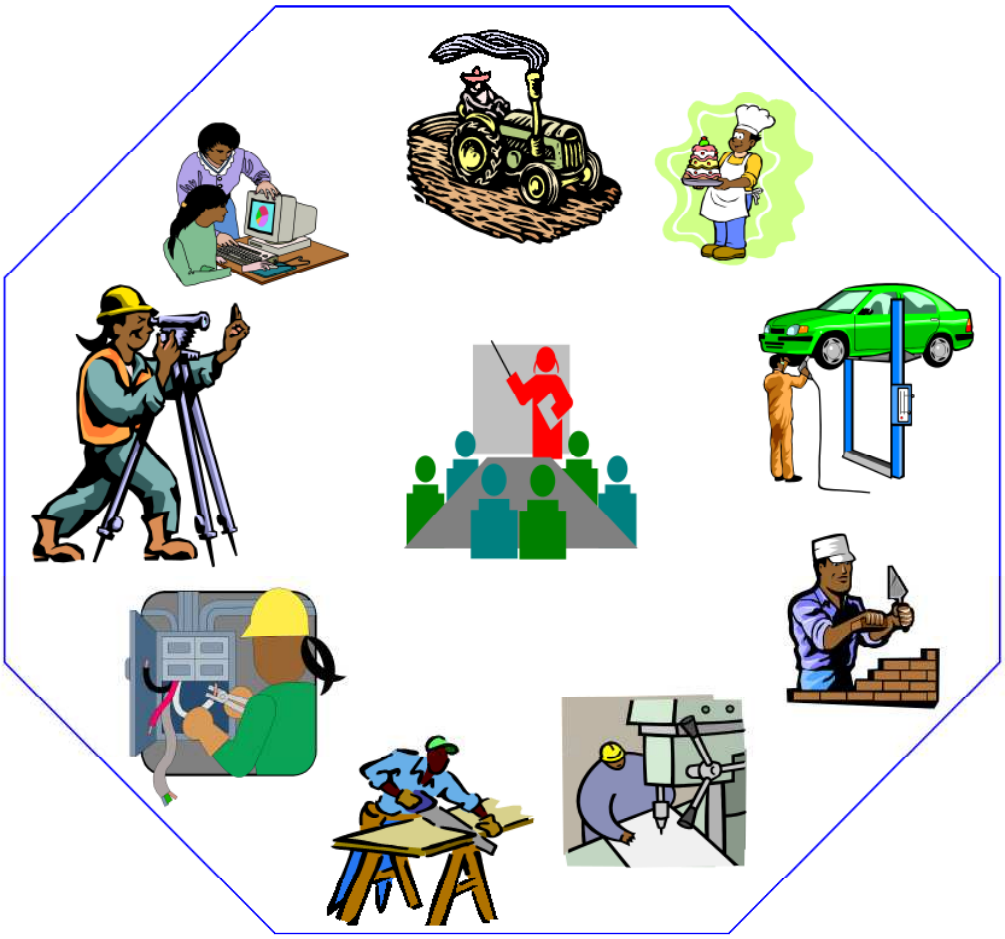
Federal Democratic Republic of Ethiopia

OCCUPATIONAL STANDARD

SOAP AND DETERGENT MANUFACTURING OPERATION NTQF Level II



Ministry of Education
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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: Soap and Detergent Manufacturing Operation

Occupational Code: IND SDM

NTQF Level II

IND SDM2 01 0613 Use utilities and services	IND SDM2 02 0613 Select and prepare materials	IND SDM2 03 0613 Operate a Process Control Interface
IND SDM2 04 0613 Operate Fluid Flow Equipment	IND SDM2 05 0613 Operate Particulates Handling Equipment	IND SDM2 06 0613 Operate Fluid Mixing Equipment
IND SDM2 07 0613 Operate Chemical Separation Equipment	IND SDM2 08 0613 Monitor Chemical Reactions in the Process	IND SDM2 09 0613 Operate Heat Exchangers
IND SDM2 10 0613 Operate Manufacturing Extruders	IND SDM2 11 0613 Sample and Test Materials and Product	IND SDM2 12 0613 Operate Fill and Seal Process
IND SDM 2 13 0613 Pack Products or Materials	IND SDM 2 14 0613 Process and Record Information	IND SDM2 15 0613 Observe Permit Work
IND SDM2 16 0613 Undertake Minor Maintenance	IND SDM2 17 0613 Follow Emergency Response Procedures	IND SDM2 18 0613 Participate in Environmentally Sustainable Work
IND SDM2 19 0613 Participate in Workplace Communication	IND SDM2 20 0613 Work in Team Environment	IND SDM2 21 0613 Develop Business Practice
IND SDM2 22 0613 Standardize and Sustain 3S		

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Use Utilities and Services**
Unit Code	**IND SDM2 01 0613**
Unit Descriptor	This unit covers the use of a range of utilities and services in the soap and detergent manufacturing plant. It includes the selection of the appropriate utility/service from those provided to the plant and recognizing and responding to operational problems as required. In a typical scenario an operator will be able to identify and select utilities and services used on a day to day basis. These will be provided to a process plant and will consist of instrument and plant air, plant water, steam and other utilities/ services required for a particular process.

Elements	Performance Criteria
1. Prepare for work	1.1 Work requirements are identified as per work plan or request. 1.2 Hazards associated with the job are identified and appropriate action taken. 1.3 Appropriate personnel are coordinated with.
2. Select and use utilities and services	2.1 ***Utilities and services*** available in the plant are identified. 2.2 Key properties, applications and limitations of each utility and service are identified. 2.3 Appropriate utility/service for the required duty is selected. 2.4 Selected utility/service is used based on ***procedures***.
3. Respond to problems	3.1 Use of utility/service is monitored frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc) as appropriate. 3.2 Operational ***problems*** are recognised and ***appropriate action*** is taken. 3.3 The cause of operational problems are analyzed within scope of skill level.

Variable	Range
Service utilities may include:	• steam - saturated, superheated • air - process, instrument • water - cooling, boiler feed, plant, waste
Procedures	May be written, verbal, computer-based or in some other form and 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.

	• For the purposes of this Training Package, 'procedures' also includes good operating practice as may be defined by industry codes of practice (e.g. Responsible Care) and government regulations.
Problems	May include: • non-supply of products and elements • variation in product and element feed rates • variations in temperature, pressure and flow • blockages or leakage.
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 State or Federal legislation, and these must not be compromised at any time.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge 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. • an application of the knowledge contained in the use of the equipment, to the level needed to maintain
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • names and functions of all items on a schematic of the utilities system • differences in use and methods between each service and utility

	• hazards in operation of services • differences between grades/types of services, e.g. grades of steam and air • physics and chemistry relevant to the utility and its use • 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 utility • corrective action appropriate to the problem cause • function and troubleshooting of major components and their problems, such as steam traps, lubricators, moisture pots • types and causes of futility problems within operator's scope of skill level and responsibility.
Underpinning Skills	Must demonstrate skills in: • efficient and effective operation of plant/equipment • hazard analysis • completing plant records • communication • problem solving. • Ability to isolate the causes of problems to an item of equipment within the production system and to distinguish between causes of problems/alarm/fault indications such as: ➢ instrument failure/malfunction ➢ electrical failure/malfunction ➢ mechanical failure/malfunction ➢ Variations in product parameters (temperature, flows, pressure and levels).
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 II	
Unit Title	**Select and Prepare Materials**
Unit Code	**IND SDM2 02 0613**
Unit Descriptor	This competency covers the selection and preparation of materials for use in production processes. The focus of this unit is finding and delivering the right materials to the process in the right condition. Along the way, some minor preparation may be required. A typical application of this competency could be an operator preparing a range of chemicals or other substances for use in a batch process. The operator would visually inspect each item for deterioration or damage, and follow procedures to prepare materials. Once prepared, the operator would then assemble the materials for supply to production areas. This unit only covers those situations where mixing, grinding, testing, etc., are an incidental part of the process of preparing materials for use in production.

