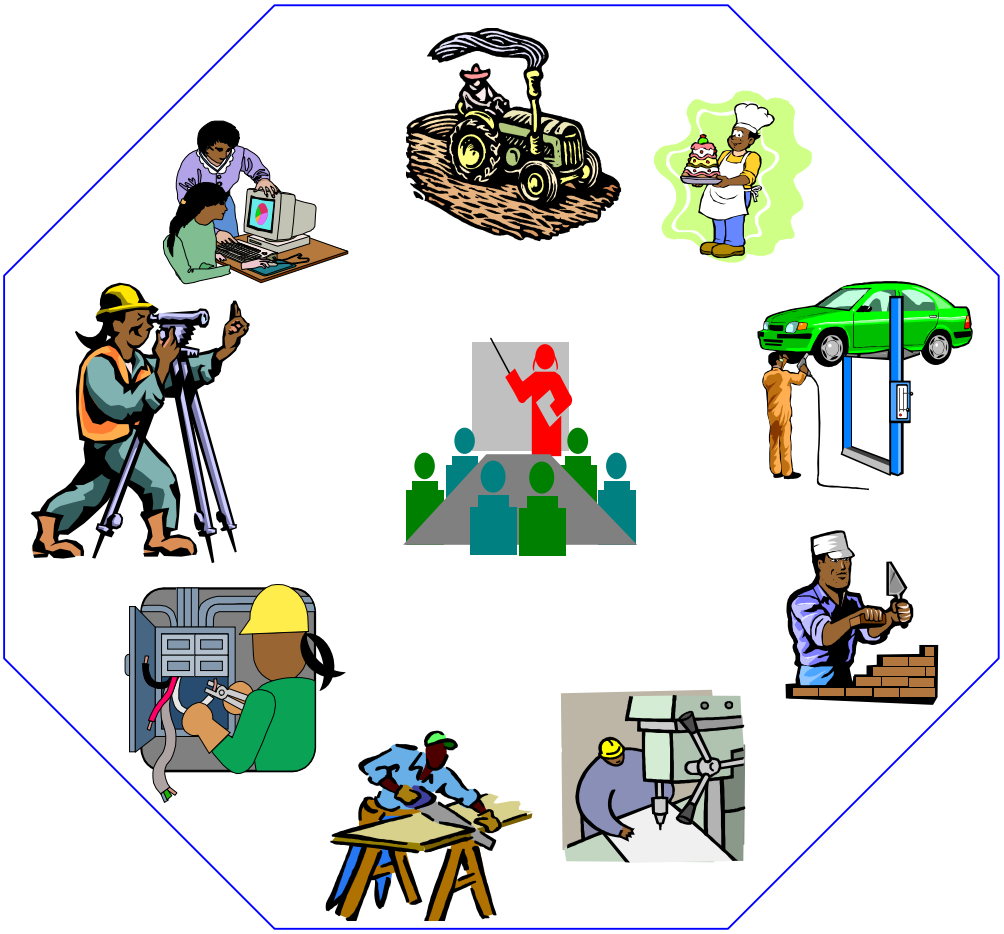
Federal Democratic Republic of Ethiopia

OCCUPATIONAL STANDARD

ADVANCED SOAP AND DETERGENT MANUFACTURING OPERATION

NTOF Level III



Ministry of Education
June 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 competence.

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 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: Advanced Soap and Detergent Manufacturing Operation

Occupational Code: IND SDM

NTQF Level III

IND SDM3 01 0613 Operate a Production Unit	**IND SDM3 02 0613** Shutdown and Isolate Machines/equipment	**IND SDM3 03 0613** Operate Reactors and Reaction Equipment
IND SDM3 04 0613 Operate and Monitor Compressor Systems and Equipment	**IND SDM3 05 0613** Operate and Monitor Heating Furnace	**IND SDM3 06 0613** Operate Process Control Systems
IND SDM3 07 0613 Operate and Monitor Basic Boiler	**IND SDM3 08 0613** Transfer Bulk Fluids into/out of Storage Facility	**IND SDM3 09 0613** Produce Product Using Fixed Bed Dehydration
IND SDM3 10 0613 Perform Basic Tests	**IND SDM3 11 0613** Monitor and Maintain Instrument and Control Systems	**IND SDM3 12 0613** Organize Storage and Logistics of General Materials
IND SDM3 13 0613 Issue Work Permits	**IND SDM3 14 0613** Monitor the implementation of Good Manufacturing Practice	**IND SDM3 15 0613** Maintain and organize workplace records
IND SDM3 16 0613 Facilitate the Implementation of OHS for a Work Group	**IND SDM3 17 0613** Monitor Implementation of Work plan/Activities	**IND SDM3 18 0613** Lead Small Teams
IND SDM3 19 0613 Lead Workplace Communication	**IND SDM3 20 0613** Apply Quality Control	**IND SDM3 21 0613** Improve Business Practice
IND SDM3 22 0212 Prevent and Eliminate MUDA		

Occupational Standard: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Operate a Production Unit**
Unit Code	**IND SDM3 01 0613**
Unit Descriptor	This competency covers the operation of an enterprise specific unit of soap and detergent production plant, which is not otherwise described by other units in this Training Package. The operations technician is expected to demonstrate a significant understanding of the process and the equipment operation and the production unit involves at least two other prerequisite process competencies, which must be operated as part of the production unit. The operations technician would identify and rectify operational problems, predict the potential impact of the production unit output on the operation of the whole plant and facilitate output changes.

Elements	Performance Criteria
1. Check work requirements and Prepare for work	1.1 Work requirements from production plan or request are identified. 1.2 Product, materials and equipment are checked to meet requirements for job(s). 1.3 Requirements which may not be in accordance with usual practice are recognized. 1.4 Hazards associated with the job are identified and ***appropriate action*** is taken. 1.5 Other pre-operational checks are performed in accordance with ***procedures.*** 1.6 Appropriate personnel are coordinated with.
2. Start up unit	2.1 Pre-start-up checks are performed according to work procedures. 2.2 Individual items of equipment and the entire unit are ***started up*** according to work procedures. 2.3 Equipment is normally started up and after maintenance in accordance with work procedures. 2.4 Rate is built steadily as per standard operating procedures. 2.5 Operation is stabilized to produce specified rate and quality within minimum time.
3. Monitor and control the unit	3.1 Routine checks, logs and paperwork are completed as required.

	3.2 All plant throughout shift is frequently and critically monitored. 3.3 The signs of potential and actual ***problems*** are recognized. 3.4 Appropriate action is taken as per work procedures. 3.5 Plant is trimmed to achieve required output rate and quality while maximising plant efficiency.
4. Change unit output rate, grade or specification	4.1 Predict the need is predicted to make a change and to meet process requirements. 4.2 Unit is trimmed in preparation of changes as per work requirements. 4.3 Changes as required are made. 4.4 Changes are managed smoothly and in a timely manner. 4.5 Out of specification product/process disruptions as a result of the change are minimized.
5. Maintain plant effectiveness	5.1 Measured/indicated data and smell, sight, sound and feel as appropriate are used to monitor plant. 5.2 Critical equipment/processes and tune their performance as per job specification are identified. 5.3 Issues are identified likely to impact on plant performance and appropriate action is taken. 5.4 Impact of a change in one unit/area on other plant units/areas is predicted and communicated this to relevant people. 5.5 Minor maintenance according to procedures are completed.
6. Shut down unit	6.1 Type of shut down required is determined. 6.2 Advance warning of shut down where possible is given. 6.3 Over individual items of equipment is changed. 6.4 Individual items of equipment and the entire unit as per work procedures are shut down. 6.5 A standby condition if appropriate is shut down. 6.6 In an emergency and otherwise when required is shut down. 6.7 Trips and alarms after a shutdown are reset.
7. Isolate and de-isolate plant	7.1 Plant as to work procedures is isolated.

	7.2 Safe for required work in accordance with workplace guidelines is made. 7.3 Plant for return to service with relevant enterprise and operating procedures is checked and prepared.

Variable	Range
Procedures	May be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant.
Start up shut down as required	May include: • start up and shut down to/from normal operating conditions • start up and shut down to/from isolated, cold, empty • all other conditions experienced on the plant. • ie from any condition to any condition experienced on the plant.
Typical problems	May include: • recognizing and acting on unstable/sub-optimal operation • control of critical variables and outputs • variations in feed rates and quality etc.
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility to designated person.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.
Context	This competency covers the operation of a unit of equipment and includes the operation of equipment ancillary to the main production unit. It includes all items of equipment and unit operations which form part of the operation of the unit. This must include at least two of the following: • fluid flow equipment • fluid mixing equipment

	• chemical storage • utilities and services • heat exchangers • separation equipment • chemical separation equipment • tank farming operations • particulates Manufacturing equipment • manufacturing extruders and may also include other equipment as well as the unit itself.
Health, Safety and Environment (HSE)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • recognize and analyze potential situations requiring action and then in implementing appropriate corrective action. • stay out of trouble rather than on recovery from a disaster. Consistent performance in that: ➢ early warning signs of equipment/processes needing attention or with potential problems are recognized ➢ the range of possible causes can be identified and analyzed and the most likely cause determined ➢ appropriate action is taken to ensure a timely return to full performance ➢ obvious problems in related plant areas are recognized and an appropriate contribution made to their solution.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • The production unit/system and its integral equipment, to the level needed. In particular it includes: ➢ principles of operation of plant/equipment ➢ physics and chemistry relevant to the process unit ➢ process parameters and limits, e.g. temperature, pressure, flow, pH ➢ duty of care obligations ➢ hierarchy of control ➢ communication protocols e.g. radio, phone, computer, paper, permissions/authorities ➢ routine problems, faults and their resolution ➢ relevant alarms and actions ➢ plant process idiosyncrasies ➢ all items on a schematic of the plant item and the function of each ➢ correct methods of starting, stopping, operating and controlling

	➢ corrective action appropriate to the problem cause ➢ function and troubleshooting of major components and their problems ➢ types and causes of problems within operator's scope of skill level and responsibility. • This knowledge is required of all major items of equipment which comprise the production unit/system.
Underpinning Skills	Must demonstrate skills in: • efficient and effective operation of plant/equipment • hazard analysis • completing plant records • communication • problem solving. Also ability to: • identify all items on a schematic of the production unit and describe the function of each • describe the nature/condition of materials entering and leaving each stage of the process, the changes which have occurred in that stage and why they have occurred • describe the basis of the process used in the production unit to transform the feed materials into the product, including the basic chemistry of the process (where relevant) • describe the causes and remedies of common problems such as those selected in the Range Statement • describe methods of changing rate and the advantages and disadvantages of each. • isolate the causes of problems to an item of equipment within the production unit and to be able to distinguish between causes of problems/alarm/fault indications such as: ➢ process materials variations ➢ instrument failure/wrong reading ➢ electrical failure ➢ mechanical failure ➢ operational problem, as is relevant to the practical operation of equipment at that job level.
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: Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Shut Down and Isolate Machines/Equipment**
Unit Code	**IND SDM3 02 0613**
Unit Descriptor	This unit applies to situations that require extensive system knowledge that exclude the straightforward starting/stopping of machinery/equipment through the use of simple switching, including use of emergency switches. Shut-down/isolation is undertaken autonomously or as part of teamwork.

Elements	Performance Criteria
1. Shut down machine/ equipment	1.1 ***Machine/equipment*** operational function is determined and understood as work specification. 1.2 ***Shut-down*** sequence is undertaken safely and to standard operating procedures. 1.3 Machine/equipment is depressurized/emptied/de-energized/bled to standard operating procedures. 1.4 Safe shut-down of machine/equipment is verified. 1.5 Safety/security lock-off devices and signage are installed to standard operating procedures. 1.6 Machine/equipment is left in clean and safe state.
2. Isolate machine/ equipment	2.1 Machine/equipment operational function is determined and understood. 2.2 Isolation methods and points are recognized and identified. 2.3 Isolation is undertaken safely and to standard operating procedures. 2.4 Safe isolation of machine/equipment is verified. 2.5 Safety/security lock-off devices and signage are installed to standard operating procedure. 2.6 Machine/equipment is left in clean and safe state.

