessed in line with perceived risks, returns sought and resources available. 1.7 Business plan is completed for operation.
2. Identify personal business skills	2.1 Financial and business skills available are identified and taken into account when business opportunities are researched. 2.2 ***Personal skills/attributes*** are assessed and matched against those perceived as necessary for a particular business opportunity. 2.3 ***Business risks*** are identified and assessed according to resources available and personal preferences.
3. Plan for establishment of business operation	3.1 Business structure and operations are determined and documented. 3.2 Procedures are developed and documented to guide operations. 3.3 Financial backing is secured for business operation. 3.4 Business legal and regulatory requirements are identified and complied. 3.5 ***Human and physical resources*** required to commence business operation are determined. 3.6 Recruitment strategies are developed and implemented.

4. Implement establishment plan	4.1 Marketing of business operation is undertaken. 4.2 Physical and human resources are obtained to implement business operation. 4.3 ***Operational unit*** is established to support and coordinate business operation. 4.4 Monitoring process is developed and implemented for managing operation. 4.5 ***Legal documents*** are carefully maintained and relevant records are kept and updated to ensure validity and accessibility. 4.6 Contractual procurement rights for goods and services including ***contracts with relevant people***, negotiated and secured as required in accordance with the business plan. 4.7 Options for leasing/ownership of business premises identified and contractual arrangements are completed in accordance with the business plan.
5. Review implementation process	5.1 Review process for implementation of business operation is developed and implemented. 5.2 Improvements in business operation and associated management process are identified. 5.3 Identified improvements are implemented and monitored for effectiveness.

Variable	Range
Business opportunities	May include but not limited to: • expected financial viability • skills of operator • amount and types of finance available • returns expected or required by owners • likely return on investment • finance required • lifestyle issues
Business viability	May include but not limited to: • opportunities available • market competition • timing/ cyclical considerations • skills available • resources available • location and/ or premises available • risk related to a particular business opportunity, especially • in regard to Occupational Health and Safety and • environmental considerations
Specialist and relevant parties	May include but not limited to: • Chamber of commerce

	• Financial planners and financial institution representatives, business planning specialists and marketing specialists • accountants • lawyers and providers of legal advice • government agencies • industry/trade associations • online gateways • business brokers/business consultants
Personal skills/attributes	May include but not limited to: • technical and/ or specialist skills • business knowledge and skills • entrepreneurship • willingness to take risks
Business risks	May include but not limited to: • occupational health and safety and environmental • considerations • relevant legislative requirements • security of investment • market competition • security of premises/ location • supply and demand • resources available
Human and physical resources	May include but not limited to: • software and hardware • office premises • communications equipment • specialist services through outsourcing, contracting and • consultancy • staff • vehicles
Operational unit	May include but not limited to: • office location staffed with required personnel and equipped to service and support business • home-based site or other location such as leased or owned property
Legal documents	May include but not limited to: • partnership agreements, constitution documents, statutory books for companies (Register of Members, Register of Directors and Minute Books), Certificate of Incorporation, Franchise Agreements and financial documentation, appropriate software for financial records • recordkeeping including personnel, financial, taxation, OHS and environmental
Contracts with relevant people	May include but not limited to: • owners, suppliers, employees, landlords, agents, distributors, customers or any person with whom the business has, or seeks to have, a performance-based relationship

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: • that a business operation has been planned and implemented from initial research into feasibility of the business and completion of the plan, through to implementing the plan and commencing operations • the ability to evaluate the results of research and assess the likely viability and practicability of a business opportunity, taking into account the current business/market climate and resources available
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Federal and regional government legislative requirements affecting business operations, especially in regard to Occupational Health and Safety (OHS), Equal Employment Opportunity (EEO), industrial relations and anti-discrimination • Technical or specialist skills relevant to the business operation • Financing options • Business systems and operations • Relevant marketing, management, sales and financial concepts • Methods for researching business opportunities • Principles of risk management relevant to the business • Methods of identifying relevant specialist services to complement the business • Forms and administrative systems • Services available and charges • Planning and control systems (sales, • Advertising and promotion, distribution and logistics • Financial recording systems • Legal rights and responsibilities • Record keeping duties • Operational factors relating to the business (provision of professional services, products)
Underpinning Skills	Demonstrate skills of: • Literacy skills to interpret legal requirements, company policies and procedures and immediate, day-to-day demands • Marketing skills • Business planning skills • Entrepreneurial skills • Problem-solving skills • OHS skills • Time management skills • Belief in services and products offered by the business • Communication skills including questioning, clarifying, reporting, and giving and receiving constructive feedback • Technical and analytical skills to interpret business documents, reports and financial statements and projections

	• Ability to relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities • Problem solving skills to develop contingency plans • Using computers and software packages to record and manage data and to produce reports • Literacy skills to enable interpretation of business information, numeracy skills for data analysis to aid research • Research skills to identify a business opportunity and to conduct a feasibility study • Analytical skills to assess personal attributes and to identify business risks • Observation skills for identifying appropriate people, resources and to monitor work
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level II	
Unit Title	**Standardize and Sustain 3S**
Unit Code	**IND BPO2 22 0613**
Unit Descriptor	This unit of competence covers the knowledge, skills and attitudes required by worker to standardize and sustain 3S to his/her workplace. It covers responsibility for the day- to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.

Elements	Performance Criteria
1. Prepare for work.	1.1 Work instructions are used to determine job requirements, including method, material and equipment. 1.2 Job specifications are read and interpreted following working manual. 1.3 ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work. 1.4 ***Safety equipment and tools*** are identified and checked for safe and effective operation. 1.5 ***Tools and equipment*** are prepared and used to implement 3S.
2. Standardize 3S.	2.1 Plan is prepared and used to standardize 3S activities. 2.2 ***Tools and techniques*** to standardize 3S are prepared and implemented based on ***relevant procedures***. 2.3 Checklists are followed for standardize activities and ***reported*** to ***relevant personnel***. 2.4 The workplace is kept to the specified standard. 2.5 Problems are avoided by standardizing activities.
3. Sustain 3S.	3.1 Plan is prepared and followed to standardize 3S activities. 3.2 ***Tools and techniques*** to sustain 3S are discussed, prepared and implemented based on relevant procedures. 3.3 Workplace is inspected regularly for compliance to specified standard and sustainability of 3S techniques. 3.4 Workplace is cleaned up after completion of job and before commencing next job or end of shift. 3.5 Situations are identified where compliance to standards is unlikely and actions specified in procedures are taken. 3.6 Improvements are recommended to lift the level of compliance in the workplace.

	3.7 Checklists are followed to sustain activities and reported to relevant personnel. 3.8 Problems are avoided by sustaining activities.

Variable	Range
OHS requirements	May include but not limited to: • Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	May include but not limited to: • dust masks / goggles • glove • working cloth • first aid • safety shoes
Tools and equipment	May include but not limited to: • paint • hook • sticker • signboard • nails • shelves • chip wood • sponge • broom • pencil • shadow board/ tools board
Tools and techniques	May include but not limited to: • 5S Job Cycle Charts • Visual 5S • The Five Minute 5S • Standardization level checklist • 5S checklist

	• The five Whys and one How approach(5W1H) • Suspension • Incorporation • Use Elimination
Relevant procedures	May include but not limited to: • Assign 3S responsibilities • Integrate 3S duties into regular work duties • Check on 3S maintenance level • OHS measures such as signage, symbols / coding and labeling of workplace and equipment • Creating conditions to sustain your plans • Roles in implementation
Reporting	May include but not limited to: • verbal responses • data entry into enterprise database • brief written reports using enterprise report formats
Relevant personnel	May include but not limited to: • supervisors, managers and quality managers • administrative, laboratory and production personnel • internal/external contractors, customers and suppliers
Tools and techniques	May include but not limited to: • 5S slogans • 5S posters • 5S photo exhibits and storyboards • 5S newsletter • 5S maps • 5S pocket manuals • 5S department/benchmarking tours • 5S months • 5S audit • Awarding system • Big cleaning day • Patrolling system may include: ➢ Top management Patrol ➢ 5S Committee members and Promotion office Patrol ➢ Mutual patrol ➢ Self-patrol ➢ Checklist and Camera patrols

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Discuss the relationship between Kaizen elements. • Standardize and sustain 3S activities by applying appropriate tools and techniques.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Elements of Kaizen • Ways to improve Kaizen elements

	• Benefits of improving kaizen elements • Relationship between Kaizen elements • The fourth pillar of 5S • Benefits of standardizing and sustaining 3S • Procedures for standardizing and sustaining 3S activities • Tools and techniques to sustain 3S • Relevant Occupational Health and Safety (OHS) and environment requirements • Plan and report • Method of communication
Underpinning Skills	Demonstrates skills of: • improving Kaizen elements by applying 5S • standardizing and sustaining procedures and techniques to avoid problems • technical drawing • procedures to standardizing 3S activities • analyzing and preparing shop layout of the workplace • standardizing and sustaining checklists • preparing and implementing tools and techniques to sustain 3S • working with others • reading and interpreting documents • observing situations • solving problems by applying 5S • communication skills • preparing labels, slogans, etc. • gathering evidence by using different means • using Kaizen board properly in accordance the procedure • reporting activities and results using report formats
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

NTQF Level III

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Apply Raw Materials, Ingredient and Process Knowledge to Production Problems**
Unit Code	**IND BPO3 01 0613**
Unit Descriptor	This unit of competency covers skills and knowledge required to apply knowledge of ingredients and processes to troubleshoot typical problems that occur in preparing, processing and/or packaging product.

Elements	Performance Criteria
1. Identify and respond to non-conforming ingredients/raw materials	1.1. Non-conformance in ***raw materials***/ingredients is identified and reported according to workplace reporting requirements. 1.2. Causes of non-conformance are investigated and reported according to workplace reporting requirements. 1.3. Corrective action is determined and implemented within level of responsibility and workplace ***procedures***. 1.4. Action is taken to prevent recurrence of non-conformance. 1.5. Action is reported according to workplace reporting requirements.
2. Identify and respond to non-conforming product and processes	2.1. ***Processing parameters***, stages and changes which occur during processing are monitored. 2.2. Non-conformance in ***processing***, handling and/or storage is identified and corrective action taken according to workplace requirements. 2.3. Causes of non-conformance relating to processing, handling and/or storage are investigated and reported according to workplace reporting requirements. 2.4. Corrective action is determined and implemented within level of responsibility and workplace procedures. 2.5. Action is taken to prevent recurrence of non-conformance. 2.6. Action is reported according to workplace reporting requirements. 2.7. Work is conducted in accordance with workplace environmental guidelines.

Variable	Range
Ingredients**/**raw materials	are those used to manufacture product
Policies and procedures	Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements.

Typical process parameters	include but are not limited to: • temperature • time • pressure • flow rate
Typical processing and related techniques	include but are not limited to: • raw materials/ingredient dispensing • preparation • mixing and blending • conditioning • primary and further processing • wrapping • packing and storage
Typical reactions	Examples include but are not limited to: • gelatinisation and hydration
Problem minimisation	Where recurrence of a problem cannot be prevented, procedures should be established to minimise the likelihood of recurrence and to identify any further incidents
Legislative requirements	relevant to this industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, Occupational Health and Safety (OHS), anti-discrimination and equal opportunity • When applied to the pharmaceutical industry, relevant Good Manufacturing Practice (GMP) codes apply in place of the Food Standards Code and reference to food safety is replaced by GMP

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • describe required quality characteristics for raw materials and ingredients • describe required processes to achieve production specifications • identify common non-conforming materials and ingredients and causes • identify common non-conforming processes and causes • determine and undertake corrective action for non-conformances • complete workplace documentation and report non-conformances • apply food safety procedures
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • basic composition and function of each main raw material/ingredient used, such as awareness of ingredient grades or types

	• common causes of contamination/unacceptable quality of raw materials/ ingredients • methods used to confirm quality standard, such as accessing information (e.g. certificates of analysis and/or laboratory clearance information) • the effect of variation in raw materials/ingredients on processing stages and final product outcome, including factors likely to cause variation, and scope to adjust or correct for variation at each processing stage • appropriate handling and storage requirements for raw materials/ingredients and final product, and the effect of failing to meet required storage conditions • the changes and reactions that occur through processing stages, including the signs and symptoms of poor/unacceptable processing or equipment operation • factors that affect the shelf-life of product • the inter-relationships between processing stages and the effect of variation in processing parameters on process outcome and on final product, including factors likely to cause variation, and scope to adjust or correct for variation at subsequent process stages • procedures for identifying and isolating non-conforming product • troubleshooting information and techniques • procedures and related documentation required to amend or introduce a new method or procedure, such as short term procedures for amending or updating specifications and processing parameters • reporting requirements and responsibilities • test methods to confirm raw material/ingredient and/or final product quality characteristics where relevant
Underpinning Skills	Demonstrate skills to: • identify requirements of ingredient/raw material characteristics within level of responsibility • follow procedures to identify, remove/isolate and report non-conforming ingredients/materials and/or product according to workplace reporting requirements • determine likely causes of non-conformance of ingredients/raw materials • recognise indicators of unacceptable or non-conforming processing, handling and/or storage outcomes • act promptly to identify, remove/isolate and report non-conforming product and/or processes • access and apply workplace information relating to process troubleshooting • investigate non-conformance to determine likely causes and report findings to appropriate personnel

	• identify action required to correct non-conformance and implement within level of responsibility • identify action required to prevent or minimise and control recurrence of non-conformance and implement within level of responsibility • complete workplace records, including reporting non-conformance and documenting corrective actions according to workplace recording procedures • conduct tests to confirm raw material/ingredient and/or final product quality characteristics according to enterprise procedures • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Set up a Production or Packaging Line for Operation**
Unit Code	**IND BPO3 02 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up multiple production or packaging processes and/or conduct multiple process changeovers for operation by others.