Elements	Performance Criteria
1. Identify and locate materials	1.1 Material requirements are correctly identified from ***documentation***. 1.2 ***Quantity***, ***quality*** and ***type of materials*** are identified. 1.3 Material hazards and handling ***procedures*** are identified. 1.4 ***Materials*** are checked and located to procedures. 1.5 Availability of required quantity of materials is confirmed. 1.6 Material shortages are recorded and reported.
2. Contribute to controlling hazards	2.1 Other possible hazards in work area are identified. 2.2 Appropriate action is taken to control ***material hazards*** as per documentation. 2.3 Appropriate action is taken to control other hazards in the workplace.
3. Measure quantity of materials	3.1 Types of ***measuring equipment*** and their purpose are identified and selected according to requirements. 3.2 Required quantities are measured and collected. 3.3 Material quantities are checked against documentation. 3.4 Required materials are documented and labelled. 3.5 The measured materials are delivered to correct location.
4. Prepare materials as required	4.1 Hoppers, bins and holding tanks are checked if free from contamination. 4.2 Classes of compatible and incompatible chemicals are identified. 4.3 ***Material preparation*** is done based on procedures.

5. Store assembled materials	5.1 The storage conditions required for the main classes of chemicals are identified. 5.2 Materials that have special storage requirements are identified. 5.3 The collected materials are stored and supplied.
6. Dispose of waste materials	6.1 Waste materials are correctly identified 6.2 Waste materials are disposed of according to procedures and ***OHS and environmental*** requirements.

Variable	**Range**
Documentation	May include: • Materials Safety Data Sheets (MSDSs) • enterprise procedures • labelling requirements (dangerous goods codes, classification numbers, packaging group numbers) • HAZCHEM symbols and codes • spill containment and disposal procedures.
Quantity	The quantity of materials should be according to r recipe/ formulation of factory standards
Quality	May include: • Quality of materials should be based on factory specification
Types of materials	May include: • Surfactants (active matters) • Builders • Fillers and other additives
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.
Materials	May include: • raw materials • packaging materials and consumables
Material hazards and handling procedures	May be identified from • label • HAZCHEM symbol • MSDS • other relevant source.
Measuring equipment	May include: • Weighing balances

	• Flow meter • Deep stick • Measuring cans and cylinders
Equipment	May include: • buckets • stirring paddle • propeller or drum mixers • delumpers • hammers or axes • measuring equipment including scales, flow meters and graduated vessels • personal protective equipment
Materials preparation	May include: • warming to melt oils • breaking up solid materials into pieces or smaller lumps • passing materials through an in-line delumper • blending a powder or liquid into a solution prior to use in the process • blending powders prior to production • dilution of solutions • preparation of a solution for dosing into a process.
Problems	May include: • Typical problems are restricted to responding in a routine, predetermined manner as specified in the procedures. • All operations are performed to procedures.
MSDS	An operator is expected to be aware of an MSDS, its general structure and where to find the methods of use, cautions and actions in an emergency. They are not expected to understand the full text of an MSDS.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.
Tasks	• This competency is typically performed by operators, weighers, mixers or stores personnel, and includes the following tasks (select relevant items): • handling raw chemicals • storing raw chemicals • pre-production assembling and labelling of materials • pre-production inspection of materials, usually involving visual inspections only for identification of deterioration or damage • pre-production measuring of materials, by weight, volume or density • disposal of waste materials • identifying and reporting hazards, safety and other issues that could affect the operation of the plant.

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 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: • Identify and locate materials. • Contribute to controlling hazards. • Measure quantity of materials • Prepare materials as required. • Store assembled and disposed of waste materials.
Underpinning Knowledge and Attitudes	• classes of compatible and incompatible chemicals • types of materials in plant and their storage requirements • other special storage requirements • basic measurement procedures • routes of entry of chemicals to the body (basic only) • procedures for safe handling and storage of chemicals and hazardous substances • correct selection, use and maintenance of required PPE • labeling requirements (dangerous goods codes, classification numbers, packaging group numbers) • HAZCHEM symbols and codes • hazardous substances regulations • spill containment and disposal procedures • workplace Standard Operating Procedures (SOPs) related to this competency • environmental requirements related to waste disposal • workplace processes sufficient to recognize non-standard situations • workplace hazards and methods of controlling hazards according to procedures • procedures for reporting or dealing with non-standard or hazardous situations • Materials Safety Data Sheets (MSDSs).
Underpinning Skills	• efficient and effective operation of plant/equipment • hazard analysis • complete plant records, communication and problem solving.
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 II	
Unit Title	**Operate a Process Control Interface**
Unit Code	**IND SDM2 03 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to operate a computer-based interface to modify and/or interrogate a control system. This unit typically targets skills required by a production worker to operate equipment using process control interface. Work may require the ability to work within a team environment.

Elements	Performance Criteria
1. Navigate the process control interface	1.1 The readiness of the control interface and related components for operation are confirmed. 1.2 Hardware provided is used to operate the interface. 1.3 Page links are used to move between screens. 1.4 Messages and alarms are acknowledged. 1.5 Required ***information is accessed*** from screen displays. 1.6 Interface system malfunctions are recorded and reported in accordance with ***workplace*** procedures.
2. Use interface system to operate and maintain a process within required parameters	2.1 Individual items of equipment and/or processes are started, monitored and shutdown using the control interface. 2.2 Equipment is selected, status altered and settings entered to meet operating requirements. 2.3 Sequences are activated to initiate process operation. 2.4 Equipment giving a bad signal or bad measurements is recognized and responsive action taken.
3. Analyze data to predict and control performance	3.1 Trends are selected and analyzed to identify performance patterns. 3.2 Causes of abnormal or unacceptable performance are identified and corrective action taken. 3.3 Information is recorded as required.