Variable	Range
Machine**/**equipment	May mean manual, semi-automatic and automatic machines of a stand-alone, continuous production or process nature.
Shut down**/**isolate	Means and includes isolation of mechanical, electrical drives, pipe work (pressure) rotating equipment etc. utilizing electrical lock-off isolators, mechanical and power driven valves etc. in accordance with standard operating instructions. Relevant regulations, Ethiopian standards and legislative requirements governing isolation and shut-down must be complied with

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • Shut down machine/equipment • Isolate machine/equipment
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • the operational function of the machine/equipment • the shut-down sequence • the procedures for shutting down and isolating the machine/equipment • safety precautions for shutting down and isolating the machine/equipment • procedures for purging/de-energizing the machine/equipment and reasons for doing so. • procedures for verifying machine/equipment shut-down and isolation and reasons for verifying • the safety/security lock-off devices and signage to be installed • the reasons and procedures for installing lock-off devices and signage • the reasons for ensuring the machine/equipment is left in a clean, safe state • hazards and control measures • use and application of personal protective equipment • safe work practices and procedures
Underpinning Skills	Must demonstrate skills in: • reading, interpreting and following information on written job instructions, specifications and other applicable reference documents • checking and clarifying task-related information • entering information onto proformas and standard workplace forms • shutting down machine/equipment • purging/de-energizing equipment • installing safety/security lock-off devices and signage\
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Operate Reactors and Reaction Equipment**
Unit Code	**IND SDM3 03 0613**
Unit Descriptor	Typically an operations technician would be looking after the operation of a production unit which, as its prime function, causes and controls a chemical reaction. It includes the operation of equipment ancillary to the main reactor. The reactor or reaction equipment includes types of reactors such as batch, continuous, fluidized bed. The soap and Detergent manufacturing plant technician would identify and rectify operational problems, run all aspects of the reactor operation, including start-up and shut down, monitor and manage the supply of raw materials and output of product and adjust product properties to meet specifications.

Elements	Performance Criteria
1. Check work requirements and Prepare for work	1.1 Work requirements from production plan or request are identified. 1.2 Product, materials and equipment are checked to meet requirements for job(s). 1.3 Requirements which may not be in accordance with usual practice are recognized. 1.4 Hazards associated with the job are identified and appropriate action is taken. 1.5 Other pre-operational checks in accordance with procedures are performed. 1.6 Appropriate personnel are coordinated with.
2. Start-up reaction systems	2.1 Pre-start-up checks as required by workplace requirements are performed. 2.2 Individual items of equipment and the entire reactor system as to procedures are started up. 2.3 Standby is started up and after maintenance according to work procedures. 2.4 Reaction rate is built steadily and ***appropriate action*** is taken on deviations as per work procedures. 2.5 Reaction system is stabilized to produce in specification product at specified rates within minimum time.
3. Monitor and control the reaction process	3.1 Routine checks logs and paperwork as per work specification are completed.

	3.2 The signs of potential and actual ***problems*** are recognized. 3.3 Appropriate action is taken to minimise the impact on safety, health, the environment and the business of potential and actual problems. 3.4 Materials and stock levels of feeds are monitored and action is taken to maintain production schedule and quality. 3.5 Plant is trimmed to achieve required rates and quality while maximising plant efficiency.
4. Change production rates and/or product grade/ specification	4.1 Rates and schedule when a transition will be required are predicted from. 4.2 Advanced notice of transition to work team is given. 4.3 Plant is trimmed in a manner which prepares it for the transition 4.4 Transitions are managed smoothly and in a timely manner and appropriate action is taken to achieve this 4.5 Scrap/off grade as a result of a transition as per work procedures is minimized.
5. Maintain plant effectiveness	5.1 All plant throughout shift as per company work instruction frequently and critically monitored. 5.2 Measured/indicated data and smell, sight, sound and feel as appropriate are used to monitor plant. 5.3 Critical equipment/processes are identified and tuned their performance according to standard operating procedures. 5.4 Issues are identified likely to impact on plant performance and appropriate action is taken. 5.5 Impact of a change in one unit/area on other plant units/areas is predicted and communicated this to relevant people. 5.6 Appropriate action is taken to maintain plant effectiveness as to work procedures.
6. Shut down reaction systems	6.1 type of shut down required based on standard operating procedures is determined. 6.2 advance warning of shut down where possible is given. 6.3 Over individual items of equipment when required are changed. 6.4 Individual items of equipment and the entire reaction system are shut down according to work procedures. 6.5 A stand-by condition if required is shutdown.

	6.6 For maintenance when required is shutdown. 6.7 In an emergency when required is shut down.
7. Clean reactors/vessels	7.1 Cleaning requirements as per work specification are identified. 7.2 Requirements according to ***procedures*** are cleaned***.***
8. Isolate and de-isolate reactor	8.1 Plant as to work procedures is isolated. 8.2 Safe for required work in accordance with workplace guidelines is made. 8.3 Plant is ready to be returned to service with relevant enterprise and operating procedures is checked and prepared.

Variable	**Range**
Hazards	May include: • Chemical and thermal hazards, manual handling, machine guarding, illumination of work area, rubbish and combustible materials, heat transfer fluid and fuel leaks etc.
Procedures	Written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant.
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility to designated person.
Typical problems	May include: • control of exothermic/endothermic • adjustments to meet product specifications • variations in feed rates/quality. • raw materials variations • instrument failure/wrong reading • equipment failure (electrical/mechanical)

	• mechanical failure • operational problems.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.
Context	Includes all such items of equipment and unit operations which form part of the reaction system. Typically this will include: • pumps • valves • mixers and • heat exchangers/jackets/coils. • and may also include other equipment as well as the reaction vessel itself.
Health, Safety and Environment (HSE)	May include: • All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills: • In the ability to recognize and analyses potential situations requiring action and then in implementing appropriate corrective action. • on the ability to stay out of trouble rather than on recovery from a disaster. • early warning signs of equipment/processes needing attention or with potential problems are recognized • the range of possible causes can be identified and analyzed and the most likely cause determined • appropriate action is taken to ensure a timely return to full performance • obvious problems in related plant areas are recognized and an appropriate contribution made to their solution
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • the reaction system and its integral equipment to the level needed to control the system and recognize and resolve problems. In particular this includes: ➢ principles of operation of reactor and ancillary plant/equipment ➢ physics and chemistry relevant to the process and the materials processed ➢ process parameters and limits, eg temperature, pressure, flow, pH

	➢ duty of care obligations ➢ hierarchy of control ➢ communication protocols, eg radio, phone, computer, paper, permissions/authorities ➢ routine problems, faults and their resolution ➢ relevant alarms and actions ➢ plant process idiosyncrasies ➢ correct methods of starting, stopping, operating and controlling process ➢ corrective action appropriate to the problem cause ➢ function and troubleshooting of major components and their problems ➢ types and causes of problems within operator's scope of skill level and responsibility
Underpinning Skills	Must demonstrate skills of: • efficient and effective operation of reactor and ancillary plant/equipment • hazard analysis • completing plant records • communication • problem solving. • identify all items on a schematic of the reaction system and describe the function of each • distinguish between elements, compounds and mixtures in their raw materials and products • describe the nature/condition of materials at each stage of the reaction, the changes which have occurred in that stage and why they have occurred • describe reaction in chemical terms, including the effect of changing reaction variables, eg temperature, pressure, catalyst, concentration, pH • describe the reaction(s) using appropriate chemical equations • state the type of reactor(s) used and their characteristics (advantages and limitations) • describe the methods of controlling the reaction, including rate and yield
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Operate and Monitor Compressor Systems and Equipment**
Unit Code	**IND SDM3 04 0613**
Unit Descriptor	This unit covers the operation and monitoring of a complex compressor system and associated equipment. At the heart of the compressor system would be a reciprocating or rotary (screw or centrifugal) compressor capable of high pressure and high volume. These compressors would be distinguished by features such as multistage compression, advanced lubrication and seal systems, surge control systems. The operations technician would identify and rectify operational problems, predict the potential impact of compressor output on the operation of the whole plant and facilitate output changes.

Elements	Performance Criteria
1. Check work requirements and Prepare for work	1.1 Work requirements are identified from production plan or request. 1.2 Product, materials and equipment are checked to meet requirements for job(s). 1.3 Requirements which may not be in accordance with usual practice are recognized. 1.4 ***Hazards*** associated with the job are identified and appropriate action is taken. 1.5 Other pre-operational checks are performed in accordance with ***procedures***. 1.6 Appropriate personnel are coordinated with.
2. Start up compressor systems/ equipment	2.1 Pre-start-up checks are performed according to procedure. 2.2 The status of the system/equipment prior to commencing start-up process as to procedures is checked. 2.3 All required auxiliary systems, including oil and water are checked to confirm their operational condition. 2.4 Individual items of equipment and the entire compressor system as required are started up. 2.5 The system is brought to required operating conditions.
3. Control and monitor the compressor system	3.1 Load-up through the selection of appropriate speed or cycle is initiated. 3.2 Downstream equipment as required are monitored and adjusted.

	3.3 The operational condition and safety status of the unit/system are monitored and ***appropriate action*** is taken. 3.4 Operational speeds and operating cycles as required are adjusted. 3.5 Safety systems are monitored or activated to ensure that any system shutdowns are controlled and conducted safely and effectively.
4. Shut down compressor systems/ equipment	4.1 Shutdown cause with other personnel and plant operators before commencing is confirmed to isolate or shut down the equipment/system. 4.2 Control measures are implemented to minimise damage and hazards. 4.3 System is shut down according to procedures. 4.4 The system/equipment is inspected as required by procedures. 4.5 Systems/equipment is isolated and purged and plant for maintenance as required is prepared.
5. Maintain plant effectiveness	6.1 All plant throughout shift is frequently and critically monitored. 6.2 Measured/indicated data and smell, sight, sound and feel as appropriate are used to monitor plant. 6.3 Critical equipment/processes and tune their performance are identified. 6.4 Issues is likely identified to impact on plant performance and take appropriate action 6.5 Impact of a change in one unit/area on other plant units/areas are predicted and communicated this to relevant people 6.6 Trips and alarms as required are tested.

Variable	**Range**
Hazards	May include: • Chemical and thermal hazards, manual handling, machine guarding, illumination of work area, rubbish and combustible materials, heat transfer fluid and fuel leaks etc.
Procedures	May be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures

	• formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility to designated person
Codes of practice/ standards	May include: • Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used
Context	May includes all such items of equipment and unit operations which form part of the compressor system. This may include (select relevant items): • single/multi-stage rotary compressors (axial flow, centrifugal, turbine, screw) • single/multi-stage reciprocating compressors • turbo expanders/compressors • advanced lube and seal oil systems • scrubbers • instrument/control systems • Programmable Logic Controllers (PLCs) • process controllers. • Typical problems for plant may include: ➢ surging ➢ control of temperature and pressure ➢ variations in feed ➢ vibration
Health, Safety and Environment (HSE)	May include all operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills: • in the ability to recognize and analyses potential situations requiring action and then in implementing appropriate corrective action.

	• on the ability to stay out of trouble rather than on recovery from a disaster. • Consistent performance in that: • early warning signs of equipment/processes needing attention or with potential problems are recognized • the range of possible causes can be identified and analyzed and the most likely cause determined • appropriate action is taken to ensure a timely return to full performance • obvious problems in related plant areas are recognized and an appropriate contribution made to their solution.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • duty of care obligations • hierarchy of control • communication protocols, e.g. radio, phone, computer, paper, permissions/authorities • routine problems, faults and their resolution • relevant alarms and actions • plant process idiosyncrasies • all items on a schematic of the plant item and the function of each • correct methods of starting, stopping, operating and controlling process • corrective action appropriate to the problem cause • function and troubleshooting of major components and their problems • types and causes of problems within operator's scope of skill level and responsibility. • physics and chemistry relevant to the process unit and the materials processed • process parameters and limits, e.g. temperature, pressure, flow, pH • principles of operation of plant/equipment • power and torque envelopes • compression flows and characteristics • liquid and product separation principles • product characteristics and tolerances • flow charts • flow, pressure, temperature, levels and rates.
Underpinning Skills	Must demonstrate skills of: • efficient and effective operation of plant/equipment • hazard analysis • completing plant records • communication

	• problem solving • the ability to isolate the causes of problems to an item of equipment within the compressor system and to distinguish between causes of problems/alarm/fault indications such as: ➢ instrument failure/wrong reading ➢ electrical failure ➢ mechanical failure ➢ operational problem.
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Operate and Monitor Heating Furnace**
Unit Code	**IND SDM3 05 0613**
Unit Descriptor	This unit covers performing start-up, take-over/hand-over, monitoring, shut-down and storage of a heating furnace and associated equipment to legislative requirements, standards and codes of practice.