Elements	Performance Criteria
1. Prepare for line se	1.1. Materials are confirmed and available to meet production requirements. 1.2. Equipment and related accessories are confirmed, available and fit for use to meet production requirements. 1.3. Tools and equipment required for line setup are available, operational and fit for use. 1.4. Processing parameters and settings are identified to meet production or packaging requirements.
2. Set up the line for operation	2.1. ***Confirming cleaning and maintenance requirements and status*** are identified and confirmed. 2.2. Equipment is inspected to confirm condition. 2.3. Machine settings are selected or adjusted as required to meet safety and production requirements. 2.4. Processing or packaging parameters are entered as required to meet production requirements. 2.5. Equipment performance is checked and ***adjusted*** as required. 2.6. Pre-start checks are carried out as required by workplace requirements. 2.7. Line setup is completed to match production or packaging schedule and operating requirements. 2.8. The line is ready and safe to operate and any maintenance requirements are reported according to workplace reporting ***requirements.*** 2.9. Work is conducted in accordance with workplace environmental guidelines. 2.10. Relevant personnel are notified of setup completion.

Variable	Range
Confirming cleaning requirements and status	may involve: • accessing cleaning records

Equipment adjustment	may include: • limited use of hand tools, such as Allen keys and screwdrivers, within level of responsibility
Workplace information	may include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • standard forms and reports
Policies and procedures	Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Requirements	industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity • When applied to the beverage industry, relevant Good Manufacturing Practice (GMP) codes apply in place of the Food Standards Code and reference to food safety is replaced by GMP

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for production to determine cleaning, maintenance and operation readiness • determine production parameters and requirements • set up line according to production requirements • take corrective action in response to typical faults and inconsistencies • complete workplace records and communicate line status with other personnel as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment & apply food safety procedures.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • basic operating principles of equipment and related accessories, including equipment adjustment points, range and location/alignment requirements of sensors and related feedback instruments, and status and purpose of guards • operating capacities of equipment used in the work area, such as different types of equipment and/or components as required by processing operations • nature of setup/changeover requirements, such as product compatibility and related cleaning requirements, impact of variation in materials or product on setup requirements, equipment and/or attachment changeovers related to given products

	• typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems • pre-start checks required by setup/changeover • related processes and personnel dependent on line setup, and communication responsibilities • isolation, lock out and tag out procedures and responsibilities • Occupational Health and Safety (OHS) hazards and controls • procedures and responsibility for reporting equipment performance information • basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment • routine maintenance requirements and procedures where relevant
Underpinning Skills	Demonstrate skills to: • access production/packing schedule and related information to identify line setup/changeover requirements, such as checking product sequencing and compatibility, confirming that the required cleaning and/or sanitation has occurred and required packaging components and consumables are available as appropriate • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary equipment and related attachments, materials and services for production • confirm supply of necessary equipment and services to carry out setup operations • set and/or adjust equipment to meet production/packaging requirements, including selecting the required parameters or equipment settings, and changing processing set points as required • position safety guards and cancel isolation/lockouts ready for operation • confirm that sensors and related feedback instruments are correctly positioned and operational • operate equipment to confirm equipment setup and make final adjustments as required • time setup activities to meet production requirements • advise affected work areas/personnel of completion of setup • maintain work area to meet housekeeping standards • load and/or position materials/ingredients/product and/or packaging consumables according to enterprise procedures • use the control panel/system to set and adjust equipment components according to enterprise procedures • conduct routine maintenance according to enterprise procedures

	• 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Operate the Bottle Filling Process**
Unit Code	**IND BPO3 03 0613**
Unit Descriptor	This unit covers the preparing, operating, monitoring and shutting down a range of semi-automated and automated bottling and packaging equipment involved in a filling process for kegs, bottles and cans. It includes working within quality requirements and standard operating procedures.

Elements	Performance Criteria
1. Prepare to filling equipment	1.1 Product and materials are confirmed and available to meet bottling requirements. 1.2 ***Product and materials*** are prepared to meet bottling requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 Bottle and kegs, filling ***equipment status*** are prepared and checked to confirm readiness for use. 1.5 Filling ***equipment*** is set to meet bottling requirements. 1.6 Pre-operational checks of equipment are conducted including checking that hygiene and sanitation standards are met and all safety guards are in place.
2. Operate and monitor the filling process	2.1 Filling equipment is started up according to workplace procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 ***Process is monitored*** to confirm product requirement using performance control chart, production data, etc. 2.4 Bottles and keg are filled according to specification. 2.5 Filling equipment is monitored to confirm operating condition. 2.6 Out-of-specification end product, process and equipment performance is identified, rectified and/or reported. 2.7 Beverage containers (cans, kegs, bottles) are checked against production order and container specifications. 2.8 Stock flow to and from filler process is maintained within production requirements. 2.9 Size and product changeovers are completed in accordance with batch instructions and standard operating procedures.
3. Shut down the bottle filling process	3.1 Filling equipment is shut down according to workplace procedures. 3.2 Filling equipment is prepared for cleaning.

	3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with workplace environmental guidelines.
4. Record information	4.1 ***Workplace information*** is recorded in appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Products and materials	may include: • Soft drinks, bear, alcohol, still wine, sparkling wine, fortified wine, liqueur, carbon dioxide, spirits and related drink products • bottles (any size) , cans, ends (for cans), crowns and kegs
Services	may include: • power • compressed air • water • inert gas • steam • vacuum
Equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking operation or calibration of measuring instrumentation
Equipment	may include: • fillers • pumps • valves • container cleaners • conveyors • handlers and feeding systems for crown seals and can ends • seamers • level detection devices • crowners • cleaners/rinsers empty container inspectors • coders • clean in place (CIP) equipment. • Filling equipment and operation and monitoring functions may be directly controlled or involve the use of a process control system

Control points	These include: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	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
Workplace information	can include: • Standard Operating Procedures (SOPs) • specifications • production schedules or instructions • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Information systems	may be: • print or screen based

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for bottle filling • start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • identify OHS hazards and apply safe work practices • safely shut down equipment.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of bottle filling equipment • key features of bottle filling equipment and components • links to related processes • stages and changes which occur during the process • effect of process stages on end product • quality characteristics and uses of end product • effect of product and materials on process outcomes • emergency and troubleshooting procedures • process specification, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant

	• services required • significance and methods of monitoring control points • common causes of variation and corrective action required • OHS hazards and controls • routine maintenance requirements • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown sequence • shutdown and cleaning requirements associated with changeovers and types of shutdown • collection, treatment and handling requirement for waste generated by process and cleaning operation • recording requirements and procedures • fine filtration procedures where relevant • sampling procedures where relevant • testing procedures where relevant • routine maintenance procedures where relevant • spirit handling requirements and procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify bottle filling requirements • select, fit and use appropriate personal protective clothing and/or equipment • confirm supply of necessary materials and services. This may include: • confirming gas, compressed air, water, power and vacuum are available to equipment • checking product to be bottled meets specification • checking bottles meet size and type specification and quality and hygiene standards • liaise with other work areas, which may include: • maintenance personnel • quality assurance personnel • materials supply • cellar • bottle supply and sealing operators • bottle capsuling operators • labelling operators • confirm equipment status and condition. This may include completing a test run, making minor adjustments as required and confirming that: • cleaning and sanitation processes are completed • filling tubes meet specification • doser is set up and is operational • bottle feeds are filled with correct screws and stars and accurately aligned

	• height of filler is adjusted to suit bottle height • lines and equipment are flushed with product to be bottled • set up and start up the process • Monitor the process and equipment operation to identify out-of-specification results or non-compliance. This can involve monitoring: ➢ gas pressure ➢ vacuum ➢ product or beverage temperature ➢ fill height and volume • monitor supply and flow of product and materials to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as instructed • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements. This may include removing product or consumables from the line • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • record workplace information • maintain work area to meet housekeeping standards • operate the filling process according to enterprise procedures • take samples according to enterprise procedures • conduct tests according to enterprise procedures • carry out routine maintenance according to enterprise procedures • handle spirits according to enterprise procedures • identify, rectify and/or report environmental non-compliance according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Operate the Labelling Process**
Unit Code	**IND BPO3 04 0613**
Unit Descriptor	This unit covers the skills and knowledge required to set up, operate and shut down a range of semi-automated and automated equipment involved in the labelling process.

Elements	Performance Criteria
1. Prepare to operate labelling equipment	1.1 Product and materials are confirmed and available to meet labelling requirements. 1.2 ***Product and materials*** are prepared to meet labelling requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Equipment status*** is prepared and checked to confirm readiness for use. 1.5 ***Equipment*** is set to meet labelling requirements.
2. Operate and monitor the labelling process	2.1 Labelling equipment is started up according to workplace procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 ***Process is monitored*** to confirm product requirement using performance control chart, production data, etc. 2.4 Bottles are labelled according to specification. 2.5 Labelling equipment is monitored to confirm operating condition. 2.6 Out-of-specification products, process and equipment performance is identified, rectified and/or reported.
3. Shut down the labelling process	3.1 Labelling equipment is shut down according to workplace procedures. 3.2 Labelling equipment is prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with workplace environmental guidelines.
4. Record information	4.1 ***Workplace information*** is recorded in appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	Range
Product and materials	include: • filled bottles • labels • glue • neck ties • additional promotional dress
Services	may include: • power • compressed air • water
Equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking operation or calibration of measuring instrumentation
Equipment	may include: • wet gum labellers • pressure sensitive labellers and neck taggers
Control points	These include: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	may involve: • the use of production data, such as performance control charts
Workplace information	can include: • Standard Operating Procedures (SOPs) • specifications • production schedules or instructions • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Process operation and monitoring functions	may be: • manual or involve the use of a process control system
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Information systems	may be: • print or screen based

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on machinery used for labelling

	• start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of labelling equipment • key features of labelling equipment and components • links to related processes • stages and changes which occur during the process • effect of process stages on end product • quality characteristics of end product • product and materials preparation requirements and effect of variation on the process. This may include effect on end results of: ➢ glue temperature ➢ glue type ➢ wet bottles ➢ faulty label feed ➢ incorrect or inaccurate labels • emergency and troubleshooting procedures • process specification, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • services required • significance and method of monitoring control points within the process • common causes of variation and corrective action required • routine maintenance requirements • Occupational Health and Safety (OHS) hazards and controls • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown sequence • shutdown and cleaning requirements associated with changeovers and types of shutdown • waste handling requirements and procedures • recording requirements and procedures • cleaning and sanitation procedures where relevant • sampling procedures where relevant • testing procedures where relevant • routine maintenance procedures where relevant

Underpinning Skills	Demonstrate skills to:
	• access workplace information to identify labelling requirements
	• select, fit and use appropriate personal protective clothing and/or equipment
	• Confirm supply of necessary materials and services. This may include:
	  ➢ checking labelling materials meet workplace specifications
	  ➢ checking bottles meet size and type specification and quality and hygiene standards
	• confirming compressed air, water and power are available to equipment liaise with other work areas, which may include:
	  ➢ maintenance personnel
	  ➢ quality assurance personnel
	  ➢ materials supply
	  ➢ bottle supply operators
	  ➢ bottle filling operators
	  ➢ bottle sealing and capsuling operators
	• administration or marketing prepare product and materials. This may include:
	  ➢ heating glue to correct temperature
	  ➢ checking glue meets specification according to label type
	  ➢ confirming dryness of bottles in readiness for labels
	  ➢ check labels meet specification of product e.g. alcohol content
	  ➢ inserting labels, correctly orientated in magazine
	  ➢ feeding label web through application mechanism
	• confirm equipment status and condition. This may include completing a test run and checking:
	  ➢ alignment of bottle feed screws and stars
	  ➢ alignment of label pick up and application components
	  ➢ out-feed components are aligned correctly and will not damage label
	  ➢ label alignment, orientation and height meet specifications
	  ➢ timing and alignment of web feed and bottle feed
	  ➢ any related coders are correctly set up and operational
	  ➢ set up and start up the process
	• monitor the process and equipment operation to identify out-of-specification results or non-compliance. This can involve monitoring:
	  ➢ label adhesion
	  ➢ label orientation
	  ➢ label damage
	  ➢ label positioning
	  ➢ smooth versus bubbled labels
	  ➢ misprinted labels
	  ➢ any label or bottle coding applied as part of the process

	• monitor supply and flow of materials to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as instructed • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements. This may include removing product or consumables from the line • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • record workplace information • maintain work area to meet housekeeping standards • clean and sanitise equipment according to enterprise procedures • take samples according to enterprise procedures • conduct tests according to enterprise procedures • carry out routine maintenance according to enterprise procedures • identify, rectify and/or report environmental non-compliance according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Operate Interrelated Processes in a Production System**
Unit Code	**IND BPO3 05 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up, operate and adjust interrelated processes in a production system.