Variable	Range
Information accessed	May include: • graphics, trends • parameter settings • alarms and individual plant item status
Workplace information	May include: • Standard Operating Procedures (SOPs) • manufacturers' specifications

Computer-based interface	May consist of: • computer processor • monitor • keyboards • track ball • mouse • storage devices • printers and (It is linked to the process control system)
Policies and procedures	Work is carried out in accordance with company policies and procedures, manufacturers' recommendations, legislative requirements, codes of practice and industrial awards and agreements

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • operate and navigate interface to access, retrieve, enter and store work data • start, operate, monitor and shut down process equipment • control and adjust equipment using control interface to achieve production requirements • recognize faults and inconsistencies and take corrective action • complete workplace records as required • Apply safe work practices and identify OHS hazards and controls.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • processes and equipment being controlled, including required processing sequences • operating principles of process control and interface system, including the relationship between control panels, systems and the physical equipment, and where relevant understanding of the operating conditions required for accurate information input from sensors and related instrumentation • action required to respond to error messages and alarms • typical faults that can occur when operating a process control interface and corrective action required • performance data collected by the control interface system and its application to troubleshoot performance, including the ability to identify and investigate related trend data to track cause and effect • recording requirements and responsibilities
Underpinning Skills	• use all hardware components to operate the control interface • navigate the system to locate and use information required, including moving between screens and locating relevant performance data

	• operate the control system using the interface, including start up and shut down equipment components and change set points as required • locate sensors and instrumentation providing input signals to the control system and confirm operating order within level of responsibility • recognize and respond to error messages and alarms as required • access relevant performance data using the control system, including locating and interpreting performance trend information • record log information using the interface system according to enterprise procedures • use oral communication skills/language competence to fulfil the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor • work cooperatively within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Operate Fluid Flow Equipment**
Unit Code	**IND SDM2 04 0613**
Unit Descriptor	This competency covers the operation of the range of pumps and valves typically encountered in the fluid flow system of a soap and detergent manufacturing plant. It includes identifying, operating, monitoring and troubleshooting these items. The operator would identify and report operational problems, be aware of and contribute to a safe working environment, contribute to the safe and productive operation of the equipment, operate, monitor and maintain equipment using relevant procedures.

Elements	Performance Criteria
1. Check work requirement and Prepare for work.	1.1 Work requirements are identified as per work plan or request. 1.2 Hazards associated with the job are identified and appropriate action taken. 1.3 Questions are asked to appropriate person to confirm unusual practice. 1.4 Materials and equipment are checked to meet requirements for job(s). 1.5 Requirements which may not be in accordance with usual practice are recognised. 1.6 Housekeeping is ensured to requirements. 1.7 Other pre-operational checks are performed in accordance with procedures.
2. Startup item of equipment as required	2.1 Prestart checks are conducted according to standard work procedures. 2.2 Item of equipment is started up as per work procedures.
3. Operate equipment to procedures	3.1 Equipment is checked if operating within required limits. 3.2 Product is ensured consistently if ready for next duty/operation as appropriate. 3.3 Supply of material(s) is maintained as required. 3.4 Logs and records are completed as required. 3.5 Scrap and other materials are collected and segregated as required. 3.6 Equipment and work area are kept clean according work place cleaning requirements. 3.7 Pause equipment is paused and emergency stop performed, as required.

4. Operate pumps	4.1 ***Type of pumps*** are Identified as per job specification and work place procedures. 4.2 Pumps are ***started up and shut down*** as per standard operating procedures. 4.3 Flow and heat/pressure are adjusted as appropriate to type of pump. 4.4 Routine checks and reports are completed as required. 4.5 Pumps are changed over when required.
5. Operate pump drivers	5.1 Critical variables such as temperature and vibration are monitored to specification. 5.2 Critical variables are kept in range. 5.3 Trends/patterns which indicate a potential or actual problem with the pump driver are recognised. 5.4 ***Appropriate action*** is taken to ensure driver as required.
6. Operate valves	6.1 The type of valves is identified as per job specification and work place procedures. 6.2 Valves are operated in a manner appropriate to the valve type. 6.3 Routine checks and reports are completed as required.
7. Respond to routine fluid system problems to procedure	7.1 The fluid flow system is monitored frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc.) as appropriate. 7.2 ***Problems*** are recognized and appropriate measures are taken. 7.3 Known faults that occur during the operation are recognized. 7.4 Causes of routine faults are identified and action taken according to work procedures. 7.5 Problems are logged as required. 7.6 Non-routine process and quality problems are identified and appropriate action taken.
8. Isolate and de-isolate pump	8.1 Relevant equipment is identified and selected as per work requirement. 8.2 Plant is made safe for required work in accordance with workplace guidelines. 8.3 Plant is checked and prepared to be returned to service as per job specification and work place ***procedures***.

Variable	**Range**
Types of pumps	May includes: • Impelles pump

	• Piston pump • Gear pump • Diaphragm pump and so on
Startup shut down as required	May includes: • 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
Appropriate action	May includes: • 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 includes: • cavitations • seal leaks • head loss/low flow • bearing problems
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)	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
Context	This competency is typically performed by all operators. It includes items of equipment such as: • pumps, including various types of centrifugal, positive displacement • valves, such as globe, needle, gate, butterfly, plug cock, wedge plug, ball cock, non-return, diaphragm, pneumatic globe, pneumatic butterfly • piping systems and components, including bends and elbows, tee pieces, expansion mechanisms, pipe joints, reducers, nipples, orifices, in-line mixers, filters and strainers, flexible hoses and couplings

	• shaft seals, such as stuffing boxes, mechanical seals, fluid seals, labyrinth seals • The effect of pipe fittings on pump performance and problems/problem analysis is also included • All operations are performed to procedures

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 • 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 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 fluid flow system 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 fluid flow problems within operator's scope of skill level and responsibility.
Underpinning Skills	Must demonstrate skills of: • efficient and effective operation of plant/equipment

	• hazard analysis • completing plant records • communication • problem solving.
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 II	
Unit Title	**Operate Particulates Handling Equipment**
Unit Code	**IND SDM2 05 0613**
Unit Descriptor	This competency covers the operation of the range of equipment used to store and convey particulate solids. This competency is typically performed by many operators in a solids handling plant and is often a starting point for operators to learn the operation of the plant as a whole. It covers items of equipment such as mechanical conveyor systems (including feeders), pneumatic conveyor systems and storage equipment such as hoppers and silos. This includes transferring stock into, out of or between storage units, making effective use of the available storage capacity, monitoring the quality, quantity and location of stock, supplying customers (internal or external) with the correct quality and quantity of stock, and identifying and controlling hazards related to particulates handling equipment and surrounding areas.

Elements	Performance Criteria
1. Check work requirement and Prepare for work	1.1 Work requirements are identified as per work plan or request. 1.2 Hazards associated with the job are identified and appropriate action taken. 1.3 Questions are asked to appropriate person to confirm unusual practice. 1.4 Materials and equipment are checked to meet requirements for job(s). 1.5 Requirements which may not be in accordance with usual practice are recognised. 1.6 Housekeeping is ensured to requirements. 1.7 Other pre-operational checks are performed in accordance with procedures.
2. Operate mechanical conveyors and/or feeders	2.1 The type of conveyor/feeder is identified as per work requirements. 2.2 Conveyor/feeder is ***started up and shut down*** according to the conveyor type and duty. 2.3 Plant is monitored frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc) as appropriate. 2.4 Routine checks, logs and paper works are completed taking action on unexpected observations, readings and trends using Standard Operating Procedures (SOPs).