Elements	Performance Criteria
1. Check work requirements and Prepare for work	1.1 Work requirements from production plan or request are identified. 1.2 Product, materials and equipment are checked to meet requirements for job(s). 1.3 Requirements which may not be in accordance with usual ***practice*** are recognized. 1.4 ***Hazards*** associated with the job are identified and take appropriate action is taken. 1.5 Other pre-operational checks are performed in accordance with ***procedures.*** 1.6 Appropriate personnel are coordinated with.
2. Start up furnace	2.1 Pre-start-up checks as to procedures are performed. 2.2 Individual items of equipment and the entire furnace system according to work procedures are started up. 2.3 Standby is started up from and after maintenance. 2.4 Temperature steadily with no surges or lulls is increased. 2.5 ***Furnace*** is stabilized to produce required heat within required time.
3. Monitor and control the heating furnace	3.1 Routine checks, logs and paperwork according work procedure are completed. 3.2 The signs of potential and actual problems are recognized. 3.3 ***Appropriate action*** is taken to minimize the impact of potential and actual problems 3.4 Condition of heat transfer components (if any) is ***monitored*** and appropriate action is taken as to work procedures. 3.5 Fuel/air supplies and ratios are monitored and appropriate action is taken. 3.6 Furnace is trimmed as required.

4. Change heating rates	4.1 Rates and schedule are predicted from when a transition will be required. 4.2 Advanced notice of transition is given to work team. 4.3 Plant is trimmed in a manner which prepares it for the change. 4.4 Changes are managed smoothly and in a timely manner.
5. Maintain furnace effectiveness	5.1 All plant throughout shift frequently and critically monitored. 5.2 Measured/indicated data and smell, sight, sound and feel as appropriate are used to monitor plant. 5.3 Critical equipment/processes and tune their performance are identified. 5.4 Issues are identified likely to impact on performance and take appropriate action. 5.5 Impact of a change in one unit/area on other plant units/areas are predicted and communicated this to relevant people
6. Shut down furnace	6.1 Type of ***shut down*** required is determined. 6.2 Advance warning of shut down where possible is given. 6.3 Over individual items of equipment when required are changed. 6.4 Individual items of equipment and the entire furnace system according to standard operating procedures are shut down. 6.5 A stand-by condition if required is shut down. 6.6 In an emergency when required is shut down.
7. Isolate and de-isolate furnace system and individual items	7.1 Plant is isolated as to work procedures. 7.2 Safe for required work in accordance with workplace guidelines is made. 7.3 Plant to be returned to service with relevant enterprise and operating procedures are checked and prepared.

Variable	**Range**
Codes of practical standards	• Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.
Hazards	May include: • Chemical and thermal hazards, manual handling, machine guarding, illumination of work area, rubbish and combustible materials, heat transfer fluid and fuel leaks etc.

Procedures	May include: • written, verbal, computer-based or in some other form. They include: ➢ all work instructions ➢ standard operating procedures ➢ formulas/recipes ➢ batch sheets ➢ temporary instructions ➢ any similar instructions provided for the smooth running of the plant. • Procedures also include good operating practice as may be defined by industry codes of practice (e.g. Responsible Care) and government regulations.
Furnace	May include: • Modulating combustion air supply, modulating single heat source, modulating firing rate, economisers.
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility to designated person.
Monitored	May include: • Heating fluid pressure and temperature, flame and combustion conditions, heating fluid feed and return systems, fuel system, combustion management system, heating fluid management system, heating fluid manifold fittings, soot blowers
Furnace shut down	Furnace shutdown may be for: • operational shut down • inspection shut down • maintenance/cleaning shut down • other
Pre-operational checks	May include heat exchange fluid feed supply, fuel supply/heat source, furnace valves - their operation and position, combustion air supply and combustion equipment
Associated equipment	May include economiser, economiser relief valves, air heater, feed heater, main heating fluid stop valve, feed pumps, fans
Health, Safety and Environment (HSE)	May include all operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • define and analyse the problem as well as deal with the stakeholders. The stakeholders should be satisfied with the solution, as well as the solution being technically sound. • Consistent performance should be demonstrated. In particular look to see that: ➢ different types of problems can be analyses and resolved ➢ different types of stakeholders can be satisfied ➢ the range of possible causes can be identified and analyzed and the most likely cause determined ➢ appropriate action is taken. • These aspects may be best assessed using a range of scenarios/case studies/what-ifs. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past history and similar sources.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • pre-operational checks • procedures for identifying and reporting maintenance requirements • statutory requirements and workplace procedures for identifying and reporting hazards in the work area • use and application of personal protective equipment • safe work practices and procedures • prevention and control measures • the processes for starting a furnace, such as heat input, warm up of the reticulation system, systems operation, reticulation line pressure, heating fluid usage and supply, associated equipment such as economizers • the process for confirming operational status of furnace • procedures for maintaining an operating log and communicating furnace status • procedures for communicating furnace status and operation • principles of furnace operation - single and battery • furnace fittings • preparing furnace for inspection • heating fluid feed systems • procedures for monitoring a furnace, such as heating fluid reticulation line pressure/ temperature, usage, supply and quality of heating fluid, combustion/heat source system, fuel system, combustion air supply, operation of control/safety devices, combustion management system, associated equipment such as economizers

	• function, purpose and location of associated equipment, such as economizer, air heater, feed heater, economizer relief valves, main stop valve • procedures such as identification of emergency isolation of heat source, operation of furnace, selection and application of firefighting equipment and notification of downstream users • operational shut-down processes and procedures, such as cooling down, furnace pressure/ vacuum and fuel/heat source isolation • shut down processes and procedures for internal inspection, such as confirming furnace cooling down, vacuum/pressure, fuel/heat source isolation, removal of combustion equipment and water from furnace • isolation procedures and safety issues • procedures for cleaning furnace internally and externally • various modes of furnace storage, which may include integral associated equipment such as economizers • the reasons for selecting particular storage mode • procedures for storing a furnace in shut-down mode
Underpinning Skills	• following, standard operating procedures and statutory requirements • performing preoperational checks of furnace • performing maintenance checks • orally reporting routine information • identifying hazards, hazardous situations and control measures • using personal protective clothing and equipment • selecting the most appropriate prevention/control measure for a given situation • starting up furnaces, including those fitted with associated equipment such as economizers • monitoring furnaces, including checks of combustion management system and economizer operation • checking operating status • recording routine and familiar information in operating log and other standard workplace forms • using testing equipment • responding to typical emergency situations • notifying downstream users • performing operational and inspection shut-down, including procedures for associated equipment, such as economizers • isolating furnace from any common connection between the furnace and other furnaces on line and all access points required for inspection

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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Shut Down and Isolate Machines/Equipment**
Unit Code	**IND SDM3 02 0212**
Unit Descriptor	This unit covers isolating and shutting down machines and equipment. This unit applies to situations that require extensive system knowledge that exclude the straightforward starting/stopping of machinery/equipment through the use of simple switching, including use of emergency switches. Shut-down/isolation is undertaken autonomously or as part of teamwork.

Elements	Performance Criteria
1. Shut down machine/equipment	1.1. Machine/equipment operational function is determined and understood. 1.2. ***Shut-down*** sequence is undertaken safely and to standard operating procedures. 1.3. Machine/equipment is depressurized/emptied/de-energized/bled to standard operating procedures. 1.4. Safe shut-down of machine/equipment is verified. 1.5. Safety/security lock-off devices and signage are installed to standard operating procedures. 1.6. Machine/equipment is left in clean and safe state.
2. Isolate machine/equipment	2.1. Machine/equipment operational function is determined and understood 2.2. Isolation methods and points are recognized and identified. 2.3. Isolation is undertaken safely and to standard operating procedures. 2.4. Safe isolation of ***machine/equipment*** is verified. 2.5. Safety/security lock-off devices and signage are installed to standard operating procedure. 2.6. Machine/equipment is left in clean and safe state.

Variable	Range
Shut down/isolate	• means and includes isolation of mechanical, electrical drives, pipe work (pressure) rotating equipment etc. utilizing electrical lock-off isolators, mechanical and power driven valves etc. in accordance with standard operating instructions. Relevant regulations, Australian standards and legislative requirements governing isolation and shut-down must be complied with
Machine/equipment	• Manual, semi automatic and automatic machines of a stand-alone, continuous production or process nature.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • Shut down machine/equipment • Isolate machine/equipment • checking and clarifying task-related information • reading, interpreting and following information on written job instructions, specifications and other applicable reference documents • procedures for verifying machine/equipment shut-down and isolation and reasons for verifying
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • the operational function of the machine/equipment • the shut-down sequence • the procedures for shutting down and isolating the machine/equipment • safety precautions for shutting down and isolating the machine/equipment • procedures for purging/de-energizing the machine/equipment and reasons for doing so • procedures for verifying machine/equipment shut-down and isolation and reasons for verifying • the safety/security lock-off devices and signage to be installed • the reasons and procedures for installing lock-off devices and signage • the reasons for ensuring the machine/equipment is left in a clean, safe state • hazards and control measures • use and application of personal protective equipment • safe work practices and procedures
Underpinning Skills	Must demonstrate skills in: • reading, interpreting and following information on written job instructions, specifications and other applicable reference documents

	• checking and clarifying task-related information • entering information onto proformas and standard workplace forms • shutting down machine/equipment • purging/de-energizing equipment • installing safety/security lock-off devices and signage\
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Operate Process Control Systems**
Unit Code	**IND SDM3 06 0613**
Unit Descriptor	This unit covers the operation of a centralised control panel. These controllers use a range of control algorithms and multiple control loops. The panel will control multiple vessels/plant items and or products. It will typically be located off plant in a control room. The operations technician would identify, correct and report operational problems, be aware of and contribute to a safe working environment, contribute to the safe and productive operation of the system, operate, monitor and maintain equipment using relevant procedures and take appropriate action following an alarm or out of specification condition developing.

Elements	Performance Criteria
1. Check work requirements and Prepare for work	1.1 Work requirements from production plan or request are identified. 1.2 Product, materials and equipment meet requirements for job(s) are checked. 1.3 Requirements which may not be in accordance with usual practice are recognized. 1.4 ***Hazards*** associated with the job are identified and appropriate action is taken. 1.5 Other pre-operational checks in accordance with ***procedures*** are performed. 1.6 Appropriate personnel are coordinated with.
2. Use operator interface	2.1 Keyboards, track ball and monitor and/or stand alone controllers are used to access control system/panel 2.2 The process using the operator interfaces is monitored. 2.3 Appropriate controller modes as work standard is selected. 2.4 Historical data and information as required are accessed. 2.5 Messages and alarms are acknowledged.
3. Access control information	3.1 Relevant data and information from the control system by applying systems knowledge are obtained. 3.2 The status of individual pieces of equipment from the control panel is identified and information is used to identify potential faults. 3.3 Fluctuations and variations in process through the interpretation of existing trends are minimized and schematics are controlled.

	3.4 Process variations/irregularities to procedures are recorded.
4. Control process variations and monitor operations	4.1 Historical data is used to assist the identification of ***problems***. 4.2 Available information is processed to identify potential faults. 4.3 Required set point/output changes are undertaken to meet plant and process requirements 4.4 Plant operating conditions in accordance with guidelines are optimized. 4.5 Production in response to test results are adjusted and panel information is controlled. 4.6 Key process and environmental variables are monitored and ***appropriate action*** is taken. 4.7 Controller settings in accordance with procedures are adjusted. 4.8 Fine tuning software as appropriate is used. 4.9 Upstream and downstream units as appropriate are coordinated with. 4.10 Adjustments and variations to specifications/schedules are recorded. 4.11 Appropriate personnel as required are communicated to.
5. Facilitate planned and unplanned process start-ups and shut-downs	5.1 Procedures are selected and applied to planned start up and shutdown processes. 5.2 Procedures are selected and applied to unplanned shutdown processes. 5.3 All required emergency responses in line with procedures and duty of care are implemented. 5.4 Necessary information is communicated to all personnel affected by events. 5.5 All required information as per work requirement are logged.
6. Respond to alarms or out of specification conditions	6.1 System affected by the alarm or condition are identified. 6.2 Alarms are interpreted and prioritised actions to be taken. 6.3 Appropriate action is taken to respond to the ***alarm or incident***.

	6.4 Any out of specification material in accordance with procedures is dealt with. 6.5 The problem/solution is communicated to appropriate personnel. 6.6 The information as required is recorded. 6.7 Details of the alarm are provided and action is taken to the next shift at change over.