Elements	Performance Criteria
1. Prepare the production system for operation	1.1. Equipment, materials and services are confirmed and available to meet production requirements. 1.2. ***Confirmed cleaning requirements*** and equipment ***status*** are identified. 1.3. Machine settings are selected or adjusted as required to meet safety and production requirements. 1.4. Processing/operating parameters are entered as required to meet production requirements. 1.5. Materials, ingredients and/or product are loaded or positioned as required to meet production requirements. 1.6. Pre-start checks are carried out as required by workplace requirements. 1.7. Equipment performance is checked and adjusted as required. 1.8. Equipment is made ready and safe to operate.
2. Operate and monitor the production system	2.1. The ***system*** is started up and operated according to ***company procedures***. 2.2. ***System equipment*** components are monitored to identify variation in ***operating conditions***. 2.3. Variation in equipment operation is identified and maintenance requirements are reported according to workplace reporting requirements. 2.4. The production system is monitored to confirm that specifications are met. 2.5. Out-of-specification product/process outcomes are identified, rectified and/or reported to maintain the process within specification. 2.6. The work area is maintained according to housekeeping standards. 2.7. Work is conducted in accordance with workplace environmental guidelines.

3. Hand over production system operation	3.1. Workplace records are maintained according to workplace recording requirements. 3.2. ***Handover*** is carried out according to workplace procedures. 3.3. Process operators are aware of system and related equipment status at completion of handover.
4. Shut down the production system	4.1. The appropriate ***shutdown procedure*** is identified. 4.2. The system is shut down according to workplace procedures. 4.3. Maintenance requirements are identified and reported.
5. Contribute to continuous improvement of the production system	5.1. System performance is reviewed against output plan/targets. 5.2. Opportunities are identified and investigated for system improvement. 5.3. Proposals for improvement are developed and implemented within company planning arrangements, authority levels and according to company procedures.
6. Record information	6.1 ***Workplace information*** is recorded in appropriate format. 6.2 All records are signed. 6.3 Record information is communicated to appropriate immediate supervisor. 6.4 Workplace information records are kept in appropriate place.

Variable	**Range**
Confirming cleaning requirements and status	may involve: • accessing cleaning records
Systems	involves: • a series of interrelated processes that must be coordinated and concurrently operated to produce the required outcome
Policies and procedures	• Work is carried out according to company procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
System operation	may involve: • coordination of operators of system components
Operation and monitoring of equipment and system processes	typically requires: • the use of control panels and systems
Handovers	may be done: • in person or via recording/communication systems according to workplace arrangements

Shutdown procedures	may include: • cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew)
Workplace information	may include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • performance records and reports
Legislative requirements	industry includes: • the Food Standards Code, including labelling, weights and measures legislation • legislation covering food safety, environmental management, OHS, anti-discrimination and equal opportunity • When applied to the beverage industry, relevant Good Manufacturing Practice (GMP) codes apply in place of the Food Standards Code and reference to food safety is replaced by GMP

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • conduct pre-start checks on production system components • confirm machine setup is ready to achieve production requirements • correctly use required personal protective equipment • start, operate, monitor and adjust process equipment throughout the system to achieve required quality outcomes • identify system problems and take corrective action • conduct operational handovers • shut down system • identify and investigate opportunities for operational improvements within areas of responsibility • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment • apply food safety procedures
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and basic principles of the production system, including the system process flow, the interrelationships of each process to identify the impact of variation on related processes, and optimisation options • basic operating principles of equipment and related accessories used by the system, including equipment adjustment points, status and purpose of guards, and range and location/alignment requirements of sensors and related feedback instruments

	• operating capacities of equipment used in the system, such as different types of equipment and/or components as required by processing/packaging operations • related systems and responsibilities for interaction, such as related production systems, services supply, packaging/warehousing, maintenance, laboratory/quality assurance and planning and scheduling • product characteristics and common types of variation in materials and/or ingredients used, including the effect of variation on each stage of the system and scope to adjust or correct • typical production related problems, including equipment faults, common causes and warning signs, incorrect or poor supply of materials, incorrect settings and poor operator control • relevant procedures, specifications and operating parameters for the system and the individual processes • isolation, lock out and tag out procedures and responsibilities • hazards, risks, controls and methods for monitoring processes within the system, including Occupational Health and Safety (OHS), food safety, quality and environmental hazards and risks • workplace system and approach to equipment maintenance • process improvement procedures and related consultative arrangements • troubleshooting procedures and problem solving techniques • communication responsibilities to inform related work areas/support functions and other shifts of operational status and production issues • procedures and responsibility for reporting production and performance information
Underpinning Skills	Demonstrate skills to: • access production schedule and related information to identify system output and operating requirements, such as planning daily production schedules and/or modifying plans to respond to operating conditions and customer requirements • liaise with relevant work areas to confirm and/or secure necessary materials, services, equipment and labour to meet production requirements • confirm supply of necessary equipment and related attachments, materials and services • select, fit and use personal protective clothing and/or equipment

	• set and/or adjust equipment to meet process output requirements, including inspecting equipment condition to identify any signs of wear, confirming selection of appropriate settings and/or related parameters, ensuring that isolation or lock outs are cancelled as required, confirming that equipment is clean and correctly configured for processing requirements, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational (checks may be done by the system operator or involve observing/supporting others setting and adjusting equipment and conducting pre-start checks) • load and/or position materials, ingredients and/or product as required • operate and monitor the production system, such as use of a process control system and/or observing/supporting others to follow correct operating procedures • monitor materials flow and work-in-progress through the system • confirm that the system operates within specified parameters and inspection/ control points are monitored • determine responses to out-of-specification results or non-conformance within level of responsibility • monitor operating efficiencies of the system, including recognition of signs and symptoms of faulty equipment and early warning signs of other potential problems • investigate, resolve and/or report problems and faults • plan scheduled events to minimise disruption to production • conduct/coordinate product or batch changeovers • conduct/coordinate shift handovers • review and maintain procedures to support system improvements • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Use Computer Technology for Laboratory Applications**
Unit Code	**IND BPO3 06 0613**
Unit Descriptor	This unit covers the skills and knowledge required for information and data storage, retrieval, analysis and reporting.

Elements	Performance Criteria
1. Access equipment	1.1 Appropriate equipment required for information management is identified. 1.2 ***Laboratory software*** is accessed from a personal computer or network terminal.
2. Use application software	2.1 ***Information*** is entered into the computing system according to specified procedures. 2.2 Searches are conducted for information output. 2.3 Application features are used for calculations. 2.4 Data sets and databases are constructed for numerical and graphical analysis. 2.5 ***Data*** is obtained from diverse applications and integrated.
3. Analyse data and document reports	3.1 Data is analysed using ***software package*** applications. 3.2 Correct options are selected for constructing data reports. 3.3 Results of data analysis are documented using appropriate document format and design. 3.4 Data sources are referenced according to the style requirements of the workplace. 3.5 ***Report*** is printed using software package ***functions***.
4 Complete software applications	4.1 Data is backed up and/or archived according to workplace ***procedures***. 4.2 Hard copies are filed and/or distributed according to workplace procedures. 4.3 Anti-virus software is used as required.
5. Record information	5.1 ***Workplace information*** is recorded in appropriate format. 5.2 All records are signed. 5.3 Record information is communicated to appropriate immediate supervisor. 5.4 Workplace information records are kept in appropriate place.

Variable	Range
Laboratory software	may be applied to: • sample login, tracking and scheduling

	• results entry • quality assurance or quality control data reporting • export and invoicing • tracking labels • worksheets • status and backlog reports • control limit charting • barcoding
Information and reference sources	may include: • standards • specifications • analytical tolerances • supply details • stock control records • production statistics • automatic data transfer, including barcode systems • internet, intranet and email
Data	may include: • the results of inspections, tests, quality or safety audits and trials • product or process non-compliance • quarantine procedures • materials compliance validation • calibration or maintenance schedules • stock takes • instrument performance characteristics • wine shows
Software packages	may include: • word processing • spreadsheets • databases • graphical and statistical analysis • Laboratory Information Management Systems (LIMS)
Reports	These may include: • beverage makers • production team members • external clients • Reports may be distributed in: • hard copy or electronic format
Functions	may include: • Formatting • Integrating • importing graphics • charts and tables
Policies and procedures	• Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements

Workplace information	may include: • laboratory data • Standard Operating Procedures (SOPs) • specifications • standards • certificates of compliance • quality assurance records • scientific articles and publications • reference texts • product information and purchase details (e.g. supplier catalogues and handbooks) • calibration records • maintenance and service records • production schedules • instructions • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions (hardware and software documentation) • verbal direction from laboratory manager, supervisor, or senior operator

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • prepare equipment and software for operation • use software for laboratory applications • obtain, analyse and record data • maintain laboratory data according to workplace system requirements
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • how the software package can be applied to beverage laboratory information management • functions and commands associated with the software package • relationship between the package instructions and the data processing performed • types of database models available • relationship between procedures for data input and file storage • file and record maintenance • basic statistical concepts where relevant • methods of comparing quantitative data where relevant.
Underpinning Skills	Demonstrate skills to: • select the appropriate software package for the data processing operation • use routine commands and instruction of the software package to complete the required operation

	• use software package to analyse data. This may involve simple statistical and/or graphical analysis of quality assurance data • present accurate results in the required format. This may include: ➢ graphs ➢ tables ➢ graphics ➢ spreadsheets • identify deviations in performance and take appropriate action • back up electronic files • follow procedures to troubleshoot basic software problems • use virus scanning software • maintain the confidentiality of data according to workplace procedures • generate reports in a timely manner in the required format • secure records as required • analyse simple statistical and/or graphical data according to enterprise procedures • interpret hardware and/or software technical manuals according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Operate the Concentration Process**
Unit Code	**IND BPO3 07 0613**
Unit Descriptor	This specialist unit has been developed for the cellar stream of the beverage sector. It covers the skills and knowledge required to prepare for and operate a centrifugal juice concentrator.