3. Operate pneumatic/ vacuum conveyor	3.1 The type of conveyor is identified as per work requirements. 3.2 Conveyor is started up and shut down according to the conveyor type and duty. 3.3 Plant is monitored frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc) as appropriate. 3.4 Routine checks, logs and paper works are completed taking action on unexpected observations, readings and trends using Standard Operating Procedures (SOPs).
4. Operate fan/blower if appropriate	4.1 The type of fan/blower is identified as per work requirement. 4.2 The fan/blower is Started up and shut down according to its type and duty. 4.3 Critical variables such as amps, temperature or vibration are monitored and trends/patterns which indicate potential or actual problems with the fan/blower are recognized. 4.4 ***Appropriate actions*** are taken as required by workplace requirements.
5. Transfer particulates	5.1 Source, destination and route of planned transfer is checked in accordance with company work ***procedures***. 5.2 Quality, quantity and location of stored particulates are checked according to specification 5.3 Particulates are transferred into, out of and between storage units as required 5.4 Correct quality and quantity is supplied to customers in a timely manner.
6. Isolate and de-isolate plant	6.1 Plant is properly isolated as per work procedures 6.2 Plant is made safe for required work in accordance with workplace guidelines 6.3 Plant is prepared and checked for return to service as per work place procedures.

Variable	**Range**
Startup 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.
Problems	May include: • damage to particulates • contamination of stored stock • rat holing and bridging in silos • routing issues 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.
Equipment	• mechanical conveyors/feeders (including belt, vibrating, screw, flight; and feeders such as screw, star, slide, volumetric and weight) • pneumatic conveyors, including aspects such as dense phase, disperse phase, pressure and vacuum • storage, e.g. silos and hoppers, purging hoppers • bulk tankers, transportable containers, intermediate storage.
Procedures	May be written, verbal, computer-based or in some other form and they may 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)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills of: • 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: • particle size and shape - reactivity, solubility, colour, health, safety

	• angle of repose - storage and transport • angle of slide - transport • exclusivity - static electricity • dusts - hazards, good practice. • 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 • corrective action appropriate to the problem cause • function and troubleshooting of major internal components and their problems • types and causes of problems within operator's scope of skill level and responsibility. • density and bulk density • good operating practices • methods of resolving problems • HAZCHEM symbols and codes.
Underpinning Skills	Must demonstrate skills of: • efficient and effective operation of plant/equipment • hazard analysis • completing plant records • communication • problem solving. • grades and specifications of materials • types and causes of conveyor or storage problems to a level that allows problems to be isolated to an item of equipment.
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Operate Fluid Mixing Equipment**
Unit Code	**IND SDM2 06 0613**
Unit Descriptor	This competency covers the operation of the range of fluid mixers found in soap and detergent manufacturing plants. This competency is typically performed by all operators using mixing equipment. In a typical scenario an operator uses a baffled mixing tank (or other mixer) to make a product to specification. This covers the loading of liquid and perhaps solid materials into the mixing equipment. In this example the operator monitors the mixing to ensure the components are dispersed appropriately and checks the resulting product to ensure it complies

Elements	Performance Criteria
1. Check work requirement and Prepare for work	1.1 Work requirements are identified as per work plan or request. 1.2 Hazards associated with the job are identified and appropriate action taken. 1.3 Materials and equipment are checked to meet requirements for job(s). 1.4 Requirements which may not be in accordance with usual practice are recognised. 1.5 Housekeeping is ensured to requirements. 1.6 Other pre-operational checks are performed in accordance with procedures. 1.7 Coordinate with appropriate personnel as per work practice.
2. Prepare mixing equipment	2.1 Types of fluid mixers are identified according to work procedures. 2.2 Appropriate applications for the mixer type are identified as per work procedure. 2.3 Materials are properly checked in accordance with relevant enterprise and operating procedures.
3. Operate fluid mixing equipment	3.1 Materials are charged before starting in accordance with relevant enterprise and operating procedures. 3.2 The fluid mixing ***equipment*** is ***started up/shut down*** as required by workplace requirements. 3.3 ***Mixing conditions*** are adjusted as per work requirements. 3.4 Products to be mixed are properly checked in accordance with relevant enterprise and operating ***procedures***.

	3.5 Products are adjusted as instructed or as to procedures. 3.6 The mixed products are discharged in according to work procedure. 3.7 Routine checks and reports are completed by taking action on unexpected readings and trends with relevant operating procedure.
4. Isolate and de-isolate plant	4.1 Plant is isolated properly as to work procedures. 4.2 Plant is made safe for the required work in accordance with workplace guidelines. 4.3 Plant is checked and prepared to be returned to service with relevant enterprise and operating procedures.

Variable	**Range**
Equipment	May include such as: • mixers for low, medium and high viscosity fluids • jet mixing • top and side entry mixers • propeller, and pitched and square bladed turbine impellers.
Startup 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.
Mixing conditions	May be adjusted by: • baffles • mixer speed • mixing duration • other means
Procedures	May be written, verbal, computer-based or in some other form and 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.
Problems	May include incorrect: • mixing time • power consumption • uniformity • vortexing and aeration

Remedial actions	May include changing: • position and angle of baffles where appropriate • impellor (angle, size, shape or speed) • feed rate of fluids.
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 State or Federal legislation, and these must not be compromised at any time. .
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	• Fluid mixing processes can vary from continuous mixing processes to batch mixing as commonly used in chemical plants, soap and detergent manufacturing. It covers the mixing of two or more materials to make a product.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills of: • 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: • all items on a schematic of the mixing system and the function of each fluid mixing principles, such as shear, viscosity and concepts of uniformity • principles of operation of fluid mixing equipment • physics of operation • correct methods of starting, stopping, operating and controlling mixing equipment • typical mixing problems, and their causes and remedy, within operator's scope of skill level and responsibility • duty of care

	• Materials Safety Data Sheets (MSDSs) • HAZCHEM symbols and codes • hazardous substances regulations • spill containment and disposal procedures • procedures related to this competency • environmental requirements related to waste disposal • workplace hazards and methods of controlling hazards. • 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 • corrective action appropriate to the problem cause • function and troubleshooting of major components and their problems (such as impellors, seals or bearings) • types and causes of mixing problems within operator's scope of skill level and responsibility.
Underpinning Skills	Must demonstrate skills of: • efficient and effective operation of plant/equipment • hazard analysis • completing plant records • communication • problem solving.
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 II	
Unit Title	**Operate Chemical Separation Equipment**
Unit Code	**IND SDM2 07 0613**
Unit Descriptor	This competency covers the operation of chemical separation equipment where the feed is essentially in a single phase. It covers the range of separation equipment which rely on a phase change or chemical process to enact the separation, including crystallisers, ion-exchange filters, absorbers and the like. It also includes solving problems with separation processes and the equipment. In this competency, an operator would typically start up and shut down separation operations in accordance with procedures, and make adjustments to flow rate and pressure, depending on the type of separation equipment.

Elements	Performance Criteria
1. Check work requirement and Prepare for work	1.1 Work requirements are identified as per work plan or request. 1.2 Hazards associated with the job are identified and appropriate action taken. 1.3 Questions are asked to appropriate person to confirm unusual practice. 1.4 Materials and equipment are checked to meet requirements for job(s). 1.5 Requirements which may not be in accordance with usual practice are recognised. 1.6 Housekeeping is ensured to requirements. 1.7 Other pre-operational checks are performed in accordance with procedures.
2. Operate chemical separation equipment	2.1 The type of chemical separation ***equipment*** is identified in accordance with test method requirements. 2.2 Chemical separation equipment are ***started up and shut down*** according to type and duty in accordance with test method requirements. 2.3 Plant is monitored frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc) as appropriate. 2.4 Flow and pressure are adjusted as appropriate to type of separation equipment in accordance with test method requirements. 2.5 Routine checks, logs and paperwork are completed by taking action on unexpected readings and trends using Standard Operating Procedures (SOPs).