Variable	**Range**
Hazards	May include chemical and thermal hazards, manual handling, machine guarding, illumination of work area, rubbish and combustible materials, heat transfer fluid and fuel leaks etc.
Procedures	May be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant.
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility to designated person.
Other problems	May include problem solving control functions
Alarms or abnormal conditions	May include: • emergency, including emergency shut down • partial or complete controller failure.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopia/international standards, the latest version must be used.
Context	May include: • all such items of equipment and unit operations which form part of the control system. For your control room this may include (select relevant items): ➢ process control systems, e.g. Distributed Control Systems ➢ personal computers

	➢ printers ➢ fire and gas detection/protection systems ➢ emergency shutdown and communications systems. • Typical problems for plant may include: ➢ loss of power/utilities ➢ analyzing failure modes ➢ variation/loss of feed ➢ unstable control of pressure, temperature level and flows ➢ control equipment failure ➢ process plant trips ➢ change in atmospheric conditions (rain, temperature, wind, lightning) and emergency situations.
Health, Safety and Environment (HSE)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • recognize and analyses potential situations requiring action and then in implementing appropriate responses. • stay out of trouble rather than on recovery from a disaster. • Consistent performance in that: ➢ early warning signs of equipment/processes needing attention or with potential problems are recognized ➢ the range of possible causes can be identified and analyzed and the most likely cause determined ➢ appropriate action is taken to ensure a timely return to full performance ➢ obvious problems in related plant areas are recognized and an appropriate contribution made to their solution.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • the architecture and location of the process/production equipment • specific plant process operations • interactions between plant items/processes • product specifications and tolerances • systems operating parameters • system integrity limits • process control philosophies and strategies • emergency shutdown procedures • process specific physics, chemistry and mathematics • basic science of upstream and downstream processes

	• relevant chemistry of the process to the level of interpreting chemical equations and manipulating factors controlling rate of reaction and yield (or equivalent physics for a physical process/biochemistry for a biochemical process) - chemistry to include both intended products and interfering reactions, e.g. salts, hydrates • impact of external factors, e.g. variations in weather, feed etc • process drawings, e.g. P&ID, PFD • cause and effect • basis of control for the plant/s • instrumentation and control systems, including feed forward, feedback and open control • instrumentation and control system components, e.g. relevant primary sensing devices, final control elements, transducers/transmitters • control loops, including PID control, set points, controlled variable, indicated variable • interaction between multiple control loops, including cascade control • impacts of changing controller settings and the limits within which changes can be made • effective communication techniques • organization procedures • UPS and its applications and use.
Underpinning Skills	Distinguish between causes of problems/alarms/fault indications such as: • instrument failure/malfunction • electrical failure/malfunction • mechanical failure/malfunction • equipment design deficiencies • product parameters (temperature, flows, pressure and levels) • process control system malfunction and power/utility failures.
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Operate and Monitor Basic Boiler**
Unit Code	**IND SDM 3 07 0613**
Unit Descriptor	This unit covers performing start-up, take-over/hand-over, monitoring, shut-down and storage of a basic boiler. It includes inspection procedures as specified in manufacturers' recommendations and workplace procedures, and identification of maintenance requirements and hazard control measures.

Elements	Performance Criteria
1. Select and use personnel protective equipment	1.1 Personal protective clothing and equipment is selected in accordance with standard workplace procedures. 1.2 Personal protective clothing and equipment is used correctly and in accordance with standard workplace procedures.
2. Carry out pre-operational checks	2.1 ***Pre-operational checks*** of ***boiler*** are undertaken correctly to plant operating procedures. 2.2 Maintenance requirements and visual faults are reported according to standard workplace procedures.
3. Maintain health and safety standards in work area	3.1 ***Hazards*** and potential hazards are identified and reported according to standard workplace procedures. 3.2 Hazard prevention/control measures are selected and used as required.
4. Start boiler	4.1 Boiler is started and consistent with workplace procedures and production requirements. 4.2 Boiler is brought on line safely, consistent with workplace procedures and production requirements.
5. Conduct hand-over/take-over procedures	5.1 Operating status of boiler is confirmed. 5.2 Operating log is maintained and boiler status/operation is communicated according to workplace procedures.
6. Operate and monitor boiler	6.1 Boiler is operated and ***monitored*** consistent with production and safety requirements. 6.2 Boiler water quality tests are conducted to manufacturer's recommendations and workplace procedures. 6.3 Boiler water quality is adjusted as required to manufacturer's recommendations and workplace procedures.

	6.4 Boiler failures/emergencies are acted on according to workplace procedures and downstream users are notified, if necessary.
7. Carry out boiler operational shut-down	7.1 Boiler is shut down consistent with workplace procedures, production and safety requirements. 7.2 Boiler operational shutdown is carried out.
8. Carry out boiler shut-down for an internal inspection	8.1. Boiler is shut down for internal inspection according to manufacturer's recommendations and workplace procedures. 8.2. Boiler is cleaned internally and externally to manufacturer's recommendations and workplace procedures.
9. Store boiler in shut-down mode	9.1. Required ***storage mode*** is identified. 9.2. Boiler is stored to manufacturer's recommendations and workplace procedures.

Variable	**Range**
Pre-operational checks	May include: • Feed water supply, boiler water level, fuel supply/heat source, boiler valves - their operation and position, combustion air supply and combustion equipment
Boiler	May include: • Single fixed combustion air supply, non-modulating single heat source and fixed firing rate
Hazards	May include: • Chemical and thermal hazards, manual handling, guarding of machinery, illumination of work area, rubbish and combustibles, leakage of steam and fuel etc.
Monitored	May include: • Steam pressure, flame and combustion conditions, feed system and condensate returns, fuel system, water level, combustion management system, water management system, boiler and steam manifold fittings, soot blowers
Storage mode	May include: • Wet and dry storing, open or closed condition

Evidence Guide	
Critical Aspects of Competence	Must confirm appropriate knowledge and skills to: • Select and use personnel protective equipment • Carry out pre-operational checks • Maintain health and safety standards in work area • Start boiler • Conduct hand-over/take-over procedures • Operate and monitor boiler

	• Carry out boiler operational shut-down • Carry out boiler shut-down for an internal inspection • Store boiler in shut-down mode
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • personal protective clothing and equipment use and applications • pre-operational checks such as feed water supply, boiler water level, fuel supply/heat source, boiler valves their operation and position, combustion air supply and combustion equipment • procedures for identifying and reporting maintenance • statutory requirements and workplace procedures for identifying and reporting hazards in the work area • hazard prevention and control measures • processes for starting a boiler, such as heat input, warm up of the reticulation system, steam traps and steam line purge, systems operation, reticulation line pressure, steam usage and supply • processes for confirming operational status of boiler • procedures for maintaining operating log • procedures for communicating boiler status and operation • principles of boiler operation • boiler fittings • preparing boiler for inspection • procedures for monitoring a boiler, such as steam reticulation line pressure, usage, supply and quality of steam, combustion/heat source system, feed water system, fuel system combustion air supply, water level, boiler steam pressures and operation of control/safety devices etc. • location of inspection and explosion doors • procedures for conducting boiler water quality tests • feed water systems and treatment • emergency procedures such as identification of emergency, isolation of heat source, selection and application of appropriate fire fighting equipment and notification of down stream users etc. • processes and procedures such as confirming water level, cooling down, boiler pressure/vacuum and fuel/heat source isolation etc. when operationally shutting down a boiler • processes and procedures such as confirming boiler cooling down, vacuum/pressure, fuel/heat source isolation, removal of combustion equipment and water from boiler, isolation form any common connection and the opening of all access points required for inspection etc.

Underpinning Skills	Must demonstrate skills in: • selecting and using personal protective clothing and equipment • performing pre-operational checks of boiler • identifying and reporting maintenance requirements • identifying and reporting hazards and potential hazards in work area • responding to boiler failures/emergencies • applying hazard prevention/control measures • starting boiler and bringing on line • confirming operating status of boiler • maintaining operating log • communicating boiler status information • monitoring boiler • conducting boiler water quality tests • adjusting boiler water quality • shutting down boiler • cleaning boiler internally and externally • storing boiler
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Transfer Bulk Fluids into/out of Storage Facility**
Unit Code	**IND SDM 3 08 0613**
Unit Descriptor	In a typical scenario involving land based tank farms or tankers at sea, the control room operator, from the main panel, will monitor and control the transfer of product into storage facilities including controlling product levels, flows, temperatures and pressures. The operations technician will also prepare and complete all necessary documentation for the control, transfer and calculation of product volumes.

Elements	Performance Criteria
1. Prepare for work	1.1 Work requirements as per work procedures are identified. 1.2 Hazards as to relevant standards are identified and controlled. 1.3 Appropriate personnel are coordinated with.
2. Prepare storage/transfer facilities	2.1 Products within the tank farm or at the platform in accordance with the site/enterprise's storage types, ***products*** and locations are managed. 2.2 Storage or docking facilities for leaks or damage are inspected. 2.3 ***Safety*** systems are checked and tested to verify their operational condition and status, and report on all equipment faults 2.4 Critical inspections of storage and tank farms according to specification are conducted. 2.5 All equipment requiring maintenance, follow up are identified and reported to satisfactory conclusion.
3. Monitor storage facilities	3.1 Confirm tank mixes, capacities and quality, are confirmed and determined if these are being maintained within the agreed product requirements prior to transfer. 3.2 Monitor environmental/safety systems are monitored to ensure the storage area is a safe environment and that the safety of the area or vessel is not compromised. 3.3 Storage conditions are communicated to transfer or other personnel to inform them of the operational condition and status of the storage facilities or vessel.

4. Monitor load-out/transfer platform or facility as required	4.1 Load-out/transfer systems on the platform or in the terminal load-out/transfer area are monitored. 4.2 Appropriate personnel are informed of the load-out/transfer area status, and conditions of the storage facilities.
5. Conduct load-out/transfer	5.1 Operational status to required personnel prior to loading is communicated. 5.2 All start-up permissive have been satisfied and product is ready for transfer is ensured. 5.3 Pump flow rates are set and adjusted to keep within agreed capacities. 5.4 Loading pump performance is monitored to keep within stated operational ranges and vibration is in limits. 5.5 Product shipping/transfer samples as required are taken and recorded.
6. Isolate and de-isolate plant	6.1 Plant as to work ***procedures*** is isolated. 6.2 Safe is made for required work in accordance with workplace guidelines. 6.3 Plant to be returned to service with relevant enterprise and operating procedures is checked and prepared. 6.4 Plant for return to service as to procedures is prepared.
7. Resolve problems	7.1 Possible problems in equipment and process are identified. 7.2 Problems needing action are determined. 7.3 Possible fault causes is determined. 7.4 Problem using appropriate solution within area of responsibility is rectified. 7.5 Items until resolved are followed up. 7.6 Problems outside area of responsibility are reported to designated person.

Variable	**Range**
Products	May include: • bulk liquid • chemicals, oil and etc.
Safety equipment on site	May include: • main fire pumps • jockey pumps • fire monitors • deluge systems

	• sub-surface foam injection • fire detection and reporting systems • emergency shutdown systems
Procedures	May be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant.
Codes of practice**/** standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards.
Context	Includes all items of equipment and unit operations which form part of the load-out and storage system. For your facility this may include (select relevant items): • tanks, such as concrete bunded storage tanks, floating roof tanks, temperature controlled tanks (heated, chilled, refrigerated) • vessels, e.g. pressure storage vessels • pumps, e.g. transfer and circulation pumps, stripping pumps • compressors, e.g. boil-off gas compressors • gauges • fire protection and deluge systems, e.g. flare system • tank dipping and measurement equipment. • instrumentation.
Start up shut down as required	May include: • start up and shut down to/from normal operating conditions • start up and shut down to/from isolated, cold, empty • all other conditions experienced on the plant. i.e. from any condition to any condition experienced on the plant.
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility to designated person.
Health, Safety and Environment (HSE)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skill to: • recognize and analyze potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster. In particular look to see that: ➢ early warning signs of equipment/processes needing attention or with potential problems are recognized ➢ the range of possible causes can be identified and analyses and the most likely cause determined ➢ appropriate action is taken to ensure a timely return to full performance ➢ obvious problems in related plant areas are recognized and an appropriate contribution made to their solution. • These aspects may be best assessed using a range of scenarios/case studies/what-ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • principles of operation of plant/equipment • physics and chemistry relevant to the process unit • process parameters and limits, e.g. temperature, pressure, flow, pH • duty of care obligations • hierarchy of control • communication protocols, e.g. radio, phone, computer, paper, permissions/authorities • routine problems, faults and their resolution • relevant alarms and actions • plant process idiosyncrasies • all items on a schematic of the plant item and the function of each • correct methods of starting, stopping, operating and controlling flow • causes of head loss in piping systems, including comparison of fittings using Le/d concept, fluid and pipe material properties, flow geometry etc • corrective action appropriate to the problem cause • function and troubleshooting of major internal components

	and their problems, such as impellors, seals or bearings • types and causes of problems within operator's scope of skill level and responsibility. • testing techniques • equipment isolation and purging • use and operation of safety equipment, including breathing apparatus • tank and product mixes • flow rates and measures • tank capacities and percentages • static electricity principles. • Sound knowledge of storage and transfer techniques required to transport oil, gas or water is expected.
Underpinning Skills	Must demonstrate skills of: • efficient and effective operation of plant/equipment • hazard analysis • completing plant records • communication • problem solving
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: Advanced soap and Detergent Manufacturing Operation Level III	
Unit Title	**Produce Product Using Fixed Bed Dehydration**
Unit Code	**IND SDM3 09 0613**
Unit Descriptor	In a typical scenario an operations technician operates and monitors fixed bed dehydration units and ancillary equipment. This unit includes the operations technician identifying and reporting operational problems, being aware of and contributing to a safe working environment, contributing to the safe and productive operation of the system, and operating, monitoring and maintaining the equipment using relevant procedures.