Elements	Performance Criteria
1. Prepare the concentration process for operation	1.1 ***Product*** is confirmed and available to meet concentration requirements. 1.2 ***Services*** are confirmed as available and ready for operation. 1.3 ***Confirm Equipment*** is checked to confirm readiness for use. 1.4 The ***process is set*** to meet concentration requirements.
2. Operate and monitor the concentration process	2.1 The concentration process is started up according to workplace procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 ***Process is monitored*** to confirm product requirement using performance control chart, production data etc. 2.4 Concentrated product meets specification. 2.5 ***Equipment*** is monitored to confirm operating condition. 2.6 Out-of-specification product, process and equipment performance are identified, rectified and/or reported.
3. Shut down the concentration process	3.1 The process is shut down according to workplace procedures. 3.2 Equipment is dismantled and prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures are collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with workplace environmental guidelines.
4. Record information	4.1 ***Workplace information*** is recorded in the appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	Range
Product	may include: • a range of juice products

Services	may include: • power • steam • water • brine
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and the equipment is operational • checking the operation and calibration status of measuring equipment
Process set up, operation and monitoring functions	may be: • manual or involve the use of a process control system
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	s may involve: • the use of production data
Equipment	may include: • various capacity and configurations of centrifugal juice concentrators and associated in-line equipment, such as heat exchangers and vacuum pumps
Workplace information	can include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Information systems	may be: • print or screen based
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Work hazards	may involve exposure to: • chemical, dangerous or hazardous substances

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures • prepare and confirm status of equipment before commencing clarification

	• monitor concentration process control points and equipment • take corrective action in response to out-of-specification results or non-compliance • perform routine and emergency shutdowns • demonstrate knowledge of OHS hazards, controls and emergency procedures • record information appropriately.
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of concentration operation • link to related processes • stages and changes which occur during concentration operation • effect of process stages on end product • quality characteristics and uses of concentrated product • product preparation requirements and effect of variation on the process • main methods used in concentration process • process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • Occupational Health and Safety (OHS) hazards and controls • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • waste handling requirements and procedures • recording requirements and procedures • sampling procedures where relevant • testing procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify concentration requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product and services • liaise with other work areas • confirm equipment status and condition. This may include: ➢ confirming availability of receival vessels

	➢ setting machine and process variables (e.g. flow rate, vacuum and temperature) ➢ positioning valves • set up and start up the process • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring: ➢ flow rates ➢ operating vacuum ➢ operating temperatures ➢ cone rpm ➢ dilution and product loss ➢ relevant product characteristics (brix level) • monitor supply and flow of product to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as required • conduct product and batch changeovers • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • record workplace information • maintain work area to meet housekeeping standards • identify, rectify and/or report environmental non-compliance • take samples according to enterprise procedures • conduct tests according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production operation Level III	
Unit Title	**Operate the Continuous Clarification by Separation Process**
Unit Code	**IND BPO3 08 0613**
Unit Descriptor	This specialist unit has been developed for the cellar stream of the beverage sector. It covers the skills and knowledge required to prepare for and operate the continuous clarification by separation process.

Elements	Performance Criteria
1. Prepare the continuous clarification by separation process for operation	1.1 Product and materials are confirmed and available to meet clarification requirements. 1.2 ***Product*** and ***materials*** are prepared to meet clarification requirements. 1.3 ***Services*** are confirmed as available and ready for operation. 1.4 ***Equipment status*** is checked to ***confirm*** readiness for use. 1.5 The ***process is set*** to meet clarification requirements.
2. Operate and monitor the continuous clarification by separation process	2.1 The continuous clarification by separation process is started up according to workplace procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 ***Process is monitored*** to confirm product requirement using performance control chart, production data, etc. 2.4 Clarified product meets specification. 2.5 ***Equipment*** is monitored to confirm operating condition. 2.6 Out-of-specification product, process and equipment performance is identified, rectified and/or reported.
3. Shut down the continuous clarification by separation process	3.1 The process is shut down according to workplace procedures. 3.2 Equipment is dismantled and prepared for cleaning. 3.3 Waste generated by both the process and cleaning procedures is collected, treated and disposed of, or recycled according to workplace procedures. 3.4 Work is conducted in accordance with workplace environmental guidelines.
4. Record information	4.1 ***Workplace information*** is recorded in the appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	Range
Product	may include: • a range of juice products
Materials	may include: • fining agents, such as bentonite, gelatine, SO_2 and pectin enzymes
Services	may include: • power • gas • compressed and instrumentation air • steam and water
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration status of measuring instrumentation
Process set up, operation and monitoring functions	may be: • manual or involve the use of a process control system
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	may involve: • the use of production data
Equipment	may include: • purpose designed flotation equipment that incorporates in-line dosing, pressure vessel, flotation tub and solids extraction for continuous operation
Policies and procedures	• Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	can include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • routine maintenance schedules • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Information systems	may be: • print or screen based
Work hazards	Work may involve exposure to: • chemical, dangerous or hazardous substances

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures • prepare and confirm status of equipment before commencing clarification • monitor clarification process control points and equipment • take corrective action in response to out-of-specification results or non-compliance • perform routine and emergency shutdowns • demonstrate knowledge of OHS hazards, controls and emergency procedures • record information appropriately
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of continuous clarification by separation • link to related processes • stages and changes which occur during continuous clarification by separation • effect of process stages on end product • quality characteristics and uses of continuous clarification by separation product • product preparation requirements and effect of variation on the process • main methods used in continuous clarification by separation • process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • Occupational Health and Safety (OHS) hazards and controls • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • waste handling requirements and procedures • recording requirements and procedures • testing procedures where relevant • routine maintenance procedures where relevant

Underpinning Skills	Demonstrate skills to: • access workplace information to identify clarification requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product and services • liaise with other work areas • prepare product as required. This may include: ➢ checking that it is pectin negative ➢ adding sulphur ➢ cooling product ➢ adding pectin enzymes • confirm equipment status and condition. This may include: ➢ loading fining agents ➢ positioning valves correctly • set up and start up the process • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring: ➢ flow rates ➢ separation effectiveness ➢ test separation results ➢ dosage rates ➢ dosage ratios ➢ gas rates ➢ pressure ➢ weir level ➢ product loss ➢ dilution ➢ oxidation ➢ relevant product characteristics (e.g. variety, turbidity and solids content) • monitor supply and flow of product to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as required • conduct product and batch changeovers • sort, collect, treat, recycle or dispose of waste • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements • record workplace information • maintain work area to meet housekeeping standards • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation

	• identify, rectify and/or report environmental non-compliance • carry out routine maintenance according to enterprise procedures • conduct routine tests according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production operation Level III	
Unit Title	**Perform Rectification (Continuous Still) Process**
Unit Code	**IND BPO3 09 0613**
Unit Descriptor	This unit has covers the skills and knowledge required to prepare for, conduct and monitor rectification processes in beverage production.

Elements	Performance Criteria
1. Prepare the rectification process for operation	1.1. Product and materials are confirmed and available to meet production requirements. 1.2. ***Product and materials*** are prepared to meet production requirements. 1.3. ***Services*** are confirmed as available and ready for operation. 1.4. ***Equipment status*** is checked to confirm readiness for use. 1.5. The ***process is set*** to meet production requirements.
2. Operate and monitor the rectification process	2.1 The rectification process is started up according to workplace procedures. 2.2 ***Control points*** are monitored to confirm performance is maintained within specification. 2.3 Product and process meet specification. 2.4 ***Process is monitored*** to confirm product requirement using performance control chart, production data etc. 2.5 Equipment is monitored to confirm operating condition. 2.6 Out-of-specification product, process and equipment performance are identified, remedied and/or reported.
3. Shut down the rectification process	3.1 The process is shut down according to workplace procedures. 3.2 Equipment is dismantled and/or prepared for cleaning. 3.3 Work is conducted in accordance with workplace environmental guidelines.
4. Record information	4.1 ***Workplace information*** is recorded in the appropriate format. 4.2 All records are signed. 4.3 Record information is communicated to appropriate immediate supervisor. 4.4 Workplace information records are kept in appropriate place.

Variable	Range
Product and materials	may include: • fermented and decanted wine

	• a range of distillation products and by-products, including heads, pure alcohol, denature alcohol, heads, fuel oil, vinasses ...etc
Services	may include: • power • water (hot and cold) • steam • fuel
Confirming equipment status	involves: • checking that hygiene and sanitation standards, safety standards and pre-start requirements are met and that equipment is operational • checking the operation and calibration status of measuring instrumentation
Process set up, operation and monitoring functions	may be: • manual or involve the use of a process control system
Control points	This includes: • food safety (critical) • quality and regulatory control points • inspection points
Monitoring the process	may involve: • the use of production data, such as performance control charts (manual or computerised) • sampling • sensory evaluation (organoleptic test) • analytical tests
Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements
Workplace information	can include: • Standard Operating Procedures (SOPs) • specifications • production schedules and instructions • work notes • Material Safety Data Sheets (MSDS) • manufacturer instructions • verbal direction from manager, supervisor or senior operator
Equipment	may include: • analyser column • purifier column • rectifier column • methanol column • fusel oil column • pumps • lines and fittings • valves

	• flow meters • heat exchangers • pressure vessels, • compressors • condensers • cooler • test equipment (e.g. hydrometers, alcoholmeter and, thermometers) • monitoring equipment
Information systems	may be: • print or screen based
Work hazards	may involve exposure to: • chemical, dangerous or hazardous substances

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • use personal protective equipment and follow other specified OHS procedures • prepare and confirm status of equipment before commencing rectification • monitor rectification process control points and equipment • take corrective action in response to out-of-specification results or non-compliance • perform routine and emergency shutdowns • demonstrate knowledge of OHS hazards, controls and emergency procedures • record information appropriately
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • purpose and principles of rectification, including definition of the following terms: ➢ distillation ➢ continuous columns ➢ fractionation ➢ bubble tower ➢ bubble caps or plates ➢ sieve trays or plates ➢ packed column • types and operation of different columns used for rectification. This should include: ➢ structure and operation ➢ purpose of each column ➢ effect of each column on characteristics of end product • factors affecting distillation column operation. This may include: ➢ feed conditions ➢ reflux conditions ➢ vapour flow conditions ➢ foaming

	➢ entrainment ➢ weeping or dumping ➢ flooding ➢ column diameter ➢ state of trays and packing ➢ weather conditions • process requirements for cuts taken from each column. This may include: ➢ heads (or feints) ➢ tails or fusel oils ➢ oil of wine ➢ methanol ➢ highly rectified spirit (SVR) • link to related processes. This will include the fermentation or preparation of the product to be distilled and any further processing requirements of the distillate • stages and changes which occur during distillation. This will include critical temperatures and specific components affected • effect of process stages on distillate and by-products • quality characteristics and uses of distillate and by-products • product and materials preparation requirements and effect of variation on the process • process specifications, procedures and operating parameters • equipment and instrumentation components, purpose and operation • basic operating principles of process control systems where relevant • sampling and testing procedures • services used • significance and method of monitoring control points within the process • common causes of variation and corrective action required • OHS hazards and controls. This will include: ➢ the dangerous properties of ethyl alcohol ➢ emergency flooding procedures ➢ emergency evacuation procedures ➢ handling procedures of spirits • lock-out and tag-out procedures • procedures and responsibility for reporting problems • environmental issues and controls • shutdown and cleaning requirements associated with changeovers and types of shutdowns • recording requirements and procedures • operation of customs and excise regulations • waste handling requirements and procedures where relevant • cleaning and sanitation procedures where relevant

	• routine maintenance procedures where relevant • transfer procedures where relevant • heat exchange procedures where relevant
Underpinning Skills	Demonstrate skills to: • access workplace information to identify distillation requirements • select, fit and use personal protective clothing and/or equipment • confirm supply of necessary product, materials and services. This may include checking temperature and alcoholic strength • liaise with other work areas • prepare product and materials as required. This may include heating the incoming product • confirm equipment status and condition. This may include checking: ➢ computer operation ➢ air pressure from compressor ➢ fuel intake ➢ water flow to condensers ➢ receiver vessels for product and by-products • set up and start up the process. This will include any tests or procedures required to meet customs and excise regulations • monitor the process and equipment operation to identify out-of-specification results or non-compliance. This may involve monitoring: ➢ beverage feed ➢ alcohol content of the feed ➢ steam input ➢ cooling water flow rates to condensers ➢ volume of charge ➢ temperature of distillate ➢ alcoholic strength of distillate ➢ heat source ➢ reflux temperatures ➢ temperature of incoming beverage ➢ temperatures throughout still and/or column ➢ temperatures and strengths at take-off points ➢ receivers for heads, hearts and tails ➢ evaporation rates ➢ charge characteristics ➢ pressure of still and/or column ➢ condensate rate or flow • monitor supply and flow of product, materials and services to and from the process • take corrective action in response to out-of-specification results or non-compliance • report and/or record corrective action as required

	• conduct product and batch changeovers • take samples and conduct tests • shut down equipment in response to an emergency situation • shut down equipment in response to routine shutdown requirements • prepare equipment for cleaning. This may involve draining and/or dismantling equipment, and removing waste either manually or by rinsing, in preparation for cleaning and sanitation • record workplace information. This will include meeting the requirements of Customs and Excise regulations • maintain work area to meet housekeeping standards • ensure that all Customs and Excise regulations are adhered to sort, collect, treat, recycle or dispose of waste according to enterprise procedures • manually clean and sanitise equipment according to enterprise procedures • clean and sanitise equipment according to enterprise procedures • carry out routine maintenance according to enterprise procedures • carry out transfer operations according to enterprise procedures • perform heat exchange operations according to enterprise procedures • identify, rectify and/or report environmental non-compliance according to enterprise procedures • use oral communication skills/language 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Perform Basic Tests**
Unit Code	**IND BPO3 10 0613**
Unit Descriptor	This unit of competency covers the ability to perform tests and measurements using standard methods with access to readily available advice from supervisors.