3. Isolate and de-isolate plant	3.1 Plant is properly isolated as per work procedures. 3.2 Plant is made safe for the required work in accordance with workplace guidelines. 3.3 Plant is properly prepared and checked for return to service to procedure.

Variable	Range
Equipment	May include: • all types of chemical separation equipment for liquids and solids separation duties, where the feed is essentially in a single phase and the separation relies on a change of the material or a chemical process to enact the separation, such as: ➢ crystallizers ➢ ion-exchange filters/columns ➢ precipitators ➢ absorbers/adsorbers
Startup 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
Remedial actions	May include: • making adjustments (flow, pressure etc.) • carrying out minor maintenance within operator's skill level • identifying and reporting problems outside operator's scope of ability • identifying and controlling hazards related to chemical separation equipment and surrounding areas
Problems	May include: • seal/gasket leaks • pressure loss/low flow • cartridge/filter change • reagent/medium activity • blockages/build-up • Contaminants
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 and 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)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopia/international standards, the latest version must be used

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills of: • 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: • all items on a schematic of the separator system and the function/s of each • principles of operation of separation equipment • factors affecting efficient operation of the separation equipment • physics of operation, including behavior of solids, liquids and gases, effects of phase changes, effects of temperature and pressure • chemistry of operation, including simple chemical reactions, elements, compounds and mixtures • function and troubleshooting of major internal components and their problems, such as reagents, contaminants, supports, nozzles, grids etc. • typical problems with separation equipment and their remedy. • process parameters and limits, e.g. 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 • corrective action appropriate to the problem cause • 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 plant/equipment • hazard analysis • completing plant records • communication • problem solving.
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 II	
Unit Title	**Monitor Chemical Reactions in the Process**
Unit Code	**IND SDM2 08 0613**
Unit Descriptor	This unit covers an operator looking after a production process which includes a chemical reaction (saponification and neutralization). The vessel in which this reaction is occurring may be a purpose built 'kettle' or other reaction vessel, or it may simply be a stirred tank in which a reaction is occurring. Processes may be batch or continuous.

Elements	Performance Criteria
1. Check work requirement and Prepare for work	1.1 Work requirements as per work plan or request are identified. 1.2 Hazards associated with the job are identified and appropriate action is taken. 1.3 Whether products, materials and equipment meet requirements for job(s) are checked. 1.4 Requirements which may not be in accordance with usual practice are recognized. 1.5 Housekeeping to requirements are ensured. 1.6 Other pre-operational checks in accordance with procedures are performed. 1.7 Appropriate personnel are coordinated with as per work practice.
2. Prepare reactor	2.1 Preliminary checks are performed as per work procedures. 2.2 Materials are charged as required by procedures. 2.3 The reactor contents are brought to the specified conditions steadily and within specified time frame.
3. Monitor and control the reaction process	3.1 Plant is monitored frequently and critically throughout shift using measured/indicated data and senses (sight, hearing, etc) as appropriate. 3.2 ***Appropriate action*** is taken as per work requirements. 3.3 Vessel according to work procedures is discharged. 3.4 Vessel is cleaned and prepared for next batch/product with test method requirements 3.5 Required reports are completed in accordance with specified requirements.

Variable	Range
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 Ethiopia/international standards, the latest version must be used.
Context	This competency unit includes all minor items of equipment which are integral to the reaction process.
Typical problems	May include: • variations in material composition • variation in ambient conditions • control of reaction temperature • adjustments to meet product specifications.
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 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 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	• Reactions and equipment integral to the operation of the reactor to the level needed to control the system and recognize and resolve problems. In particular it includes the ability to: ➢ identify all items on a schematic of the reactor and describe the function of each ➢ distinguish between elements, compounds and mixtures in 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 reactions in chemical terms, including the effect of changing reaction variables such as temperature, concentration, pH ➢ describe the reaction using basic chemical equations ➢ state the type of reactor(s) used and its/their characteristic/s ➢ describe the methods of controlling the reaction, including rate and yield ➢ describe the causes and remedies of common problems such as those selected in the Range Statement. • Competence also includes the ability to isolate the causes of problems to an item of equipment within the reaction system and to distinguish between causes of problems/alarm/fault indications such as: ➢ raw materials variations ➢ instrument failure/wrong reading ➢ equipment failure (electrical/mechanical) ➢ mechanical failure and operational problems.
Underpinning Skills	Must demonstrate skills in: • reading recipe/formula sheets • weighing, measuring, controlling the addition of reactants and other materials • monitoring and controlling reaction conditions. • 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,
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 II	
Unit Title	**Operate Heat Exchangers**
Unit Code	**IND SDM2 09 0613**
Unit Descriptor	This competency is typically performed by an operator and covers the operation of heat exchangers, including heat exchangers that form part of a heating, cooling or refrigeration system, and solving of heat exchanger problems. In this competency, an operator would typically start up and shut down heat exchangers in accordance with procedures, and make adjustments to flow rate, temperature and pressure, depending on the type of heat exchanger. Generally the operator would be part of a team during start up and shut down procedures and would be expected to be capable of demonstrating competence in all parts of this unit. At all times they would be liaising and cooperating with other members of the team.

Elements	Performance Criteria
1. Check work requirement and prepare for work	1.1 Work requirements are identified as per work plan or request. 1.2 Hazards associated with the job are identified and appropriate action is taken. 1.3 Whether products, materials and equipment meet requirements for job(s) are checked. 1.4 Requirements which may not be in accordance with usual practice are recognized. 1.5 Housekeeping to requirements is ensured. 1.6 Other pre-operational checks are performed in accordance with procedures. 1.7 Coordinate with appropriate personnel are coordinated with as per work practice.
2. Operate heat exchangers	2.1 The type of heat exchanger is identified in accordance with work procedure. 2.2 Heat exchanger are ***started up and shut down*** according to the ***heat exchanger duty*** and type. 2.3 Flow rates, temperatures and pressure as appropriate are adjusted to type of heat exchanger. 2.4 Routine checks, logs and paperwork are completed, taking action on unexpected readings and trends in accordance with relevant enterprise and operating procedures.

3. Isolate and de-isolate plant.	3.1 Plant as per work procedures is isolated. 3.2 Safe are made for required work in accordance with workplace guidelines. 3.3 Plant for return to service according to work place requirements is checked and prepared.