Elements	Performance Criteria
1. Check work requirements and Prepare for work	1.1 Work requirements from production plan or request are identified. 1.2 Product, materials and equipment are checked to meet requirements for job(s). 1.3 Requirements which may not be in accordance with usual practice are recognized. 1.4 ***Hazards*** associated with the job are identified and take appropriate action is taken. 1.5 Other pre-operational checks in accordance with procedures are performed. 1.6 Appropriate personnel are coordinated with.
2. Start up dehydration system	2.1 All required equipment is checked if it ready for start up. 2.2 Dehydration systems are started up and brought on line, ensuring all equipment is correctly lined up to ***procedures***. 2.3 Dehydration process is monitored, ensuring the plant is operating safely and efficiently.
3. Undertake dehydration of product	3.1 Knowledge of hydride formation, absorption and/or adsorption process theories are applied to facilitate safe operation of the process. 3.2 Operating parameters and process conditions during dehydration are adjusted in order to keep product moisture within specification 3.3 Heating and cooling times during the dehydration and regeneration process are such that the product remains on specification are ensured.

	3.4 Liaison with required personnel throughout the process is maintained. 3.5 Equipment as required is re-sequenced processed to achieve and required operating criteria is maintained. 3.6 Operation is monitored and ***appropriate action*** is taken in accordance with work procedures.
4. Record process variations and communicate problems	4.1 Any product variations, noting the type of variation and action taken are recorded to rectify the variation. 4.2 Actions are recorded as a reference for any further investigation. 4.3 Maintenance of operational equipment as required is arranged and communicated to appropriate personnel. 4.4 Identified operational equipment requiring maintenance from the process and purge in accordance with procedures is isolated to rectify the ***problem***.
5. Isolate and de-isolate plant	5.1 Plant as to work procedures is isolated. 5.2 Plant is made safe for required work in accordance with workplace guidelines. 5.3 Plant is checked and prepared to be returned to service with relevant enterprise and operating procedures.

Variable	**Range**
Hazards	May include chemical and thermal hazards, manual handling, machine guarding, illumination of work area, rubbish and combustible materials, heat transfer fluid and fuel leaks etc.
Procedures	May be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant.
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred

	• reporting problems outside area of responsibility to designated person.
Typical problems for your plant	May include: • variation/loss of feed • unstable control of pressure, temperature level and flows • control equipment failure • process plant trips • change in atmospheric conditions (rain, temperature, wind, lightning) • emergency situations • desiccant contamination • desiccant damage/bed collapse (over pressuring) • poor regeneration (flow/heat/cooling).
Context	Includes all such items of equipment and unit operations which form part of the production/Manufacturing system. This may include (select relevant items): • vessels • valves • compressors • piping systems • exchangers • furnaces • columns and towers • cooling and heating systems • burner management systems • Programmable Logic Controllers (PLCs) • filters
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards.
Health, Safety and Environment (HSE)	May include: • All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. • stay out of trouble rather than on recovery from a disaster. Consistent performance in that: ➢ early warning signs of equipment/processes needing attention or with potential problems are recognized ➢ the range of possible causes can be identified and analyzed and the most likely cause determined

	➢ appropriate action is taken to ensure a timely return to full performance ➢ obvious problems in related plant areas are recognized and an appropriate contribution made to their solution.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • principles of operation of dehydrator • product tolerances and specifications • process control philosophies and strategies • outside process/production operational knowledge, including columns, furnaces, waste heat recovery and trays • extraction principles • other process equipment, including valves • hydrate formation • adsorption/desorption • alarm systems. • physics and chemistry relevant to the process unit and the materials processed • process parameters and limits, e.g. temperature, pressure, flow, pH • duty of care obligations • hierarchy of control • communication protocols, e.g. radio, phone, computer, paper, permissions/authorities • routine problems, faults and their resolution • relevant alarms and actions • plant process idiosyncrasies • all items on a schematic of the plant item and the function of each • correct methods of starting, stopping, operating and controlling process • corrective action appropriate to the problem cause • function and troubleshooting of major components and their problems • types and causes of problems within operator's scope of skill level and responsibility.
Underpinning Skills	Must demonstrate skills to: • isolate the causes of problems to an item of equipment within the dehydration system and to distinguish between causes of problems/alarms/fault indications such as: ➢ instrument failure/malfunction ➢ electrical failure/malfunction ➢ mechanical failure/malfunction ➢ equipment design deficiencies ➢ product parameters (temperature, flows, pressure and levels)

	➢ fouling or contamination ➢ corrosion ➢ quality measurement inaccuracy, e.g. from analyzer or manual sampling deficiencies
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Perform Basic Tests**
Unit Code	**IND SDM3 10 0613**
Unit Descriptor	This unit of competency covers the ability to perform tests using standard methods and with access to readily available advice. Personnel are required to demonstrate close attention to the accuracy and precision of measurements and the data obtained. In general, they do not calibrate equipment and make only limited adjustments to the controls. The unit of competency does not cover interpretation or analysis of results or troubleshooting equipment problems.

Elements	Performance Criteria
1. Interpret test requirements	1.1 Test request is reviewed to identify samples to be tested, test method and equipment involved. 1.2 ***Hazards*** and ***enterprise controls*** associated with the sample, preparation methods, reagents and/or equipment in line with procedures are identified.
2. Prepare sample	2.1 Sample description is recorded and compared with specification, record and report discrepancies. 2.2 ***Sample is prepared*** in accordance with appropriate standard methods.
3. Check equipment before use	3.1 Test equipment in accordance with test method is set up. 3.2 pre-use and safety checks are performed in accordance with enterprise procedures and manufacturer's instructions 3.3 Faulty or unsafe equipment are identified and reported to appropriate personnel. 3.4 Calibration status of equipment is checked and any out of calibration items are reported to appropriate personnel.
4. Perform tests on samples	4.1 Sample and standards to be tested in accordance with chemical testing requirements is identified, prepared and weighted or measured. 4.2 ***Tests*** are conducted in accordance with enterprise procedures. 4.3 Data in accordance with enterprise procedures is recorded. 4.4 Calculations on data as required are performed.

	4.5 'Out of specification' or atypical results are identified and reported promptly to appropriate personnel. 4.6 Equipment in accordance with operating procedures is shut down.
5. Maintain a safe work environment	5.1 Established safe work practices and personal protective equipment are used to ensure personal safety and that of other laboratory personnel. 5.2 ***Environmental impacts*** and the generation of wastes according to environmental protection regulation or guidelines are minimized. 5.3 Safe disposal of laboratory and hazardous wastes according to workplace and environmental protection regulation or guidelines are ensured. 5.4 Equipment and reagents as required are cleaned, cared for and stored.

Variable	**Range**
Hazards	May include: • electric shock • dust, noise • chemicals, such as: sulphuric acid, fluorides, hydrocarbons • sharps, broken glassware and hand tools • flammable liquids • fluids under pressure • sources of ignition • occupational overuse syndrome, slips, trips and falls • manual handling, working at heights and in confined spaces • crushing, entanglement, cuts associated with moving machinery or falling objects.
Enterprise controls to address hazards	May include: • use of Material Safety Data Sheets (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, gown, body suits, respirators and safety boots • use of appropriate equipment, such as biohazard containers and cabinets, laminar flow cabinets • recognising and observing hazard warnings and safety signs • labelling of samples, reagents, liquated samples and hazardous materials • handling and storage of all hazardous materials and equipment in accordance with labelling, materials safety

	data sheets and manufacturer's instructions, 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 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.
Typical tests carried out by laboratory/field assistants	May include: • visual/optical tests of appearance, colour, texture, identity, turbidity, refractive index (alcohol content, Baume) • physical tests, such as: ➢ density, specific gravity, compacted density ➢ moisture content, water activity ➢ particle size, particle shape, size distribution • chemical tests, such as: ➢ gravimetric ➢ colorimetric ➢ Electrical Conductivity (EC), pH ➢ specific ions using dipsticks and kits ➢ ashes, including sulphated ashes • packaging tests, such as: ➢ tearing resistance, bursting strength, impact resistance ➢ permeability and/or leakage
Minimizing environmental impacts	May include: • recycling of non-hazardous waste, such as chemicals, batteries, plastic, metals, glass • appropriate disposal of hazardous waste • correct disposal of excess sample/test material • correct storage and handling of hazardous chemicals.
Common measuring equipment	May include: • dimension apparatus • Electrical Conductivity (EC) • analogue and digital meters, charts/recorders • basic chemical test kits • dipsticks and site test kits • timing devices • Temperature measuring devices, such as thermometers, thermocouples.

Health**,** safety and environment	May include: • All operations to which this unit applies are subject to stringent Health, Safety and Environmental (HSE) requirements, which may be imposed through State or Federal legislation and these, must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • interpret enterprise procedure or standard methods accurately • use safety information (for example, MSDSs) and performs procedures safely • check test equipment before use • complete all tests within required timeline without sacrificing safety, accuracy or quality • calculate, record and present results accurately and legibly • maintain security, integrity and traceability of all samples, data/results and documentation • clean and maintain equipment
Underpinning Knowledge and Attitudes	Must demonstrate knowledge to: • Apply and explain: ➢ 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	Must demonstrates skills to: • apply principles of the standard method • perform pre-use equipment checks • apply relevant standards/specifications and their interpretation • identify sources of uncertainty in measurement and methods for control • enterprise and/or legal traceability requirements • interpret and record test result, including simple calculations • apply procedures for recognition/reporting of unexpected or unusual results

	• implement relevant health, safety and environment 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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Monitor and Maintain Instrument and Control Systems**
Unit Code	**IND SDM3 11 0613**
Unit Descriptor	This competency covers the skills needed to monitor and maintain instrument/electrical systems used for process measurement and control of a process. This competency covers any control system/instrumentation forming part of a control system, such as those for compressor systems, prime movers, valve systems and systems measuring/controlling flow, pressure or temperature. It also covers the use of relevant test equipment. Control systems can be pneumatic, electrical/electronic, electro-pneumatic, computer-based, etc. This competency includes responding to emergency situations, such as a leak, fire or equipment failure. It also includes troubleshooting a range of problems which could include electrical faults, calibration errors or equipment failure.

Elements	Performance Criteria
1. Monitor equipment operation	1.1 Equipment operation according to instrument/electrical equipment operating principles and parameters is monitored. 1.2 Relevant technical drawings and schematics are accessed and interpreted to determine system ***faults***. 1.3 Permit is issued to work to allow work to be undertaken. 1.4 Equipment operation/performance through test procedures is verified to ensure correct operation and to confirm identified problems from other sources. 1.5 Operational variations through calibration and adjustment are corrected. 1.6 Operational variations are documented.
2. Test/repair equipment	2.1 ***Test equipment*** is verified if operating correctly and document test results in accordance with test method requirements. 2.2 Appropriate troubleshooting techniques are applied to determine the cause of operational faults as per work requirements. 2.3 Operational faults through the application of relevant maintenance ***procedures*** are rectified.