Elements	Performance Criteria
1. Interpret test requirements	1.1. Review test request to identify samples to be tested, test method and ***common measuring equipment*** involved. 1.2. Identify ***hazard***s and ***enterprise controls*** associated with the sample, preparation methods, reagents and/or equipment.
2. Prepare sample	2.1 Record sample description, compare with specification, record and report discrepancies. 2.2 ***Prepare sample*** in accordance with appropriate standard methods.
3. Check equipment before use	3.1 Set up test equipment in accordance with test method. 3.2 Perform pre-use and safety checks in accordance with enterprise procedures and manufacturer's instructions. 3.3 Identify faulty or unsafe equipment and report to appropriate personnel. 3.4 Check calibration status of equipment and report any out of calibration items to appropriate personnel.
4. Perform tests on samples	4.1. Identify, prepare and weigh or ***measure*** sample and standards to be tested. 4.2. Conduct ***tests*** in accordance with ***enterprise procedures***. 4.3. Record data in accordance with enterprise procedures. 4.4. Perform calculations on data as required. 4.5. Identify and report out of specification or atypical results promptly to appropriate personnel. 4.6. Shut down equipment in accordance with operating procedures.
5. Maintain a safe work environment	5.1. Use established safe work practices and personal protective equipment to ensure personal safety and that of other laboratory personnel. 5.2. ***Minimize*** the generation of wastes and environmental impacts. 5.3. Ensure safe disposal of laboratory and hazardous wastes. 5.4. Clean, care for and store equipment and reagents as required.

Variable	Range
Common measuring equipment	may include: • dimension apparatus • DO and EC • analogue and digital meters and charts/recorders • Densito Meter • Theremometer • CarboQC • Pressure gauges • Burates • basic chemical and biological test kits • dipsticks and site test kits (e.g. HACK) • timing devices • temperature measuring devices, such as thermometers and thermocouples
Hazards	may include: • electric shock • biohazards, such as microbiological organisms and agents associated with soil, air, water, blood and blood products, and human or animal tissue and fluids • solar radiation, dust and noise • chemicals, such as sulphuric acid, fluorides and hydrocarbons • aerosols • sharps, broken glassware and hand tools • flammable liquids • dry ice and liquid nitrogen • fluids under pressure • sources of ignition • occupational overuse syndrome, slips, trips and falls • manual handling, working at heights and working in confined spaces • crushing, entanglement and cuts associated with moving machinery or falling objects
Enterprise controls to address hazards	may include: • use of MSDS • use of signage, barriers and service isolation tags • use of personal protective equipment, such as hard hats, hearing protection, sunscreen lotion, gloves, safety glasses, goggles, face guards, coveralls, gowns, body suits, respirators and safety boots • use of appropriate equipment, such as biohazard containers and cabinets and laminar flow cabinets • recognising and observing hazard warnings and safety signs • labelling of samples, reagents, aliquoted samples and hazardous materials

	• handling and storage of all hazardous materials and equipment in accordance with labelling, MSDS and manufacturer's instructions, and enterprise procedures and regulations • cleaning and decontaminating equipment and work areas regularly using recommended procedures • following established manual handling procedures for tasks involving manual handling
Preparation of samples	may include: • sub-sampling or splitting using procedures, such as riffling, coning and quartering, manual and mechanical splitters • diluting samples • physical treatments, such as ashing, dissolving, filtration, sieving, centrifugation and comminution • moulding, casting or cutting specimens
Concepts of metrology	may include: • that all measurements are estimates • measurements belong to a population of measurements of the measured parameters • repeatability • precision • accuracy • significant figures • sources of error • uncertainty • traceability
Measurements	may include: • simple ground surveys • meteorological parameters, such as wind direction/strength, rainfall, maximum/minimum temperature, humidity and solar radiation • simple background radiation survey • production/process parameters, such as temperature, flow and pressure • gas levels in a confined space
Typical tests carried out by laboratory**/**field assistants	may include: • visual/ optical tests of appearance, colour, texture, identity, turbidity, refractive index (alcohol content and Baume/Brix),carbonation. Net content, taste, odour, acidity, etc. • physical tests: ➢ density, specific gravity and compacted density ➢ moisture content and water activity ➢ particle size, particle shape and size distribution • chemical tests: ➢ gravimetric ➢ floc test ➢ cleaning chemical concentration measurement

	➢ colorimetric ➢ Electrical Conductivity (EC) and pH ➢ specific ions using dipsticks and kits ➢ nutrients (e.g. nitrates and orthophosphates) using basic kits ➢ ashes, including sulphated ashes • biological/environmental tests: ➢ pH, Oxygen Reduction Potential (ORP), Dissolved Oxygen (DO) and (EC) ➢ E coli using test kits ➢ surface hygiene/presence of microbes • packaging tests: ➢ tearing resistance, Torque, crown crimp test, Appereance, bursting strength and impact resistance ➢ permeability and/or leakage • mechanical tests: ➢ Emerson class and concrete slump
Standards, codes, procedures and/or enterprise requirements	may include: • Ethiopia and international standards, such as: ➢ AS ISO 1000-1998 The international system of units (SI) and its application ➢ AS ISO 17025-2005 General requirements for the competence of testing and calibration laboratories ➢ AS/NZS 2243 Set:2006 Safety in laboratories set • Ethiopian code of good manufacturing practice for medicinal products (GMP) • calibration and maintenance schedules • enterprise recording and reporting procedures • equipment manuals • equipment startup, operation and shutdown procedures • MSDS and safety procedures • material, production and product specifications • national measurement regulations and guidelines • principles of good laboratory practice (GLP) • production and laboratory schedules • quality manuals • Standard Operating Procedures (SOPs)
Occupational Health and Safety (OHS) and environmental management requirements	requirements: • all operations must comply with enterprise OHS and environmental management requirements, which may be imposed through state/territory or federal legislation - these requirements must not be compromised at any time • all operations assume the potentially hazardous nature of samples and require standard precautions to be applied • where relevant, users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health

Minimising environmental impacts	may involve: • recycling of non-hazardous waste, such as chemicals, batteries, plastic, metals and glass • appropriate disposal of hazardous waste • correct disposal of excess sample/test material • correct storage and handling of hazardous chemicals
Codes of practice	Where reference is made to industry codes of practice, and/or Ethiopian / international standards, it is expected the latest version will be used

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • accurately interpret enterprise procedures or standard methods • complete all tests within the required timeline without sacrificing safety, accuracy or quality • demonstrate close attention to the accuracy and precision of measurements and the data obtained • maintain the security, integrity and traceability of all samples, data/results and documentation
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • concepts of metrology • the international system of units (SI) • purpose of test • principles of the standard method • pre-use equipment checks • relevant standards/specifications and their interpretation • sources of uncertainty in measurement and methods for control • enterprise and/or legal traceability requirements • interpretation and recording of test result, including simple calculations • procedures for recognition/reporting of unexpected or unusual results • relevant health, safety and environment requirements
Underpinning Skills	Demonstrate skills to: • interpreting enterprise procedure or standard methods accurately • using safety information, such as material safety data sheets (MSDS) and performing procedures safely • checking test equipment before use • completing all tests within required timeline without sacrificing safety, accuracy or quality • calculating, recording and presenting results accurately and legibly • maintaining security, integrity and traceability of all samples, data/results and documentation

	• cleaning and maintaining equipment
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Evaluate Beverage Standard**
Unit Code	**IND BPO3 11 0613**
Unit Descriptor	This specialist unit has been developed for the cellar door sales stream of the beverage sector. It covers the skills and knowledge required to reach an advanced standard of beverage evaluation.

Elements	Performance Criteria
1. Identify specific beverage characteristics using sensory evaluation techniques	1.1 Correct tasting procedures using sight, smell and taste are followed. 1.2 Ethiopian beverage, for example wine is identified by grape varieties, region and vintage 1.3 Specific ***beverage making techniques*** are identified and discussed. 1.4 Quality evaluation is completed
2. Identify specialised beverage faults	2.1 Beverages are inspected and ***faults*** are identified correctly and reported.
3. Compare Ethiopian styles with key world beverage	3.1 Well known ***world beverage*** is identified in terms of style and quality. 3.2 Appropriate enterprise beverage is recommended as alternatives
4. Enhance consumer enjoyment of beverage	4.1 Appropriate enterprise beverage are selected to match food choices 4.2 Optimum ageing and serving requirements are specified
5. Record information	5.1 ***Workplace information*** is recorded in appropriate format 5.2 All records are signed. 5.3 Record information is communicated to appropriate immediate supervisor. 5.4 Workplace information records are kept in appropriate place.

Variable	Range
Beverage making and grape /grain/Sugar Cane growing techniques	may include: • Sugar treatment and filtration • Syrup making • beverage canopy management • harvesting management • maceration • cold fermentation • barrel fermentation • oak treatment

	• ageing • malolactic fermentation • sparkling beverage production methods (e.g. tank, transfer and méthode champenoise)
Beverage faults	may include: • evidence of excessive sulphur dioxide (free &total SO_2) • cork taint and other faults • volatile acidity • Low or high brix • tartrate crystals • oxidation • haze • brettanomyces • DMS (dimetyl sulphite) • Diacetyl • Cellar(mashroom) test • Vegetable test • Chloro phenol • Acetone • Acetalehydide • Faltteness • Overaging and underaging • Raw material quality • Organoleptic test ...etc
World beverage	include: • France (Bordeaux, Burgundy, Champagne and Rhône) • Spain (Rioja, Sherry) • Germany (Liebfraumilch) • Italy (Lambrusco and Chianti) • Portugal (Port) • New Zealand • Chile • South Africa • California
Workplace information	can include: • Standard Operating Procedures (SOPs) • workplace policy and procedures in regard to evaluating beverage • specifications • work notes • instructions or verbal direction from manager, supervisor or senior staff
Staff	may: • be full time, part time or casual • work in other areas of the enterprise
Information systems	may be: • print or screen based

Equipment	may include: • spittoons • Glasses • Corkscrews • Hydrometer • Steam distilleter • Spectrophotometer • Densitometer • CarboQC • And other Laboratory equipments
Materials	may include: • product information sheets • tasting notes • Beverage Documents • Quality Manuals • Laboratory Procedures
Beverage factors	include: • clarity • colour type and intensity • rims versus core differentiation • alcohol (degrees or %) intensity and character of aroma and flavour • oak characteristics • complexity • residual sugar • acidity, including malolactic treatment • body • weight • mouth feel • CO_2,PH, Extract • astringency • tannin • balance • length • diacetyl • bitterness • DMS • Air content • Foam • Aging
Food factors	should include: • Acidity • oil or cream content • ‘weight’ • free proteins or rare meat • hot spices • sweetness and alcohol content

Policies and procedures	Work is carried out in accordance with workplace procedures, licensing requirements and legislative requirements

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • consistently establish appropriate conditions for tasting beverage, including optimum conditions for sight, smell and taste • correctly explain specific beverage making techniques and their effect on beverage characteristics
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • features and purpose of beverage sensory evaluation techniques • beverage faults (features, causes and prevention or corrective action required) • beverage tasting policy, procedures and techniques • optimum conditions for tasting beverage , including: ➢ environment ➢ self and other people ➢ equipment and glasses ➢ beverage preparation • factors influencing the order in which beverage should be tasted • label terminology and meanings • 'trigger' characteristics of beverage that can be assessed to identify key features, including: ➢ country of origin ➢ region of production ➢ vintage ➢ beverage making and grape / grain growing techniques ➢ quality ➢ value for money how beverage is made • common beverage making, grape/grain growing techniques and how they can be utilised to manipulate beverage style and characteristics • key Ethiopian and world beverage and enterprise products, including their: ➢ Style and taste characteristics ➢ price ➢ quality • key food and beverage factors that will react together and which combinations create harmony and discord • serving and cellaring requirements of key world and Ethiopian beverage and all enterprise products • beverage factors that will determine cellaring and serving requirements, including balance of alcohol, tannin, acidity volatile acidity odour, test and fruit flavours

	➢ factors that will detrimentally affect the quality of beverage during cellaring, including: • temperature • humidity • ultraviolet (UV) light • vibrations • Occupational Health and Safety (OHS) hazards and controls • procedures and responsibility for reporting problems • housekeeping requirements and procedures • recording requirements and procedures.
Underpinning Skills	Demonstrate skills to: • access workplace information to determine advanced beverage sensory evaluation requirements • confirm supply of necessary products, materials and equipment • follow correct tasting procedures. This may include: ➢ preparation of environment and self ➢ preparation and service of beverage ➢ order of tasting ➢ sensory evaluation techniques ➢ recording and documentation techniques • effectively carry out beverage sensory evaluation to determine: ➢ beverage style ➢ country of origin ➢ region of production ➢ vintage ➢ beverage making techniques ➢ quality ➢ value for money ➢ beverage faults • identify and describe evidence of specific beverage making techniques and explain their effect on beverage characteristics. These may include their effect on: ➢ balance of acidity on the palate ➢ complexity ➢ weight and mouth feel ➢ alcohol ➢ aromas and flavours ➢ colour ➢ tannin ➢ fault eradication ➢ length • recommend appropriate enterprise alternatives to key Ethiopian and world beverage. These may consider: ➢ price ➢ style ➢ quality and occasion

	• select appropriate enterprise products to complement food types. This should include consideration of: ➢ beverage factors (primarily acidity, sweetness, intensity of flavour, alcohol, tannin and weight) ➢ food factors ➢ occasion ➢ price • advise on optimum serving and cellaring requirements of key enterprise, Ethiopian and world beverage. This will include consideration of specific consumer tastes and recommending: ➢ cellaring time and conditions ➢ decanting techniques ➢ serving temperature ➢ breathing and opening time • use oral communication skills/language 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.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Use Inventory Systems to Organize Stock Control**
Unit Code	**IND BPO3 12 0613**
Unit Descriptor	This unit involves the skills and knowledge required to use inventory systems to organise stock control in accordance with workplace requirements including identifying inventory and stock control systems in use in the workplace, using re-order procedures to maintain stock levels, organising cyclical stock counts, and reporting discrepancies or variances.