Variable	**Range**
Startup 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.
Heat exchanger duties	May include: • heating • cooling
Heat exchangers	May include: • plate • U tube • spiral • bayonet • air cooled fin • shell and tube (all variants of design) • scraped surface • vessel jackets/coils. This competency does not cover super heaters or waste heat boilers, as these are treated as part of steam generating equipment.
Problems	May include: • damage to heat exchanger due to overheating and/or under/over pressurizing • factors that affect heat exchanger efficiency (scale build-up, fouling, internal leakage, air lock, turbulence, corrosion) • leakage or gasket problems • recognizing when maintenance is required.
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 and 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)	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.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate skills and knowledge 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.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • all items on a schematic of the heat exchanger system and the function of each principles of operation of heat exchangers • correct methods of starting, operating and shutting down heat exchangers • issues related to pressure vessels (regulations, requirements) • 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 • causes of head loss and change in heat transfer coefficient/rates • corrective action appropriate to the problem cause • function and troubleshooting of major internal components and their problems, such as tubes and baffles.
Underpinning Skills	Must demonstrate skills of: • efficient and effective operation of plant/equipment • hazard analysis • completing plant records • communication • problem solving. Operation of heat exchanger and the ability to recognise and resolve operational problems. This could include any of the following remedial actions: • making adjustments • carrying out minor maintenance • identifying and reporting problems outside operator's scope of responsibility • identifying and controlling hazards related to heat exchangers and their integral equipment, including pressure vessels.
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 II	
Unit Title	**Operate Manufacturing Extruders**
Unit Code	**IND SDM2 10 0613**
Unit Descriptor	This unit covers the operation of extruders which produce pellets, noodles from soap and detergent processes and similar extrusions, e.g. bar soap and detergent bar. It includes the operation of equipment ancillary to the extruder, including that used for adding additives.

Elements	Performance Criteria
1. Start up extruder systems	1.1 Pre-start-up checks are performed according to standard work ***procedures***. 1.2 Individual items of equipment and the entire extrusion system are started up in accordance with work place requirements. 1.3 System after maintenance as per work procedures is started up. 1.4 Extrusion rate steadily according to standard work procedures is built up. 1.5 Output at specified rate and quality within minimum time is produced in accordance with relevant operating procedures.
2. Monitor and control the extrusion process	2.1 Routine checks, logs and paperwork using Standard Operating Procedures (SOPs) are completed. 2.2 Pellet/noodles properties are inspected and recognized and ***problems*** as per specification are corrected. 2.3 Monitor stock levels of feeds and products are monitored and action is taken to maintain production schedule and quality as per company work procedures. 2.4 Extruder is adjusted to achieve required output rate and quality with maximum plant efficiency.
3. Change production rates and/or product grade/specification	3.1 Rates and schedule are predicted from when a transition will be required. 3.2 Transitions are managed smoothly and in a timely manner. 3.3 Scrap/off grade recycle is minimized as a result of a transition as per work procedure.
4. Carry out maintenance procedures	4.1 Isolate extrusion equipment/plodder is isolated and prepared for maintenance as required. 4.2 Safety trips and alarms are tested in accordance with workplace guidelines.

	4.3 Minor maintenance is completed according to procedures. 4.4 Extrusion equipment/plodder back from maintenance is received. 4.5 Extrusion equipment/plodder for the introduction of additives as per work requirements is prepared. 4.6 Extrusion equipment/plodder is returned to operation in accordance with work procedure.
5. Shut down extrusion systems	5.1 Type of shut down required in accordance with workplace guidelines is determined. 5.2 Advance warning of shut down where appropriate is given. 5.3 Individual items of equipment as required are changed over. 5.4 Individual items of equipment and the entire extrusion system as per work procedure are shut down. 5.5 An emergency shutdown is performed when required according to standard work procedures 5.6 Trips and alarms after a shutdown is reset and leaved extrusion equipment/plodder in a condition ready to restart. 5.7 For maintenance shutdown is required according to work procedures.
6. Clean extruder	6.1 Cleaning requirements as per job specification and work place procedures are identified. 6.2 Extrusion equipment according to procedures is cleaned.
7. Control hazards	7.1 Hazards in work area and with equipment in line with procedures and duty of care are identified. 7.2 Risks arising from those hazards in line with procedures and duty of care are assessed. 7.3 Appropriate action is taken to control risks in accordance with procedures and duty of care.
8. Respond to extruder problems	8.1 Extrusion equipment/plodder is monitored frequently and critically throughout shift using measured/indicated data and senses (sight, hearing etc) as appropriate. 8.2 Operational problems according to standard procedures are recognized. 8.3 Cause of operational problems within scope of skill level is analyzed. 8.4 Timely and appropriate action is taken to solve operational problems as required.

Variable	Range
Procedures	All operations are performed in accordance with standard work procedures.
Problems	It could also include other equipment as well as the extruder itself. It includes the operation of equipment ancillary to the extruder, including that used for adding additives. Typical problems include: • knife/blade/cutter adjustment • screen pack preparation and changes • Soap/noodles properties not to specification • Soap/noodles cooling systems etc.
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 items of equipment and unit operations which form part of the extrusion system. Typically this will include: • additive systems • soap/noodles cutting and cooling systems • barrel/head heating and cooling systems.
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 State or Federal (relevant) 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 should be demonstrated. 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 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. ➢ Startup extruder systems. ➢ Monitor and control the extrusion process. ➢ Change production rates and/or product grade/specification. ➢ Carry out maintenance procedures ➢ Shut down extrusion systems.

	➢ Clean extruder. ➢ Control hazards. ➢ Respond to extruder problems.
Underpinning Knowledge and Attitudes	Must ddemonstrate knowledge of: • A comprehensive understanding of extrusion equipment principles and typical problems to a level needed to control the operation, and recognize and resolve operational problems. In particular it includes a knowledge of: • all items on a schematic of the extruder and the function of each ➢ principles of operation of equipment ➢ physics of operation, including effects of temperature and pressure ➢ properties of materials being extruded ➢ temperature and viscosity effects ➢ isolating a problem to an item of equipment ➢ methods of resolving problems. • This knowledge is required of all major items of equipment which comprise the extrusion system.
Underpinning Skills	Must demonstrate skills to: • distinguish between types and causes of problems as relevant to the practical operation of equipment at the 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 II	
Unit Title	**Sample and Test Materials and Product**
Unit Code	**IND SDM2 11 0613**
Unit Descriptor	This competency covers the taking of routine samples and the conducting of simple tests. This competency applies to operators who are required to undertake the routine sampling and testing in the workplace. Testing will typically also be done in the workplace or in a 'factory laboratory' (or bench) adjacent to/in the factory. Tests will be simple, routine tests to procedure. This competency is typically performed by operators working either independently or as part of a work team. The operator: • takes the sample • performs the test • makes a simple interpretation of the test results • takes actions specified based on the test results • completes logs and reports.

Elements	Performance Criteria
1. Take sample.	1.1 Determine type of sample and sampling equipment required in accordance with test method requirements. 1.2 Check sampling equipment is clean and in good order in accordance with test method requirements. 1.3 Take sample(s) of required type(s), from the required place(s) and at the required time(s) and place in required container(s). 1.4 Label sample(s) according to test method requirements. 1.5 Carry sample(s) to required place when required.
2. Complete test.	2.1 Check test required from procedures/work instruction. 2.2 Check sample identification and integrity in accordance with chemical testing requirements. 2.3 Check test equipment is clean, in good order and within calibration in accordance with standard procedures/ instructions. 2.4 Complete test(s) required as per standard procedures/ instructions.
3. Interpret results and take action.	3.1 Note anything about sample, equipment or the test itself which may have caused it to give a bad result according to chemical testing requirement. 3.2 Compare results to specification. 3.3 Take action appropriate to the test results and any other observations according to chemical testing requirement.

4. Complete sample and test cycle.	4.1 Records are completed in accordance to organization formats and procedures. 4.2 Store and/or dispose of sample as per organization work procedures. 4.3 Clean all equipment and leave ready for next sample/test as per company work procedure.