	2.4 Faulty equipment is isolated, removed and disposed of, and installed new equipment according to work procedures. 2.5 The performance of newly installed equipment is verified to ensure it meets required operational parameters and conditions. 2.6 All repairs/installations are recorded to provide historical records of the condition of system equipment.
3. Re commission systems and equipment	3.1 Equipment is re-commissioned repaired/installed to on line operation in the correct sequence at the required operational parameters. 3.2 Systems are monitored or activated to ensure they are operating both safely and effectively. 3.3 Permit is closed out to work and restore site/system to normal operation.
4. Compile and analyze reports	4.1 Information concerning deviations/repaired equipment is collected and put into accepted reporting format. 4.2 ***Reports*** are compiled ensuring they provide an accurate and ongoing record of deviations in pipeline processes and a current record of pipeline and equipment trends. 4.3 Information or reports are utilized for short and long term deviation control planning.

Variable	**Range**
Types of faults	May include: • material leaks • electrical problems • compressor or pump failure • out of current inspection status • gauge failure or hose rupture/leaks • instruments out of calibration • non-flow of material • instruments and equipment requiring cleaning
Test equipment and tools	May include: • weight tester • transmission unit • multi meter • RTD calibrator • chart recorders • data logging equipment • hand tools

	• valves, actuators and flanges. • The use and operation of personal computers, other hardware mediums and associated software is required.
Procedures	May be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant.
Reports	May include: • routine inspections (daily readings, monthly checks) • scheduled maintenance activities • mandatory or statutory inspections • hazard and incident reports • quality assurance system requirements/reports. • Instrument/electrical systems may include: • process analyzing systems • emergency shutdown systems • fire systems • pressure and temperature control systems • metering systems • communications systems • utility systems.
Emergency responses	include: • leaks/loss of containment • fire • equipment failure • hazards and incidents.
Relevant personnel	May include: • supervisors • maintenance personnel • organization employees • government bodies
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards.
Context	Control systems for one or more of the following may be included compressor systems and equipment (compressors, monitoring systems, power supply systems, pumps, pumping systems and equipment, pressure vessels/filtration equipment, coolers, scrubbers, anti-surge systems, safety systems and compressor control systems)

	• flow systems (piping systems, metering equipment, flow control equipment, pressure and temperature transmitters and transducers, telemetry equipment, PLCs, flow computers, electro-pneumatic process control equipment and their associated on-line analytical instrumentation such as moisture analyzers etc • valve systems (non-control valves, control and shut off valves, non-return or check valves and pressure relief valves, manual hand operated actuator, gas/hydraulic actuator and pneumatic valves).
Health, Safety and Environment (HSE)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • Recognize and analyze potential situations requiring action and then in implementing appropriate corrective action. • Stay out of trouble rather than on recovery from a disaster. • early warning signs of equipment/processes needing attention or with potential problems are recognized • the range of possible causes can be identified and analyzed and the most likely cause determined • appropriate action is taken to ensure a timely return to full performance • Obvious problems in related plant areas are recognized and an appropriate contribution made to their solution. • implement all OHS and environmental procedures relevant to this unit • apply the permit to work system within the context of this unit • interpret a range of process and control system drawings and schematics in order to undertake required or identified repairs/modifications to electrical systems.
Underpinning Knowledge and Attitudes	Demonstrated knowledge and application of: • process and plant schematic and instrumentation diagrams • operations and functions of instrumentation and control devices • control functions, control regimes, adjustments and tuning • test and calibration methods • test equipment typically used with control system repair/maintenance/calibration.
Underpinning Skills	Demonstrates skills to: • test, repair, re-commission and monitor the operational

	condition of instrument control systems utilized within the industry • communicate and report the operational condition and history of instrument control systems to other team members and company personnel • coordinate own work and the work of others including on site contractors/operators. • It is essential that a person be able to apply the underlying skills and knowledge contained within this competency across a range of instrument and control systems.
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: Advanced soap and Detergent Manufacturing Operation Level III	
Unit Title	**Organize Storage and Logistics of General Materials**
Unit Code	**IND SDM3 12 0613**
Unit Descriptor	This competency covers the operation of the materials storage and retrieval system. In a typical scenario, an operations technician organises the storage and logistics of general materials for the plant or work area. The operations technician would determine the storage requirements for materials, follow requirements of the codes of practice, regulations or statutory requirements in the handling and storage of general materials and use product and hazard knowledge to contribute to the solving of operational problems to do with the handling and storage of materials.

Elements	Performance Criteria
1. Prepare for work	1.1 Work requirements as per work procedures are identified. 1.2 Hazards as per standards are identified and controlled. 1.3 Appropriate personnel are coordinated with.
2. Categorize materials	2.1 Storage and handling information for the materials, including hazardous and dangerous goods information, using labels, inventory system or other ***sources of information*** are located. 2.2 Storage, handling and hazards information from information sources are interpreted. 2.3 ***Materials*** are categorized in terms of frequency of use (pick), handling requirements, sources and destination points (internal and external), security requirements, product life and location in the storage area.
3. Select storage location and method	3.1 Storage location is determined for materials based on hazardous or dangerous goods, composition, state of the materials and containers, temperature or light control, fragility, quantity, size or shape. 3.2 Storage requirements are determined for new materials based on information available and recommend requirements 3.3 Others are assisted with advice concerning the storage and handling of materials based on the information available.

4. Store and retrieve materials	4.1 Appropriate transport and handling requirements for materials are determined. 4.2 Materials are moved to and from storage areas, using appropriate handling methods. 4.3 Relevant stock records and documentation as required are updated. 4.4 Material stock status, stock-outs or oversupply are advised to relevant personnel 4.5 The logistics management process is contributed by supply of accurate stock information, movement and advice on storage requirements and capacity.
5. Resolve problems	5.1 Possible ***problems*** in equipment or process are identified. 5.2 Problems needing action are determined. 5.3 Possible fault causes is determined. 5.4 Problem using appropriate solution within area of responsibility is rectified. 5.5 Items initiated are followed through until final resolution has occurred. 5.6 Problems outside area of responsibility are reported to designated person.

Variable	**Range**
Sources of Information in support of storage and handling processes	May be from many sources. This may include: • goods identification number and codes • manifests • picking slips, transfer documents, stock requisitions, batch specifications • manufacturer specifications, supplier or customer instructions • Materials Safety Data Sheets (MSDSs) • verbal or written communications • codes of practice, standards, regulations and legislation, including dangerous goods, airfreight, export, import, quarantine, bond or license requirements • quality documentation, procedures.
General materials	May include: • raw materials and finished goods • materials in sacks, bags, drums and portable storage containers • hazardous and dangerous goods

Problems	May include: • labeling problems (missing, damaged, illegible) • congestion and lack of appropriate storage area.
Codes of practice/ standards	May include: • Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.
Context	This unit of competency includes all types of storage. This may include (select relevant items): • bins and binning systems • racks and racking systems • marked floor spaces • pallets, portable tanks • Specialized storage areas (bunds, secure, weather protected, heated, cooled).
Appropriate action	May include: • determining problems needing action • determining possible fault causes • rectifying problem using appropriate solution within area of responsibility • following through items initiated until final resolution has occurred • reporting problems outside area of responsibility to designated person.
Procedures	May be written, verbal, computer-based or in some other form. They include: • all work instructions • standard operating procedures • formulas/recipes • batch sheets • temporary instructions • any similar instructions provided for the smooth running of the plant.
Health, Safety and Environment (HSE)	May include all operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • Recognize and analyze potential situations requiring action and then in implementing appropriate corrective action. \ • Stay out of trouble rather than on recovery from a disaster. • early warning signs of materials, storages or information needing attention or with potential problems are recognized

	• the range of possible causes can be identified and analyzed and the most likely cause determined • appropriate action is taken to ensure a timely return to full performance • Obvious problems in related plant areas and systems are recognized and an appropriate contribution made to their solution.
Underpinning Knowledge and Attitudes	Understanding of the logistics system, procedures and requirements to the level needed to use the system and recognize and resolve problems. In particular it includes the ability to: • locate, interpret and apply relevant information • provide customer service (both internal and external) and work effectively with others • apply knowledge of regulations and legislation to the storage and handling of materials • determine material type, location, handling and transport requirements using information sources and systems • safely move materials to the appropriate areas. • Knowledge of the materials, labeling and their storage requirements
Underpinning Skills	Isolate the causes of problems to a component of the logistics system and to distinguish between causes of problems such as: • missing or damaged labels • new materials requiring information about storage and handling to be found from additional information sources • special location requirements for materials.
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Issue Work Permits**
Unit Code	**IND SDM3 13 0613**
Unit Descriptor	This competency unit addresses the need for personnel who issue work permits to understand the permit system, know the limitations of each permit and make decisions regarding the need for and correct use of each permit. This competency unit includes the issue of any and all permits. It applies to the issuing of permits covering a single plant or plant area such as might be an operators scope of responsibility. It includes reviewing the conditions under which the work will be undertaken, examining the site to determining the hazards and safety requirements applicable to the site, ensuring the appropriate permit(s) is (are) selected depending on the organizations procedures, determining the appropriate conditions for the permit(s), raising, authorizing and issuing the necessary permit(s), monitoring compliance with the permit conditions, reporting any indiscretions or violations of permit conditions and where necessary revoking permits and managing the permit process especially in shift hand overs or extensions to work activities.

Elements	Performance Criteria
1. Identify need for work permit	1.1 ***Work permit system*** is understood. 1.2 Appropriate personnel are identified and confirmed with the need for work permit. 1.3 The correct permit for each situation according to company work permit conditions is identified.
2. Prepare work site for authorized work	2.1 An inspection of the work site according to workplace guidelines is undertaken. 2.2 OHS and environmental requirements according to workplace and environmental protection regulation or guidelines are identified. 2.3 ***Hazard*** identification and risk assessment as to ***procedure***s is conducted. 2.4 ***Work site prepared*** in accordance with specified work permit conditions is ensured. 2.5 Permit conditions are checked and reported to appropriate personnel.

	2.6 Need is identified for and carried out testing in accordance with standard operating procedures.
3. Raise and issue work permits	3.1 Conditions documented on permit in accordance with standard operating procedure are ensured. 3.2 Appropriate testing carried out and results documented on permit are ensured. 3.3 An appropriate validity period is determined. 3.4 Permit conditions are checked if met (i.e. validate permit). 3.5 Permit is completed and authorized. 3.6 Recipient(s) advised of and agrees to abide by the requirements of the permit(s) is ensured. 3.7 Recipient signs permit(s) is ensured.
4. Monitor work for compliance	4.1 Regular site inspections as per company procedures are undertaken. 4.2 Conditions and work progress are monitored and responded appropriately to changing conditions and circumstances. 4.3 Permit currency and revalidate as required are ensured. 4.4 Permit displayed in prominent position is ensured. 4.5 Act on incidences of non-compliance are identified and reported promptly to relevant personnel. 4.6 Any issues which arise with regard to work under the permit in accordance with procedures are reported.
5. Receive end of day report	5.1 End of day report are received from permit recipients. 5.2 Job progress and status as per job specification are confirmed. 5.3 Revalidation of permit as required are revalidated/arranged. 5.4 Work area is confirmed has been left safe. 5.5 Ongoing permits and status of suspended permits are handed over to oncoming shift.
6. Close work permit	6.1 Job status as per company job specification is inspected. 6.2 Work undertaken satisfies permit conditions is checked. 6.3 Work site ready for a safe ***return to working*** conditions is ensured.

	6.4 Required returns to work status have been completed is checked. 6.5 Documentation is signed off and permit is closed in accordance with standard operating procedures. 6.6 Work site is communicated and processed status to relevant personnel.

Variable	Range
Work permit system	May include: • types of permits • legislative/regulatory/standards framework • roles and responsibilities of parties under the permit system • equipment which can and cannot be used for types of permit • alternative ways of conducting a job
Hazards	May include: • unsafe conditions developing through failure to conform with the provisions of the permit • injuries to personnel • equipment failures • releases of toxic or noxious substances.
Procedures	All operations are performed in accordance with procedures. Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards. These may include: • OHS • EPA • Ethiopian Standards • licence requirements • company policy and permit control systems • other relevant standards
Preparation of work site	May include: • mechanical, electrical and other energy sources, and process isolations • de-energizing all sources of energy/pressure • purging of lines • lock out/tag out procedures • blinding/blanking lines
Returns to work status	May include: • de-isolation • removal of lockouts/tag outs • removal of drain covers etc.