Elements	Performance Criteria
1 Identify inventory and stock control systems in use in the workplace	1.1 Workplace inventory and ***stock control equipment,*** software and systems are identified. 1.2 Reasons for common database approach to inventory records and documentation in the warehouse are explained. 1.3 Procedures for identification and reporting of discrepancies or variances are identified.
2 Use re-order procedures to maintain stock levels	2.1 Stock level maintenance checking is conducted. 2.2 Stock is re-ordered to meet stock level maintenance requirements in accordance with ***workplace policies and procedures***. 2.3 Data is accurately entered and extracted from the ***inventory/records system*** using appropriate ***workplace*** procedures.
3 Organise cyclical stock counts and report discrepancies or variances	3.1 Process for cyclical stock count is planned and ***work*** allocated to team members. 3.2 Clear directions on tasks to be performed are given. 3.3 Stock take activities are conducted in accordance with workplace procedures. 3.4 Types and causes of records discrepancies are identified. 3.5 Procedures are used for noting and correcting minor discrepancies. 3.6 Major discrepancies are reported in accordance with workplace procedures. 3.7 Workplace ***documentation*** is completed.
4 Produce reports on record keeping and inventory functions	4.1 Types of reports to be produced from inventory records systems are identified. 4.2 Reports are produced in accordance with workplace procedures and ***relevant regulatory*** requirements.

Variable	Range
Categories or groups of products/stock	may include: • small parts • perishable goods • overseas export • dangerous goods • refrigerated products • temperature controlled stock • fragile goods
Depending on the type of organisation concerned and the local terminology used, workplace procedures	may include: • company procedures • enterprise procedures • organisational procedures • established procedures
Inventory systems	may be: • automated • manual • paper-based • computerised • microfiche
Workplaces	may comprise: • large, medium or small worksites
Work	may be conducted: • in a range of work environments • by day or night
Information/documents	may include: • goods identification numbers and codes • manifests, picking slips, merchandise transfers, stock requisitions and bar codes • codes of practice and regulations relevant to the identification, handling and stacking of goods • Ethiopian and international regulations and codes of practice for the handling, stacking and transport of dangerous goods and hazardous substances • operations manuals, job specifications and induction documentation • manufacturers specifications for equipment • workplace procedures and policies • supplier and/or client instructions • dangerous goods declarations and material safety data sheets (where applicable) • award, enterprise bargaining agreement, other industrial arrangements • relevant Ethiopian standards and certification requirements • quality assurance procedures • emergency procedures

Applicable regulations and legislation	may include: • relevant codes and regulations for the packaging of goods • Ethiopian and international regulations and codes of practice for the handling and transport of dangerous goods and hazardous substances, including: • Ethiopian and international dangerous goods codes • Ethiopian and international explosives codes • licence, patent or copyright arrangements • water and road use and licence arrangements • export/import/quarantine/bond requirements • relevant state/territory OHS and environmental protection legislation • workplace relations regulations • workers compensation regulations
Customers	may be: • internal or external
Goods	may involve: • special handling, location, storage and/or packaging requirements, including temperature controlled goods and dangerous goods
The characteristics of products/stock	may include: • small parts • toxicity • flammability • form • weight • size • state • perish ability • fragility • security risk
Labelling systems	may include: • batch code • bar code • identification numbering systems • serial numbers • symbols for safe handling • ADG and HAZCHEM Codes
Hazards in the work area	may include: • chemicals • dangerous or hazardous substances • movements of equipment, goods and materials • oil or water on floor • a fire or explosion • damaged packaging or pallets • debris on floor • faulty racking

	• poorly stacked pallets • faulty equipment
Communication in the work area	may include: • phone • Electronic Data Interchange (EDI) • fax • email • internet • RF systems • oral, aural or signed communications
Personal protective equipment	may include: • gloves • safety headwear and footwear • safety glasses • two-way radios and high visibility clothing
Consultative processes	may involve: • other employees and supervisors • suppliers, customers and clients • relevant authorities and institutions • management and union representatives • industrial relations and OHS specialists • other maintenance, professional or technical staff

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria of this unit and include demonstration of applying: • the underpinning knowledge and skills • relevant legislation and workplace procedures • other relevant aspects of the range statement
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Ethiopian codes and regulations relevant to the organisation of stock control • Relevant OHS and environmental protection procedures and guidelines • Workplace procedures and policies for the use of inventory systems to organise stock control • Focus of operation of inventory systems, equipment, management and site operating systems for the control of stock • Principles of operation and functions of inventory systems • Applications of different types of inventory systems and stock management approaches • Workplace processes for records management and the production of inventory reports

	• Principles of operation and functions of inventory systems • Computer records and documentation requirements for stock control, including forms, checklists and inventory reports • Housekeeping standards procedures required in the workplace • Site layout and obstacles
Underpinning Skills	Demonstrate skills to: • Communicate effectively with others when using inventory systems to organise stock control • Read and comprehend simple statements in English • Read and interpret instructions, procedures and labels relevant to the use of inventory systems for the organisation of stock control • Complete documentation related to the use of inventory systems to organise stock control • Work collaboratively with others when using inventory systems to organise stock control • Adapt appropriately to cultural differences in the workplace, including modes of behaviour and interactions with others • Promptly report and/or rectify any identified problems when using inventory systems to organise stock control in accordance with regulatory requirements and workplace procedures • Implement contingency plans for unplanned events • Modify activities depending on differing operational contingencies, risk situations and environments • Work systematically with required attention to detail without injury to self or others, or damage to goods or equipment • Operate and adapt to differences in equipment in accordance with standard operating procedures • Select and use required personal protective equipment conforming to industry and OHS standards • Select and use relevant communications, computing and office equipment when using inventory systems to organise stock control
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Participate in a HACCP Team**
Unit Code	**IND BPO3 13 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to participate in the development and/or review of a HACCP-based food safety program under direction.

Elements	Performance Criteria
1. Prepare to develop and/or review a food safety program	1.1. Roles and responsibilities for participating in, developing or reviewing a food safety program are identified. 1.2. The ***scope*** of the food safety program is identified.
2. Identify and/or review food safety hazards	2.1. Processes to be covered by the ***food safety program*** are identified and steps within each process are described. 2.2. ***Food safety hazards*** that are reasonably expected to occur are identified for each process. 2.3. Handling methods, processing techniques and existing support programs used in the workplace are identified.
3. Establish and/or review methods to monitor and control food safety hazards	3.1. Acceptable ***methods of control*** are established for each food safety hazard that is reasonably expected to occur. 3.2. Control methods are ***validated***. 3.3. Procedures for taking preventative action are established. 3.4. Appropriate methods for monitoring that processes remain within control are established. 3.5. Required corrective action to respond to situations where hazards are not effectively controlled is established. 3.6. Work is conducted in accordance with workplace environmental guidelines.

Variable	Range
Scope of the HACCP based plans	based plan depends on workplace requirements and may extend outside the direct area of responsibility of the team participants
Food safety programs	is a written document that specifies how a business will control all food safety hazards that are reasonably expected to occur in the food business. The food safety program must provide for the systematic monitoring of the controls as well as appropriate corrective action if a hazard is found not to be under control. Records must be kept to demonstrate action in relation to, or in compliance with, the food safety program. A food safety program may be developed as a stand-alone program or may be integrated with the quality program in a workplace
Food safety hazards	include: • microbiological

	• chemical • physical hazards
Methods used to control hazards	include: • both support programs and specific hazard control limits or requirements • Typical examples of support programs include: • product recall • cleaning schedules • pest control programs • personal hygiene practices • calibration procedures and related operating procedures
Validation	refers to: • the use of objective evidence in order to prove that materials, processes, procedures or equipment used are capable of delivering the intended result
Verification	refers to: • reviewing all aspects of the food safety program and related records to determine compliance with and adequacy of the food safety program • At a minimum, food safety programs must be verified annually

Evidence Guide	
Critical aspects of Competence	Must demonstrate knowledge and skills competence to: • identify components and parameters of a food safety program • identify food safety hazards in production processes • establish and validate control standards and methods for each hazard • establish procedures for unpredicted hazards • communicate and document hazards and control procedures • complete workplace records • apply safe work practices and identify Occupational Health and Safety (OHS) hazards and controls • apply food safety procedures
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • the purpose and intent of food safety legislation • purpose and responsibilities for maintaining records as required by legislation and workplace procedures • roles and responsibilities for development and maintenance of the food safety program, including roles of internal and external auditors and of authorised officers • techniques for applying HACCP-based principles, including techniques for identifying hazards, assessing the likelihood of occurrence, determining acceptable methods of control, monitoring and recording requirements for each control point, identifying corrective action if controls are not met, and developing system review procedures

	• techniques used to map operations and analyse food safety requirements, such as preparation of flow charts, hazard analysis charts and tables, and data analysis reports • raw materials, ingredient and finished product composition and characteristics, and related handling and storage requirements • food processing methods used in the workplace or work area and their effect on food safety • sources of technical expertise on food safety requirements • the role of consultation in the development, implementation and ongoing maintenance of the food safety program • documentation and recording requirements to support communication and monitoring of the food safety program, including procedures for maintaining and updating relevant documents, such as operating procedures • main types of food safety hazards/contamination likely to occur given the type of product and processing methods used • conditions required for bacterial food poisoning to occur, such as water activity, pH, composition, time and temperature as relevant to food handled • acceptable control methods for the hazards identified and required corrective action when control requirements are not met • typical support programs, such as cleaning schedules, pest control, stock rotation, product traceability and personal hygiene, and how they can be used as part of a food safety program • acceptable control methods for the hazards identified and required corrective action when control requirements are not met • validation and verification processes and techniques and responsibilities
Underpinning Skills	Demonstrate skills to: • identify personal roles and responsibilities for participating in the development or review of a food safety program • identify processes and steps to be covered • identify hazards that are reasonably expected to occur and establish appropriate methods of control, such as participating in validating existing control methods and where there is no adequate control method in place, establishing an appropriate method • establish or review procedures for implementing preventative action, such as revision of materials, processes and/or food handling procedures, and where required, the revision of workplace practices and documentation, such as specifications, operating procedures and approved supplier programs

	• describe the appropriate monitoring requirements for each food safety hazard, including the method or procedure to be followed, the frequency and timing, the person responsible, and the information to be recorded (procedures to be followed would typically be specified in the form of a standard operating procedure or work instruction) • describe corrective action requirements in the event that acceptable limits or requirements of support programs are not met • develop or review documentation relating to the design and maintenance of the food safety program, such as flow diagrams, hazard analysis charts and tables, support program requirements, data analysis reports, corrective action reports and verification reports • develop or review documentation to communicate food safety responsibilities, such as Standard Operating Procedures (SOPs), processing parameters and recording devices (e.g. log sheets) • communicate food safety responsibilities within level of responsibility using techniques and presentation styles appropriate to the audience • 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
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Monitor Implementation of Work Plan/Activities**
Unit Code	**IND BPO3 14 0613**
Unit Descriptor	This unit covers competence required to oversee and monitor the quality of work operations within an enterprise. This unit may be carried out by team leaders or supervisors.