Variable	**Range**
Context	This competency unit includes the range of sampling and testing which may be carried out in a plant/factory, or in a manufacturing laboratory. It typically applies to operators who carry out a narrow range of tests as part of their job. The tasks covered by this competency include: • receiving, handling and storing samples • preparing for sample collection • performing sample collection • performing sample preparation • performing tests • recording results.
'Respond to routine problems'	Means 'apply known solutions to a limited range of predictable problems'. Typical problems include: • correct sampling technique • test equipment condition/calibration • consistent test technique according to standard procedure • correct recording of result • interpretation of result and the initiation of appropriate action • correct retention/disposal of sample/test materials.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • take a sample correctly • undertake tests with adequate reproducibility • select and use the appropriate procedures.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • Application of knowledge of the sampling and testing techniques used sufficient to recognize a suspicious test result cause by a fault in these areas. • Knowledge of organization procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards. • Knowledge and skills in sampling and testing sufficient for consistent and meaningful test results including: • basic principles of taking the particular sample

	• basic principles of the particular test • sample techniques and requirements • test methods used and critical factors leading to good/poor test results.
Underpinning Skills	Must demonstrate skills of: • taking the particular sample • conducting particular test • performing sample techniques and requirements • test methods used and critical factors leading to good/poor test results. • ability to read and interpret typical sampling and testing methods/procedures and to read and interpret numbers or other test result data. • Writing skills to the level of completing workplace forms and labeling samples. • numeracy skills required to read and interpret test results and undertake minor data manipulation such as might be required for the test, test interpretation or reporting
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 II	
Unit Title	**Operate Fill and Seal Process**
Unit Code	**IND SDM2 12 0613**
Unit Descriptor	This unit of competency covers the skills and knowledge required to set up, operate, adjust and shut down an aseptic fill and seal process. This is a primary packaging process to fill product into packaging.

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

	2.9 Workplace records are maintained according to workplace recording requirements.
3. Shut down the filling and sealing process	3.1 End-of-batch procedures are completed in accordance with batch instructions and Standard Operating Procedures (SOPs). 3.2 The process is ***shut down*** according to workplace procedures. 3.3 Maintenance requirements are identified and reported according to workplace reporting requirements.

Variable	**Range**
Workplace information	May include: • SOPs • specifications • production schedules and instructions • manufacturers' advice • standard forms and reports
Policies and procedures	Work is carried out according to company policies and procedures, regulatory and licensing requirements, legislative requirements, and industrial awards and agreements
Shutdown procedures	May include: • cleaning (in some cases cleaning may be carried out by a dedicated cleaning crew)
Legislative requirements	Are typically reflected in procedures and specifications. Legislation relevant to this manufacturing includes: • relevant Good Manufacturing Practice (GMP) codes • legislation covering environmental management, OHS, anti-discrimination and equal opportunity
Filling and sealing equipment	May include: • pumps • fillers • hermetic sealers • packaging
Operation of equipment and processes	May require: • the use of process control panels and systems
Services	Are appropriate to the process to be operated. Typical examples include: • power • water • vacuum • compressed and instrumentation air

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • conduct pre-start checks on equipment used for filling and sealing • start, operate, monitor and adjust process equipment to achieve required quality outcomes • take corrective action in response to typical faults and inconsistencies • complete workplace records as required • apply safe work practices and identify OHS hazards and controls • safely shut down equipment • maintain standards of a clean room work environment.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • purpose and basic principles of filling and sealing, including properties of packaging materials used, container preparation, handling and loading • basic operating principles of filling and sealing equipment, such as main equipment components, status and purpose of guards, equipment operating capacities and applications, the purpose and location of sensors and related feedback instrumentation, and services required for operation of filling equipment used in the workplace • the flow of processes supplying the filling and sealing process and the effect of outputs on downstream processes • operating requirements and parameters and corrective action required where operation is outside specified operating parameters • typical equipment faults and related causes, including signs and symptoms of faulty equipment and early warning signs of potential problems • methods used to monitor the process, such as inspecting, measuring and testing as required by the process • Good Manufacturing Practice (GMP) requirements associated with the liquid manufacturing process and related control measures • common causes of variation and corrective action required, including the effect of variation in both product and packaging components/consumables on filling and sealing performance, e.g. it may include an understanding of the effect of temperature variation on the filling process • product/packaging changeover procedures

	• Occupational Health and Safety (OHS) hazards and controls, including the limitations of protective clothing and equipment relevant to the work process • end-of-batch procedures, including procedures for calculating yield, materials reconciliation and action required if yield/reconciliation is not within prescribed limits, and product labelling responsibilities and procedures • requirements of different shutdowns as appropriate to the process and workplace production requirements, including emergency and routine shutdowns and procedures to follow in the event of a power outage • environmental issues and controls relevant to the filling and sealing process, including waste/rework collection and handling procedures related to the process • basic operating principles of process control, where relevant, including the relationship between control panels and systems and the physical equipment • sampling and testing procedures where relevant • routine maintenance procedures where relevant
Underpinning Skills	Must demonstrate skills to: • access workplace information to identify processing requirements • select, fit and use personal protective clothing and/or equipment, including gowning up, following required work area entry and exit procedures and moving around the work area to minimize risk of contamination • confirm supply of necessary packaging components/consumables and product • conduct pre-start checks, such as inspecting equipment condition to identify any signs of wear, selecting appropriate settings and/or related parameters, cancelling isolation or lock outs as required, confirming that equipment is clean and correctly configured for packaging requirements, ensuring packaging components/consumables are loaded, positioning sensors and controls correctly, ensuring any scheduled maintenance has been carried out, and confirming that all safety guards are in place and operational • start, operate, monitor and adjust the filling and sealing process equipment to achieve required outcomes, including monitoring control points and conducting inspections as required to confirm process remains within specification, such as: ➢ flow rates ➢ weights and volumes ➢ fill levels

	➢ temperature, including materials and sealing temperatures ➢ supply of packaging components/consumables ➢ packaging quality and seal integrity, and where required, testing packaging integrity • take corrective action in response to out-of-specification results • monitor supply and flow of materials to and from the process • respond to and/or report equipment failure within level of responsibility • locate emergency stop functions on equipment • follow isolation and lock out/tag out procedures as required to take filling and sealing process and related equipment off-line in preparation for cleaning and/or maintenance within level of responsibility • demonstrate product/process changeovers • follow end of batch procedures including line clearance and cleaning, yield calculation, materials reconciliation and product labeling • complete workplace records as required • maintain work area to meet housekeeping standards • use process control systems according to standard procedures • collect samples and conduct tests according to standard procedures • use oral communication skills/language competence to fulfill the job role as specified by the organization, including questioning, active listening, asking for clarification and seeking advice from supervisor • work cooperatively within a culturally diverse workforce
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Pack Products or Materials**
Unit Code	**IND SDM2 13 0613**
Unit Descriptor	This competency covers the packaging of soap and detergent products to prepare them for despatch, warehousing, or storage. This competency is typically performed by operators working either independently or as part of a work team.