Tools and equipment	May include: • writing instruments • computers and printers • calculators • testing equipment
Problems	Anticipate and solve problems means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/ a solution recorded in the procedures. Typical process and product problems may include: • selection of the wrong permit • incorrect information being supplied with the permit • errors being made in the completion of permit data • failure to correctly correspond to the requirements of the permit • failure to seek clarification when anomalies occur
Key variables to be monitored	May include: • types of permits being issued • permit issuing procedures • permit protocols for extended work activities beyond the end of shift • permit hand-over procedures
Codes of practice/ standards	May include: • Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version/version specified by the local regulatory authority must be used
Context	• This competency covers the issue of any and all work permits. Permits are called clearances by some organizations. The types of permit include: ➢ minor repairs ➢ working at heights ➢ hot work ➢ confined space ➢ electrical ➢ increased hazard ➢ other relevant permits. • Requirements identified on the permit may include testing of atmospheric conditions, ventilation and control measures such as isolation, barriers, tag out/lockout signs, communications, incident response • A 'competent person' is a person who has, through a combination of training, education or experience, acquired knowledge and skills enabling that person to correctly perform a specified task

	• Safety structures and controls may include automatic plant shut down buttons, cords/lanyards, alarms, barriers, guards, earth leakage devices, tag out/lock out procedures, warning lights
Health, Safety and Environment (HSE)	May include: • All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through relevant State or Federal legislation, and these must not be compromised at any time.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • correctly identify situations requiring work permits • identify and apply legislative requirements, relevant standards and codes of practice (which may be incorporated in the organization's procedures) to the issuing of work permits • list the requirements of each type of permit • plan own work process within workplace procedures and explain the reasons for the steps in the process. Consistent performance on that: • correct permit issued • hazards are identified and controlled in the permit by applying the hierarchy of control • required Personal Protective Equipment (PPE) is specified • problems are anticipated • problems are efficiently resolved.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • the materials, equipment and process sufficient to recognize situations requiring different types of work permits and then implement the appropriate action. • the organization's standard procedures and work instructions and relevant regulatory requirements under which permit systems operate, along with the ability to implement them within appropriate time constraints and in a manner relevant to the job.
Underpinning Skills	Must demonstrate skills of: • appropriate PPE • types of permits and what they cover • hazards associated with each type of permit • permit control system • hazards of the area for which permit is being issued • hazards that may be created by the interactions of the permit, the process and the plant area

	• identification of container and goods coding and HAZCHEM markings • production workflow sequences • focus of operation of work systems and equipment • application of relevant agreements, codes of practice and other legislative requirements • methods of hazard analysis • hazards of the materials and process and appropriate hazard control procedures, including hierarchy of control • identification and correct use of equipment, processes and procedures • selecting appropriate tests and knowing what the tests are for • conducting and interpreting tests for contaminant gases and other hazards • testing - types of testing may include: ➢ atmospheric, including explosivity, O_2 ➢ flammability ➢ toxicity ➢ temperature ➢ humidity ➢ combustibles' oxygen, enriched or reduced • estimating ventilation required for making vessels safe (eg for confined space entry, hot work)y including applying the formula for factors such as: ➢ space turnover rate, ➢ number of turnovers ➢ challenging/checking performance of monitoring and testing equipment against a standard sample ➢ supervision/monitoring of contractors. • Some sources of underpinning OHS knowledge include appropriate OHS and Dangerous Goods legislation, • license and certification requirements • company policy and permit control systems • other relevant standards. • This unit requires the ability to: ➢ read and correctly interpret complex P&IDs ➢ speak clearly and unambiguously in English ➢ explain, describe and verify sometimes complex needs and issues. • Writing skills to the level of completing workplace forms and producing reports. • Numeracy skills to the level of being able to correctly differentiate between high and low pressures and temperatures, voltages or masses

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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Monitor the Implementation of Good Manufacturing Practice Procedures**
Unit Code	**IND SDM3 14 0613**
Unit Descriptor	This is a core unit for manufacturing operation. It covers the skills and knowledge required to provide a leadership role in supporting day-to-day implementation of Good Manufacturing Practices (GMP) in a work area. It also involves supporting others to implement the requirements of GMP. This unit applies to those with formal responsibility for others and to those required to model workplace policies and procedures but who have no formal management role. Monitor implementation of GMP requirements in the work area.

Elements	Performance Criteria
1. Ensure others in the work area are able to meet GMP requirements	1.1 Relevant clothing and equipment appropriate to ***work*** requirements are available, functional and correctly fitted. 1.2 Advice on GMP responsibilities and procedures is accessible and clearly explained. 1.3 GMP control measures used in the work area can be identified by those in the work area. 1.4 Mentoring and coaching support is available to support individuals/groups to implement GMP and related procedures. 1.5 Training needs are identified and addressed within level of responsibility.
2. Monitor personal hygiene and conduct of team members in the work area	2.1 Personal hygiene of work team meets GMP requirements. 2.2 Clothing is prepared, used, stored and disposed of according to GMP and workplace procedures. 2.3 Personal movement around the workplace complies with area entry and exit procedures.
3. Monitor implementation of GMP requirements in the work area	3.1 GMP procedures in the work area are clearly defined, documented and followed. 3.2 Non-compliance with identified procedures is reported and addressed within level of responsibility. 3.3 Personal behaviour is consistent with workplace policies and procedures that support GMP.

	3.4 Workplace procedures to control resource allocation and process are followed to meet GMP requirements. 3.5 GMP non-conformance is identified and ***reported*** according to workplace procedure. 3.6 GMP information is recorded to meet workplace reporting requirements. 3.7 The workplace is maintained in a clean and tidy order to meet GMP housekeeping standards.
4. Contribute to validation processes	4.1 Validation practices and procedures are reviewed in consultation with relevant personnel. 4.2 Validation results and issues are identified and corrective action taken within level of responsibility. 4.3 Documentation and recording requirements meet GMP code and company***/ legislative requirements***.

Variable	**Range**
Work	May include is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements and industrial awards and agreements
Reporting systems	May include but not limited to: • electronic and manual data recording and storage systems
Products/materials handled and stored	May include but not limited to: • raw materials, • packaging components and consumables, • part-processed product, • finished product and cleaning materials
Legislative requirements	May include typically reflected in procedures and specifications. Legislation relevant to this industry includes relevant Good Manufacturing Practice (GMP) codes, the Therapeutic Goods Act, labelling, weights and measures legislation and legislation covering environmental management, occupational health and safety, anti-discrimination and equal opportunity
The range statement	May include the context for demonstrating competence. This statement is a guide and unless otherwise indicated, items may or may not apply as required by the work context.

Evidence Guide	
Critical Aspects of Competence	Must confirm appropriate knowledge and skills to: • Ensure others in the work area are able to meet GMP requirements • Monitor personal hygiene and conduct of team members in the work area

	• Monitor implementation of GMP requirements in the work area • Contribute to validation processes
Underpinning Knowledge and Attitudes	• Communicate information about GMP requirements and related procedures to others in the work area. This requires demonstration of two-way communication including active listening and constructive response to feedback • Provide access to GMP documentation • Model personal conduct and work activities to meet requirements of GMP • Identify control points in work area and demonstrate monitoring techniques used • Support others to identify control points and demonstrate monitoring and control methods • Support others to follow GMP procedures. This includes validation procedures within level of responsibility • Ensure that appropriate and timely action is taken in response to non-compliance • Determine action required to respond to GMP non-compliance within level of responsibility • Participate in consultation processes to improve GMP. This may include investigating actual and potential GMP non-compliance • Participate in and/or review practices and procedures to prevent or minimise the likelihood of unacceptable performance • Ensure that housekeeping standards are maintained and that equipment is in operational order. This may include participating in the management of equipment calibration • Monitor the recording of GMP information to confirm that records accurately reflect performance and meet the requirements of the workplace and legislation • The role of GMP in preventing contamination, its relationship to legislative responsibilities and potential implications of non-compliance • GMP arrangements in the workplace. This includes awareness of relevant GMP codes of practice and related workplace policies and procedures to implement these responsibilities • The relationship between GMP and the quality system, personnel responsible for designing and managing GMP, personal role to maintain GMP, the role of internal and external auditors as appropriate • Procedures followed to investigate contamination events and performance improvement processes

	• Clothing and footwear requirements for working in and/or moving between work areas • Current technical and process knowledge required to monitor GMP and participate in investigating GMP non-compliance within level of responsibility. This includes an understanding of common micro-biological, physical and chemical contaminants, conditions under which types of contamination are likely to occur, related control methods and validation procedures and responsibilities • Basic concepts of quality assurance including quality specifications, operating parameters, validation procedures and control methods. This includes an understanding of related documentation including Standard Operating Procedures and/or batch instructions • Control methods and procedures used in the work area to maintain GMP. This includes an understanding of the purpose of control, the consequence if not controlled and the method of control where relevant. It also includes an understanding of the methods used to monitor process control. • Purpose and requirements of validation procedures and purpose of equipment calibration • Recall and traceability procedures relevant to work area • GMP responsibilities and requirements relating to the work area • Properties, handling and storage requirements of raw materials, packaging components and final product handled and used in the work area • Standards for materials, equipment and utensils used in the work area • Procedures for responding to out-of-specification or unacceptable performance/outcomes. This includes procedures for identifying and isolating or quarantining materials or product of unacceptable quality • Documentation system and procedures. This includes record keeping to meet both company and legal requirements, procedures for developing and/or reviewing workplace procedures and document control systems used in the workplace • Auditing arrangements, roles and responsibilities as they relate to own work responsibilities. This may include an understanding of the purpose and process for internal and external audit processes • Appropriate communication skills and techniques to convey information appropriate to audience

	• Housekeeping requirements and responsibilities relating to own work. Where relevant this includes use and storage of housekeeping/cleaning equipment • Waste collection, recycling, handling and disposal. This may include handling/disposal requirements for different types of waste such as hazardous waste where relevant
Underpinning Skills	Must demonstrate skills to: • Communicate information about GMP requirements and related procedures to others in the work area. This requires demonstration of two-way communication including active listening and constructive response to feedback • Provide access to GMP documentation • Model personal conduct and work activities to meet requirements of GMP • Identify control points in work area and demonstrate monitoring techniques used • Support others to identify control points and demonstrate monitoring and control methods • Support others to follow GMP procedures. This includes validation procedures within level of responsibility • Ensure that appropriate and timely action is taken in response to non-compliance • Determine action required to respond to GMP non-compliance within level of responsibility • Participate in consultation processes to improve GMP. This may include investigating actual and potential GMP non-compliance • Participate in and/or review practices and procedures to prevent or minimise the likelihood of unacceptable performance • Ensure that housekeeping standards are maintained and that equipment is in operational order. This may include participating in the management of equipment calibration • Monitor the recording of GMP information to confirm that records accurately reflect performance and meet the requirements of the workplace and legislation
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Maintain and Organize Workplace Records**
Unit Code	**IND SDM3 15 0613**
Unit Descriptor	This unit covers the maintenance of workplace records in paper or electronic form. It may include sample products or materials for testing or quality purposes. This unit applies to employees who are required to maintain and organise workplace records. The competency is normally used within approved workplace routines, methods and procedures. Discretion and judgement are required in the selection of equipment, work organisation, services and the allocation of work tasks within agreed time frames.

Elements	Performance Criteria
1. Identify records to be stored	1.1 Purpose of records to be maintained in relation to customer requirements, quality system or production requirements is identified. 1.2 Requirements for completion of workplace records in accordance with workplace ***procedures*** are identified. 1.3 Information ensuring appropriate information and any samples included in an appropriate manner are recorded and collated.
2. Maintain document filing arrangements	2.1 Organization system for records according to company standards is identified. 2.2 Records following workplace conventions are filed. 2.3 Obsolete or non-conforming records following workplace procedures are dealt with.
3. Respond to information requests	3.1 Requests for information and priorities are interpreted. 3.2 Information requested is identified and information is provided within required workplace policies and time frames.
4. Organize file movements	4.1 Files to be relocated as company work procedures are identified. 4.2 Records of movement are completed and filed following workplace procedures.
5. Maintain security of workplace records	5.1 Security requirements for workplace records are identified. 5.2 Security arrangements for files are maintained. 5.3 Security breaches are notified to appropriate personnel.