Elements	Performance Criteria
1. Monitor and improve workplace operations	1.1 Efficiency and service levels are monitored on an ongoing basis. 1.2 Operations in the workplace support overall enterprise goals and quality assurance initiatives. 1.3 Quality ***problems*** and issues are promptly identified and adjustments are made accordingly. 1.4 Procedures and systems are changed in consultation with colleagues to improve efficiency and effectiveness. 1.5 Colleagues are consulted about ways to improve efficiency and service levels.
2. Plan and organise workflow	2.1 Current workload of colleagues is accurately assessed. 2.2 Work is scheduled in a manner which enhances efficiency and customer service quality. 2.3 Work is delegated to appropriate people in accordance with principles of delegation. 2.4 Workflow is assessed against agreed objectives and timelines and colleagues are assisted in prioritisation of workload. 2.5 Input is provided to appropriate management regarding staffing needs.
3. Maintain workplace records	3.1 ***Workplace records*** are accurately completed and submitted within required timeframes. 3.2 Where appropriate completion of records is delegated and monitored prior to submission.
4. Solve problems and make decisions	4.1 Workplace problems are promptly identified and considered from an operational and customer service perspective. 4.2 Short term action is initiated to resolve the immediate problem where appropriate. 4.3 Problems are analysed for any long term impact and potential solutions are assessed and actioned in consultation with relevant colleagues. 4.4 Where problem is raised by a team member, they are encouraged to participate in solving the problem. 4.5 Follow up action is taken to monitor the effectiveness of solutions in the workplace.

Variables	Range
Problems	May include but not limited to: • difficult customer service situations • equipment breakdown/technical failure • delays and time difficulties • competence
Workplace records	May include but is not limited to: • staff records and regular performance reports

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: • ability to effectively monitor and respond to a range of common operational and service issues in the workplace • understanding of the role of staff involved in workplace monitoring • knowledge of quality assurance, principles of workflow planning, delegation and problem solving
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • roles and responsibilities in monitoring work operations • overview of leadership and management responsibilities • principles of work planning and principles of delegation • typical work organization methods appropriate to the sector • quality assurance principles and time management • problem solving and decision making processes • industrial and/or legislative issues which affect short term work organization as appropriate to industry sector
Underpinning Skills	Demonstrate skills to: • monitor and improve workplace operations • plan and organize workflow • maintain workplace records
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Apply Quality Control**
Unit Code	**IND BPO3 15 0613**
Unit Descriptor	This unit covers the knowledge, attitudes and skills required in applying quality control in the workplace.

Elements	Performance Criteria
1. Implement quality standards	1.1 Agreed quality standard and procedures are acquired and confirmed. 1.2 Standard procedures are introduced to organizational staff/personnel. 1.3 Quality standard and procedures documents are provided to employees in accordance with the organization policy. 1.4 Standard procedures are revised / updated when necessary.
2. Assess quality of service delivered	2.1 Services delivered are ***quality checked*** against organization ***quality standards*** and specifications. 2.2 Service delivered are evaluated using the appropriate evaluation ***quality parameters*** and in accordance with organization standards. 2.3 Causes of any identified faults are identified and corrective actions are taken in accordance with organization policies and procedures.
3. Record information	3.1 Basic information on the quality performance is recorded in accordance with organization procedures. 3.2 Records of work quality are maintained according to the requirements of the organization.
4. Study causes of quality deviations	4.1 Causes of deviations from final outputs or services are investigated and reported in accordance with organization procedures. 4.2 Suitable preventive action is recommended based on organization quality standards and identified causes of deviation from specified quality standards of final service or output.
5. Complete documentation	5.1 Information on quality and other indicators of service performance is recorded. 5.2 All service processes and outcomes are recorded.

Variable	Range
Quality check	May include but not limited to: • Check against design / specifications • Visual inspection and Physical inspection

Quality standards	May include but not limited to: • Materials • Components • Process • Procedures
Quality parameters	May include but not limited to: • Standard Design / Specifications • Material Specification

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Check completed work continuously against organization standard • Identify and isolate faulty or poor service • Check service delivered against organization standards • Identify and apply corrective actions on the causes of identified faults or error • Record basic information regarding quality performance • Investigate causes of deviations of services against standard • Recommend suitable preventive actions
Underpinning Knowledge	Demonstrates knowledge of: • Relevant quality standards, policies and procedures • Characteristics of services • Safety environment aspects of service processes • Evaluation techniques and quality checking procedures • Workplace procedures and reporting procedures
Underpinning Skills	Demonstrates skills to: • interpret work instructions, specifications and standards appropriate to the required work or service • carry out relevant performance evaluation • maintain accurate work records • meet work specifications and requirements • communicate effectively within defined workplace procedures
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Lead Workplace Communication**
Unit Code	**IND BPO3 16 0613**
Unit Descriptor	This unit covers the knowledge, attitudes and skills needed to lead in the dissemination and discussion of information and issues in the workplace.

Elements	Performance Criteria
1. Communicate information about workplace processes	1.1 Appropriate ***communication method*** is selected. 1.2 Multiple operations involving several topics areas are communicated accordingly. 1.3 Questions are used to gain extra information. 1.4 Correct sources of information are identified. 1.5 Information is selected and organized correctly. 1.6 Verbal and written reporting is undertaken when required. 1.7 Communication skills are maintained in all situations.
2. Lead workplace discussion	2.1 Response to workplace issues is sought. 2.2 Response to workplace issues are provided immediately. 2.3 Constructive contributions are made to workplace discussions on such issues as production, quality and safety. 2.4 Goals/objectives and action plan undertaken in the workplace are communicated.
3. Identify and communicate issues arising in the workplace	3.1 Issues and problems are identified as they arise. 3.2 Information regarding problems and issues are organized coherently to ensure clear and effective communication. 3.3 Dialogue is initiated with appropriate staff/personnel. 3.4 Communication problems and issues are raised as they arise.

Variable	Range
Methods of communication	May include but not limited to: • Non-verbal gestures • Verbal • Face to face • Two-way radio • Speaking to groups • Using telephone • Written • Using Internet • Cell phone

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • Deal with a range of communication/information at one time • Make constructive contributions in workplace issues • Seek workplace issues effectively • Respond to workplace issues promptly • Present information clearly and effectively written form • Use appropriate sources of information • Ask appropriate questions • Provide accurate information
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Organization requirements for written and electronic communication methods • Effective verbal communication methods
Underpinning Skills	Demonstrates skills to: • Organize information • Understand and convey intended meaning • Participate in variety of workplace discussions • Comply with organization requirements for the use of written and electronic communication methods
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Lead Small Teams**
Unit Code	**IND BPO3 17 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes required to determine individual and team development needs and facilitate the development of the work group.

Elements	Performance Criteria
1. Provide team leadership	1.1 ***Learning and development needs*** are systematically identified and implemented in line with ***organizational requirements***. 1.2 Learning plan to meet individual and group training and developmental needs is collaboratively developed and implemented. 1.3 Individuals are encouraged to self-evaluate performance and identify areas for improvement. 1.4 ***Feedback on performance*** of team members is collected from relevant sources and compared with established team learning process.
2. Foster individual and organizational growth	2.1 Learning and development program goals and objectives are identified to match the specific knowledge and skills requirements of Competence standards. 2.2 ***Learning delivery methods*** are appropriate to the learning goals, the learning style of participants and availability of equipment and resources. 2.3 Workplace learning opportunities and coaching/ mentoring assistance are provided to facilitate individual and team achievement of competencies. 2.4 Resources and timelines required for learning activities are identified and approved in accordance with organizational requirements.
3. Monitor and evaluate workplace learning	3.1 Feedback from individuals or teams is used to identify and implement improvements in future learning arrangements. 3.2 Outcomes and performance of individuals/teams are assessed and recorded to determine the effectiveness of development programs and the extent of additional support. 3.3 Modifications to learning plans are negotiated to improve the efficiency and effectiveness of learning. 3.4 Records and reports of Competence are maintained within organizational requirement.

4. Develop team commitment and cooperation	4.1 Open communication processes to obtain and share information is used by team. 4.2 Decisions are reached by the team in accordance with its agreed roles and responsibilities. 4.3 Mutual concern and camaraderie are developed in the team.
5. Facilitate accomplishment of organizational goals	5.1 Team members actively participated in team activities and communication processes. 5.2 Teams' members developed individual and joint responsibility for their actions. 5.3 Collaborative efforts are sustained to attain organizational goals.

Variable	**Range**
Learning and development needs	May include but not limited to: • Coaching, mentoring and/or supervision • Formal/informal learning program • Internal/external training provision • Work experience/exchange/opportunities • Personal study • Career planning/development • Performance appraisals • Workplace skills assessment • Recognition of prior learning
Organizational requirements	May include but not limited to: • Quality assurance and/or procedures manuals • Goals, objectives, plans, systems and processes • Legal and organizational policy/guidelines and requirements • Safety policies, procedures and programs • Confidentiality and security requirements • Business and performance plans • Ethical standards • Quality and continuous improvement processes and standards
Feedback on performance	May include but not limited to: • Formal/informal performance appraisals • Obtaining feedback from supervisors and colleagues • Obtaining feedback from clients • Personal and reflective behavior strategies • Routine and organizational methods for monitoring service delivery
Learning delivery methods	May include but not limited to: • On the job coaching or mentoring • Problem solving • Presentation/demonstration

	• Formal course participation • Work experience and Involvement in professional networks • Conference/seminar attendance and induction

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • identify and implement learning opportunities for others • give and receive feedback constructively • facilitate participation of individuals in the work of the team • negotiate learning plans to improve the effectiveness of learning • prepare learning plans to match skill needs • access and designate learning opportunities
Underpinning Knowledge and Attitude	Demonstrates knowledge of: • coaching and mentoring principles • understanding how to work effectively with team members who have diverse work styles, aspirations, cultures and perspective • understanding how to facilitate team development and improvement • understanding methods and techniques for eliciting and interpreting feedback • understanding methods for identifying and prioritizing personal development opportunities and options • knowledge of career paths and competence standards in the industry
Underpinning Skills	Demonstrates skills to: • read and understand a variety of texts, prepare general information and documents according to target audience; spell with accuracy; use grammar and punctuation effective relationships and conflict management • receive feedback and report, maintain effective relationships and conflict management • organize required resources and equipment to meet learning needs • provide support to colleagues • organize information; assess information for relevance and accuracy; identify and elaborate on learning outcomes • facilitation skills to conduct small group training sessions • relate to people from a range of social, cultural, physical and mental backgrounds
Resource Implications	Access to relevant workplace or appropriately simulated environment where assessment can take place
Methods of Assessment	Competence may be assessed through: • Interview / Written exam • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the workplace or in a simulated workplace setting

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Improve Business Practice**
Unit Code	**IND BPO3 18 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes required in promoting, improving and growing business operations.

Elements	Performance Criteria
1. Diagnose the business	1.1 ***Data required*** for diagnosis is determined and acquired. 1.2 ***Competitive advantage*** of the business is determined from the data. 1.3 ***SWOT analysis*** of the data is undertaken.
2. Benchmark the business	2.1 Sources of relevant benchmarking data are identified. 2.2 ***Key indicators*** for benchmarking are selected in consultation with key stakeholders. 2.3 Like indicators of own practice are compared with benchmark indicators. 2.4 Areas for improvement are identified.
3. Develop plans to improve business performance	3.1 A consolidated list of required improvements is developed. 3.2 Cost-benefit ratios for required improvements are determined. 3.3 Work flow changes resulting from proposed improvements are determined. 3.4 Proposed improvements are ranked according to agreed criteria. 3.5 An action plan is developed and agreed to implement the top ranked improvements. 3.6 ***Organizational structures*** are checked to ensure they are suitable.
4. Develop marketing and promotional plans	4.1 The practice vision statement is reviewed. 4.2 Practice ***objectives*** are developed/ reviewed. 4.3 Target markets are identified/ refined. 4.4 ***Market research data*** is obtained. 4.5 ***Competitor analysis*** is obtained. 4.6 ***Market position*** is developed/ reviewed. 4.7 ***Practice brand*** is developed. 4.8 ***Benefits*** of practice/practice products/services are identified. 4.9 ***Promotion tools*** are selected/ developed.

5. Develop business growth plans	5.1 Plans are developed to increase ***yield per existing client***. 5.2 Plans are developed to add new clients. 5.3 Proposed plans are ranked according to agreed criteria. 5.4 An action plan is developed and agreed to implement the top ranked plans. 5.5 Practice work practices are reviewed to ensure they support growth plans.
6. Implement and monitor plans	6.1 Implementation plan is developed in consultation with all relevant stakeholders. 6.2 Indicators of success of the plan are agreed. 6.3 Implementation is monitored against agreed indicators. 6.4 Implementation is adjusted as required.