Variable	Range
Procedures	All operations are performed in accordance with procedures. Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.
Documentation includes sources of documentation such as:	• production reports • job specifications • production capability statements/specifications • relevant workplace procedures and policies • quality standards • enterprise manuals • machine or equipment instructions and readouts • manufacturer specifications • materials safety data sheets • reliability, human resource, financial and production information • relevant agreements, codes of practice and other legislative requirements. • Filing systems may be manual or computerised.
Problems	Anticipate and solve problems means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/s recorded in the procedures. • Typical problems may include: ➢ lost files, misfiling, poor controls, insufficient space/storage facilities and incorrect destruction of records. • Appropriate action for problems outside of area of responsibility may be reported to ➢ an appropriate person. ➢ Appropriate action for solving problems within area of responsibility includes asking ➢ questions and seeking assistance from appropriate persons/sources
Key variables to be monitored	May include: • retention schedules, records movements and location.
Context	• This competency applies to all work environments in the industry. • Work is governed by established workplace procedures, and extent of authority for adjustments and other work activities are defined

Evidence Guide	
Critical Aspects of Competence	• identify and implement appropriate work processes for the filing and retrieval of workplace information

	• identify and take appropriate action on problems and potential problems. • Consistent performance should be demonstrated. For example, look to see that: ➢ records are consistently filed and accessed in accordance with workplace procedures ➢ security precautions appropriate to the records are applied at all times.
Underpinning Knowledge and Attitudes	• read and interpret typical product specifications, job sheets, work instructions and material labels as provided to operators. • Writing is required to the level of completing workplace forms and reports. • Numeracy is also required to the extent required by production data, work instructions and procedures.
Underpinning Skills	• Organisation standard procedures, work instructions and relevant regulatory requirements along with the ability to implement them within appropriate time constraints relevant to the job. • Knowledge and skills in organising and maintaining a records system, including: ➢ identification and correct use of record keeping processes and procedures ➢ records generated at various stages of the production workflow and records access requirements ➢ focus of operation of record systems and equipment ➢ importance of records held and relevant procedures to maintain records to minimize time delays in accessing records ➢ maintenance of information for suppliers, customers and the enterprise. • Competence also includes the ability to: ➢ plan own work, including predicting consequences and identifying improvements ➢ identify and describe own role and role of other employees in maintaining 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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Facilitate the Implementation of OHS for a Work Group**
Unit Code	**IND SDM3 16 0613**
Unit Descriptor	This competency applies to operators who are capable of coaching the team in participating and contributing to OHS management issues. The worker will be able to perform duties that are required of a safety committee member or safety representative in an organisation. Typically this worker might be a team leader or on the OHS committee.

Elements	Performance Criteria
1. Communicate OHS information for co-workers in team	1.1 Basic OHS rights, responsibilities and requirements are accurately and clearly explained to the work group. 1.2 OHS policies, ***procedures*** and programs, in a readily accessible manner, information on the relevant organisation are provided, and accurately and clearly explained them to the work group. 1.3 Relevant information about identified ***hazards*** and the outcomes of risk assessment and risk control procedures are regularly provided, and accurately and clearly explained them to the work group.
2. Coach co-workers in team	2.1 Mutual support groups, e.g. buddy system are established, to encourage effective development of individual and group competencies in OHS. 2.2 Personal encouragement and assistance to team members are provided to contribute to the management of OHS at the workplace.
3. Facilitate the consultative process	3.1 Issues raised through consultation are dealt with, and promptly resolved or referred to the appropriate personnel for resolution in accordance with workplace procedures. 3.2 Input from work group on OHS issues are sought and changes are proposed to process, procedures or work place. 3.3 Feedback from individuals and teams are encouraged and used to identify and implement improvements in the management of OHS. 3.4 The work group are promptly informed of the outcomes of consultation over ***OHS issues***.

4. Implement and monitor organization procedures for identifying hazards, and assessing and controlling risk	4.1 Adherence to work procedures are implemented and monitored to identify hazards and assess and control risk. 4.2 Existing risk control measures are monitored and results are reported regularly. 4.3 Internal and external sources of relevant ***OHS information*** are accessed***.*** 4.4 Inadequacies in existing risk control measures in accordance with the hierarchy of control are evaluated and identified, and reported to designated ***personnel.*** 4.5 Inadequacies in resource allocation for implementation of risk control measures are identified and reported to designated personnel. 4.6 Actual/potential inadequacies in procedures are identified and reported to designated personnel. 4.7 Identify actual/potential inadequacies in individual or team competency are identified and reported to designated personnel.
5. Maintain and use OHS records	5.1 ***OHS records*** for work area, in accordance with workplace requirements for OHS records and legal requirements for the maintenance of records of occupational injury and disease are accurately and legibly completed. 5.2 Aggregated information from the area OHS records are used to identify hazards and monitor risk control procedures within work area according to procedures and within scope of responsibilities and competencies.

Variable	**Range**
Procedures may include:	• All operations are performed in accordance with procedures. • Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.
Hazards may include:	• handling chemicals and hazardous materials • chemical and or hazardous materials spillage • gases and liquids under pressure • moving machinery • materials handling • working at heights, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours • fire and explosion.
OHS Issues	which may need to be raised by workers with designated personnel may include: • recognition of hazards

	• problems encountered in controlling risks associated with hazards • clarification of understanding of OHS policies and procedures.
Relevant sources of OHS information may include:	• OHS legislation and codes of practice • industry standards for materials, process, equipment etc • SA/ISO standards • OHS authorities • unions and industry associations • internet, journals, magazines • manufacturer/supplier manuals/specifications • policies and procedures • JSA, risk assessments, HAZOPs • hazard, incident and injury records • training resources • employee information brochures, newsletters etc • OHS reports such as inspections, technical reports
OHS records may include:	• hazard and incident reports • logs/logs sheets • inspection/start up/shut down checklists • injury reports and maintenance records.
Appropriate personnel for OHS referrals may include:	• employer • supervisor • employees elected as OHS representatives • other personnel with OHS responsibilities.
Participative arrangements for OHS management	May include: • making safety suggestions • information sessions on existing or new issues • meetings between employer and employees or representatives • access to relevant workplace information • use of clear and understandable language.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • communicate effectively with the work group(s) • proactively promote consultation and participation in the OHS processes • participate in decisions which impact on OHS for their workgroup. • Consistent performance should be demonstrated. In particular look for knowledge and understanding of: ➢ specific hazard policies and the use of hazard procedures (e.g. identify, assess, control)

	➢ the consultation processes, either general or specific to OHS ➢ OHS information ➢ OHS record keeping ➢ counselling, disciplinary and issue resolution processes
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • identification of hazards in the workplace and standard controls • assessment of risk and implementation of risk control measures • rights and responsibilities of employees under OHS legislation • obligations of employers under the OHS legislation • legislative requirements for information and consultation • arrangements for consultation within the workplace • management systems and procedures for OHS • the hierarchy of control • hazard policies and procedures • safety procedures • emergency, fire and accident procedures.
Underpinning Skills	Must demonstrate skills to: • locate, understand and follow workplace OHS procedures • identify and communicate with all key personnel in the organization • identify and access relevant sources of information • interpret OHS data such as tables of numbers and graphs • select, recommend and use personal protective clothing and equipment. • communicate with members of the work team/area and also management. • ability to interpret and apply OHS procedures and explain them to work team members. • Writing skills to the level of being able to keep records as required and also keep notes from meetings. • Numeracy skills to interpret incident statistics and hazard data.
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Monitor Implementation of Work plan/Activities**
Unit Code	**IND SDM3 17 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 in 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	Must demonstrate knowledge and skills to: • effectively monitor and respond to a range of common operational and service issues in the workplace • understand the role of staff involved in workplace monitoring • understand knowledge of quality assurance, principles of workflow planning, delegation and problem solving
Underpinning Knowledge and Attitudes	Must 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: • monitoring and improving workplace operations • planning and organizing workflow • maintaining 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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Apply Quality Control**
Unit Code	**IND SDM3 20 0613**
Unit Descriptor	This unit covers the knowledge, attitudes and skills required in applying quality control in manufacturing works.

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 ***checked*** against organization ***quality standards*** and specifications. 2.2 Service delivered are evaluated using the appropriate evaluation ***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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Lead Workplace Communication**
Unit Code	**IND SDM3 19 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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Lead Small Teams**
Unit Code	**IND SDM3 18 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 • how to work effectively with team members who have diverse work styles, aspirations, cultures and perspective • how to facilitate team development and improvement • methods and techniques for eliciting and interpreting feedback • methods for identifying and prioritizing personal development opportunities and options • 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
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: Advanced Soap and Detergent Manufacturing Operation Level III	
Unit Title	**Improve Business Practice**
Unit Code	**IND SDM3 21 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 to implement the top ranked improvements is developed and agreed. 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 to increase ***yield per existing client*** are developed. 5.2 Plans to add new clients are developed. 5.3 Proposed plans are ranked according to agreed criteria. 5.4 An action plan to implement the top ranked plans is developed and agreed. 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	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 • 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 ➢ 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 • telemarketing/cold calling
Yield per existing client	May include but not limited to: • raising charge out rates/fees • packaging fees • reduce discounts • 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: Advanced Soap and Detergent Manufacturing Level III	
Unit Title	**Prevent and Eliminate MUDA**
Unit Code	**IND SDM3 22 0212**
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

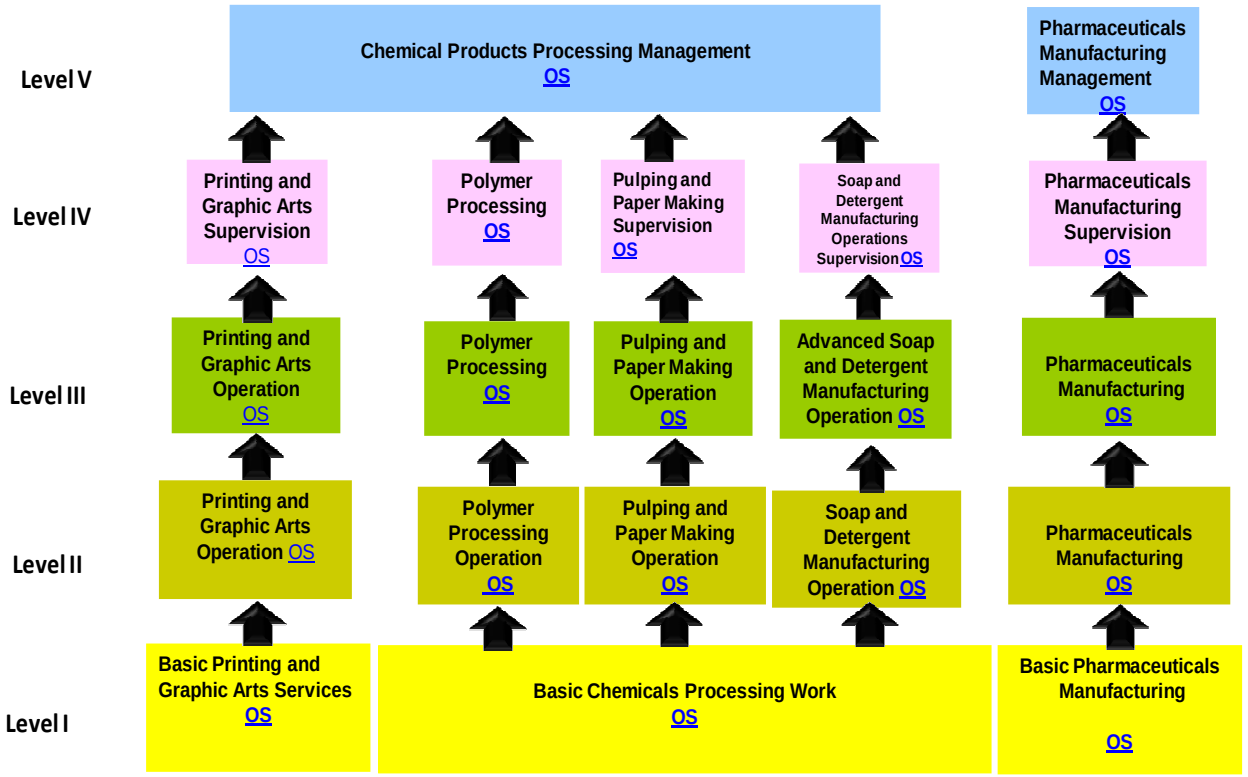
Tools and techniques	May include but not limited to: • Plant Layout • Process flow • Other Analysis tools • Do time study by work element • Measure Travel distance • Take a photo of workplace • Measure Total steps • Make list of items/products, who produces them and who uses them & those in warehouses, 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 Occupational Health and Safety (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
Chemical Products 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 Ethiopia Ministry of industry (MOI), Ministry of Education (MOE) who made the development of this occupational standard possible.

This occupational standard was developed on May 2013 at Ethiopian Management Institute (EMI), Debre Zeyit.

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.**