Variable	**Range**
Data required includes:	May include but not limited to: • organization capability • appropriate business structure • level of client service which can be provided • internal policies, procedures and practices • staff levels, capabilities and structure • market, market definition • market changes/market segmentation • market consolidation/fragmentation • revenue • level of commercial activity • expected revenue levels, short and long term • revenue growth rate • break even data • pricing policy • revenue assumptions • business environment • economic conditions • social factors • demographic factors • technological impacts • political/legislative/regulative impacts • competitors, competitor pricing and response to pricing • competitor marketing/branding • competitor products
Competitive advantage	May include but not limited to: • services/products • fees • location • timeframe

SWOT analysis	May include but not limited to: • internal strengths such as staff capability, recognized • quality • internal weaknesses such as poor morale, • under-capitalization, poor technology • external opportunities such as changing market and • economic conditions • external threats such as industry fee structures, strategic • alliances, competitor marketing
Key indicators	May include but not limited to: • salary cost and staffing • personnel productivity (particularly of principals) • profitability • fee structure • client base • size staff/principal and overhead/overhead control
Organizational structures	May include but not limited to: • Legal structure (partnership, Limited Liability Company, etc.) • organizational structure/hierarchy • reward schemes
Objectives should be 'SMART'	May include but not limited to: • S: Specific • M: Measurable • A: Achievable • R: Realistic • T: Time defined
Market research data	May include but not limited to: • data about existing clients • data about possible new clients • data from internal sources • data from external sources such as: ➢ trade associations/journals ➢ Yellow Pages small business surveys ➢ libraries ➢ Internet ➢ Chamber of Commerce ➢ client surveys ➢ industry reports and secondary market research • primary market research such as: ➢ telephone surveys ➢ personal interviews and mail surveys
Competitor analysis	May include but not limited to: • competitor offerings • competitor promotion strategies and activities • competitor profile in the market place
Market position	May include but not limited to: • product

	• the good or service provided • product mix • the core product - what is bought • the tangible product - what is perceived • the augmented product - total package of consumer • features/benefits • product differentiation from competitive products • new/changed products • Price and pricing strategies (cost plus, supply/demand, ability to pay, etc.) • Pricing objectives (profit, market penetration, etc.) • cost components • market position • distribution strategies • marketing channels • promotion • promotional strategies • target audience • communication and promotion budget
Practice brand	May include but not limited to: • practice image • practice logo/letter head/signage • phone answering protocol • facility decor • slogans • templates for communication/invoicing • style guide • writing style • AIDA (Attention, Interest, Desire and Action)
Benefits	May include but not limited to: • features as perceived by the client • benefits as perceived by the client
Promotion tools	May include but not limited to: • networking and referrals • seminars • advertising • press releases • publicity and sponsorship • brochures • newsletters (print and/or electronic) • websites • direct mail and telemarketing/cold calling
Yield per existing client	May include but not limited to: • raising charge out rates/fees • packaging fees • reduce discounts and sell more services to existing clients

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: • ability to identify the key indicators of business performance • ability to identify the key market data for the business • knowledge of a wide range of available information sources • ability to acquire information not readily available within a business • ability to analyze data and determine areas of improvement • ability to negotiate required improvements to ensure implementation • ability to evaluate systems against practice requirements and form recommendations and/or make recommendations • ability to assess the accuracy and relevance of information
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • data analysis • communication skills • computer skills to manipulate data and present information • negotiation skills • problem solving • planning skills • marketing principles • ability to acquire and interpret relevant data • current product and marketing mix • use of market intelligence • development and implementation strategies of promotion and growth plans
Underpinning Skills	Demonstrates skill in: • data analysis and manipulation • ability to acquire and interpret required data, current practice systems and structures and sources of relevant benchmarking data • applying methods of selecting relevant key benchmarking indicators • communication skills • working and consulting with others when developing plans for the business • planning skills, negotiation skills and problem solving • using computers to manipulate, present and distribute information
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Beverages Production Operation Level III	
Unit Title	**Prevent and Eliminate MUDA**
Unit Code	**IND BPO3 19 0613**
Unit Descriptor	This unit of competence covers the knowledge, skills and attitude required by a worker to prevent and eliminate MUDA/wastes in his/her their workplace. It covers responsibility for the day-to-day operation of the work and ensures Kaizen elements are continuously improved and institutionalized.

Elements	Performance Criteria
1. Prepare for work.	1.1 Work instructions are used to determine job requirements, including method, material and equipment. 1.2 Job specifications are read and interpreted following working manual. 1.3 ***OHS requirements***, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work. 1.4 Appropriate material is selected for work. 1.5 ***Safety equipment and tools*** are identified and checked for safe and effective operation.
2. Identify MUDA.	2.1 Plan of MUDA identification is prepared and implemented. 2.2 Causes and effects of MUDA are discussed. 2.3 ***Tools and techniques*** are used to draw and analyze current situation of the work place. 2.4 Wastes/MUDA are identified and measured based on ***relevant procedures***. 2.5 Identified and measured wastes are reported to relevant personnel.
3. Eliminate wastes/MUDA.	3. 1. Plan of MUDA elimination is prepared and implemented. 3. 2. Necessary attitude and ***the ten basic principles for improvement*** are adopted to eliminate waste/MUDA. 3. 3. Tools and techniques are used to eliminate wastes/MUDA based on the procedures and OHS. 3. 4. Wastes/MUDA are reduced and eliminated in accordance with OHS and organizational requirements. 3. 5. Improvements gained by elimination of waste/MUDA are reported to relevant bodies.

4. Prevent occurrence of wastes/MUDA.	4.1 Plan of MUDA prevention is prepared and implemented. 4.2 Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement are discussed and prepared. 4.3 Occurrences of wastes/MUDA are prevented by using ***visual and auditory control methods***. 4.4 Waste-free workplace is created using ***5W and 1H***sheet. 4.5 The completion of required operation is done in accordance with standard procedures and practices. 4.6 The updating of standard procedures and practices is facilitated. 4.7 The capability of the work team that aligns with the requirements of the procedure is ensured.

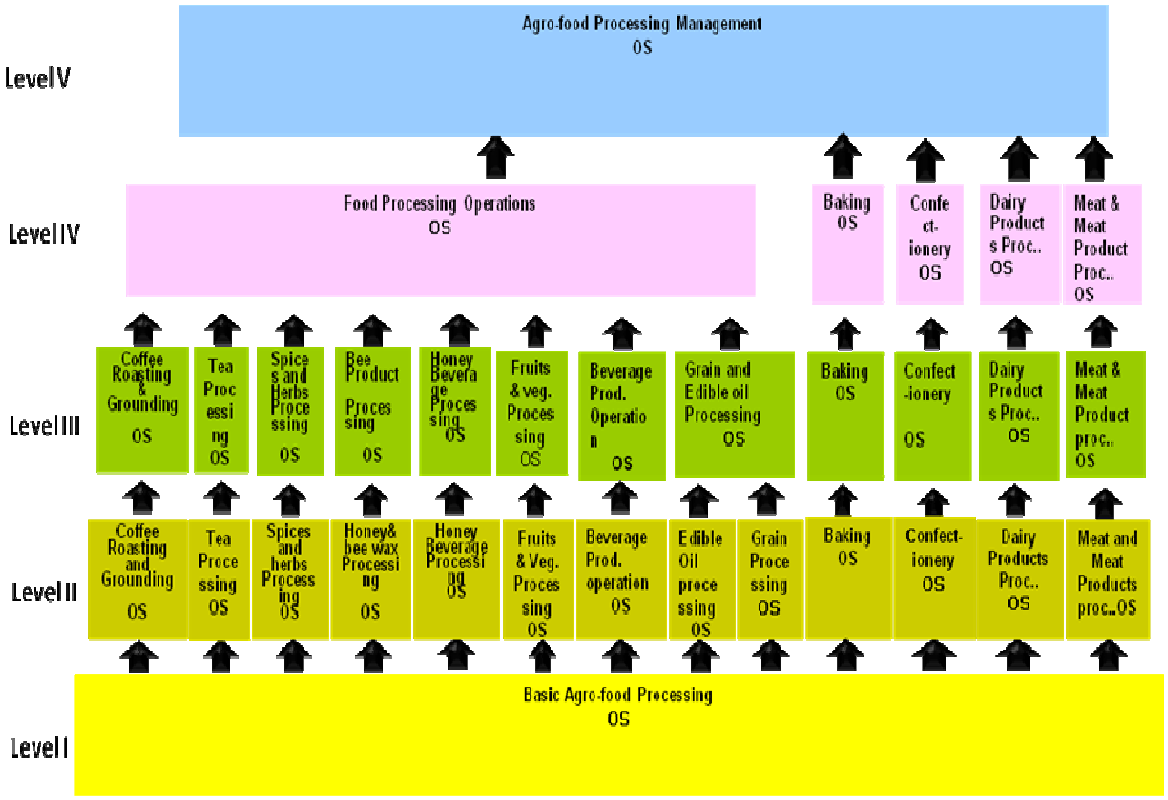
Variable	**Range**
OHS requirements	May include but not limited to: • Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	May include but not limited to: • dust masks / goggles • glove • working cloth • first aid • safety shoes
Tools and techniques	May include but not limited to: • Plant Layout • Process flow • Other Analysis tools • Do time study by work element • Measure Travel distance

	• Take a photo of workplace • Measure Total steps • Make list of items/products, who produces them and who uses them & those in warehouses, storages etc. • Focal points to Check and find out existing problems • 5S • Layout improvement • Brainstorming • Andon • U-line • In-lining • Unification • Multi-process handling & Multi-skilled operators • A.B. control (Two point control) • Cell production line • TPM (Total Productive Maintenance)
Relevant procedures	May include but not limited to: • Make waste visible • Be conscious of the waste • Be accountable for the waste. • Measure the waste.
The ten basic principles for improvement	May include but not limited to: • Throw out all of your fixed ideas about how to do things. • Think of how the new method will work- not how it won. • Don't accept excuses. Totally deny the status quo. • Don't seek perfection. A 5o percent implementation rate is fine as long as it's done on the spot. • Correct mistakes the moment they are found. • Don't spend a lot of money on improvements. • Problems give you a chance to use your brain. • Ask "why?" at least five times until you find the ultimate cause. • Ten people's ideas are better than one person's. • Improvement knows no limits.
Visual and auditory control methods	May include but not limited to: • Red Tagging • Sign boards • Outlining • Andons • Kanban, etc.
5W and 1H	May include but not limited to: • Who • What • Where • When • Why • How

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: • discuss why wastes occur in the workplace • discuss causes and effects of wastes/MUDA in the workplace • analyze the current situation of the workplace by using appropriate tools and techniques • identify, measure, eliminate and prevent occurrence of wastes by using appropriate tools and techniques • use 5W and 1H sheet to prevent
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • Targets of customers and manufacturer/service provider • Traditional and kaizen thinking of price setting • Kaizen thinking in relation to targets of manufacturer/service provider and customer • value • The three categories of operations • the 3“MU” • waste/MUDA • wastes occur in the workplace • The 7 types of MUDA • The Benefits of identifying and eliminating waste • Causes and effects of 7 MUDA • Procedures to identify MUDA • Necessary attitude and the ten basic principles for improvement • Procedures to eliminate MUDA • Prevention of wastes • Methods of waste prevention • Definition and purpose of standardization • Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement • Methods of visual and auditory control • TPM concept and its pillars. • Relevant OHS and environment requirements • Plan and report • Method of communication
Underpinning Skills	Demonstrates skills to: • draw & analyze current situation of the work place • use measurement apparatus (stop watch, tape, etc.) • calculate volume and area • use and follow checklists to identify, measure and eliminate wastes/MUDA • identify and measure wastes/MUDA in accordance with OHS and procedures

	• use tools and techniques to eliminate wastes/MUDA in accordance with OHS procedure • apply 5W and 1H sheet • update and use standard procedures for completion of required operation • work with others • read and interpret documents • observe situations • solve problems • communicate • gather evidence by using different means • report activities and results using report formats
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Sector: Industry
Sub- sector: Agro-food Processing



Acknowledgement

We wish to extend thanks and appreciation to the many representatives of business, industry, academe and government agencies who donated their time and expertise to the development of this occupational standard.

We would like also to express our appreciation to the Staff and Experts of Industry Ministry, Federal TVET Agency and Ministry of Education (MoE) who made the development of this occupational standard possible.

This occupational standard was developed on the date of June 25, 2013 at Debre Zeyit Ethiopian Management Institute.

COMMENT TEMPLATE

The Federal TVET Agency values your feedback of the document.
If you would like someone to personally contact you, please provide the following information:
Name:
Region:
Phone number:
Email:
Contact preference: □Phone □E-mail
Please, leave a comment.

Thank you for your time and consideration to complete this. For additional comments, please contact us on:

- **Phone# +251911207386/+251911641248/+251923787992 and**
- **E-mail: bizunehdebebe@yahoo.com/ Abebaw_maemer@yahoo.com /won_get@yahoo.com.**