Elements	Performance Criteria
1. Prepare goods/materials for packaging	1.1 Packaging specifications are interpreted. 1.2 Order packaging documentation is interpreted. 1.3 Appropriate technology for packaging products as per company specification is selected. 1.4 Packaging materials are identified and specifications are matched.
2. Package finished products	2.1 The nature of the product and the particular handling requirements according to work procedure are identified. 2.2 Process is conducted according to production specifications and organizational ***procedures.*** 2.3 ***Equipment*** start up is conducted and ran operation as necessary. 2.4 Ancillary equipment as necessary is employed and use safe working procedures are used.
3. Stack, label and store finished products	3.1 Company warehouse schedule or manifest are consulted to determine product ,delivery, or storage and location requirements 3.2 Products following workplace labeling standards are labeled or marked. 3.3 Work area, handling and storage equipment taking account of safety and efficiency are set up. 3.4 Products are stored where required making safe and efficient use of storage space. 3.5 Workplace records/documentation as per company work procedures are completed. 3.6 Invoices and picking slips (where required) as per company work procedures are attached.
4. Clear work area	4.1 Unpacked products, products for packaging and handling equipment are stored in appropriate areas.

	4.2 Equipment is cleaned and made ready for re-use(5S). 4.3 Work area is cleaned, made it safe and ready for the next user (5S). 4.4 Equipment faults are reported and documented.

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. These may include: • original manufacturer instructions and guidelines for the use of equipment • relevant procedures relating to safe working practices prescribed for the equipment, product or material • local OHS legislation and/or regulations • site-specific instructions based on production requirements.
Tools and equipment	Such as: • fork lifts • manual handling equipment • hand tools • shrink wrappers • tape machine labelers • loose bulk packing equipment. • computers, bar code readers • bag filling equipment • pallets • wrapping machines • Personal Protective Equipment (PPE) • distribution equipment including A-frames, stillages, containers, elevated platforms and communication equipment.
Hazards	May include: • inappropriate movements and postures • physical and atmospheric hazards of materials • height or depth of storage receptacles • stationary and moving machinery, parts or components • noise, dust, light, energy sources • humidity, air temperature, radiant heat • manual handling hazards.
'Respond to routine problems'	Means: • 'apply known solutions to a limited range of predictable problems'. Typical process and product problems may include: ➢ equipment malfunctions

	➢ product specifications ➢ handling specifications ➢ insufficient space ➢ unusual size, shape or mass of products or materials ➢ insufficient goods to complete order ➢ conflicting priorities ➢ incomplete or incorrect paperwork
Key variables to be monitored	Include: • types of products to be packed • packing heights • types of equipment • types of workplace documentation • atmospheric conditions
Context	• This competency applies to persons handling a range of products, materials technology and the varied range of process procedures within an organization. It includes the operation of all relevant ancillary equipment. • The terms documentation, labels and records means any and all relevant information and data whether it is manual, paper based, electronic or verbal, either in person or by phone/radio.

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. • Consistent performance should be demonstrated. For example, look to see that: • packaging standards are met consistently • procedures and work instructions are read and interpreted correctly • problems are identified and action is taken (ie the problem is fixed or reported) • all safety procedures are followed • product/material damage due to handling errors is minimized • mislabeling opportunities are minimized • problems relating to work are diagnosed and solved or reported • waste is minimized • effective communication between team members, supervisors and other staff is maintained.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge to: • read and interpret typical product/material specifications, job sheets, procedures, material labels and safety information as provided to operators.

	• Writing is required to the level of completing workplace forms. • Basic numeracy is required, eg to determine that two 25 kg bags are needed to make up a requirement for 50 kg.
Underpinning Skills	Must demonstrate skills in: • packaging procedures and processes • safe set up of individual work area • storage requirements for safety and efficiency • production workflow requirements for packaging • packaging methods to minimize waste • identification symbols • correct OHS procedures • approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup • waste management and importance of re-using non-conforming materials wherever possible • correct selection and use of equipment, materials, processes and procedures • distinguish between causes of faults such as products, equipment, packaging materials and items of equipment. Competence also includes the ability to: • plan own work, including predicting consequences and identifying improvements • identify when the operator is able to rectify problems, when assistance is required and who is the appropriate source for assistance • safely handle products and materials, read relevant safety information and apply safety precautions appropriate to the task • distinguish between causes of problems such as packaging and labeling requirements and goods being damaged after packaging.
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 II	
Unit Title	**Process and Record Information**
Unit Code	**IND SDM2 14 0613**
Unit Descriptor	This unit of competency covers the provision and processing of all relevant information by responding to the information requirements of the plant including the completion of all workplace documents and clearly and concisely providing relevant information to others. This competency applies to operators who are required to provide information, orally or in writing in a one on one situation or as part of a group discussion. The operator would complete appropriate workplace forms, provide appropriate workplace and technical information within their area of expertise and identify routine information requirements seeking clarification where necessary.

Elements	Performance Criteria
1. Access information	1.1 The need for information is identified. 1.2 Appropriate information is requested. 1.3 Information is accessed in accordance with procedures. 1.4 Security procedures are complied with in accessing appropriate information.
2. Provide appropriate information	2.1 Enquiries are dealt with promptly and courteously. 2.2 Details of enquiry by questioning and summarising are established. 2.3 Appropriate information relevant to enquirer's request is provided. 2.4 Information is organized clearly, concisely and logically. 2.5 Information in a form that is readily understood by others is provided. 2.6 Information in a timely manner is provided. 2.7 Enquiries are redirected to relevant personnel for resolution where outside the operator's area of responsibility.
3. Give and follow routine instructions	3.1 Accurate, clear and concise instructions that are consistent with the skills of the receiver are given. 3.2 That interaction with others as efficient, effective, responsive, courteous and supportive are ensured. 3.3 Confirm that instructions are understood.

	3.4 Prescribed and routine work related sequences are followed.
4. Provide reports	4.1 All workplace ***reports*** are completed clearly and accurately in accordance with ***procedures***. 4.2 All relevant information is reported clearly and concisely.

Variable	**Range**
Reports	Includes the following as appropriate to workplace requirements: • oral • written • electronic • handovers (giving/receiving).
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
Tools and equipment	Includes such as: • telephone • two way radio • computer equipment. Information sources and plant documentation may include: • operating procedures • work instructions • incident procedures • operating manuals • quality procedures • training program contents/materials • safety data sheets • job cards • maintenance logs • non compliance reports • incidence and accident reports • permits • schematics/process flows/engineering drawings.
Problems	Respond to routine problems means 'apply known solutions to a limited range of predictable problems'. Typical process and product problems may include: • difficulty in quickly locating information required • missing forms, logbooks etc. • conflicting work priorities • delays in reporting of information • information is inaccessible

	• absence of approver/ other signatories • breakdown of communication equipment. • Appropriate action for non-routine problems may be reported to designated person or other action identified in the procedures.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • provide and assess all required information and that the information provided both verbally and in writing is completed in a clear and concise manner, that is easily understood by others and in accordance with workplace requirements • Consistent performance in that: ➢ reports and records are completed accurately, concisely and in accordance with procedures ➢ all information is provided in an efficient, effective, courteous and timely manner ➢ completion of shift handover, log books and company production records conveys all relevant information ➢ information sharing demonstrates effective communication processes such as turn-taking, participating in discussions and tolerating views of others in a way that contributes to the overall discussion ➢ notes of discussion are prepared so that they can be clearly interpreted by the receiver ➢ communication distinguishes between relevant and peripheral issues.
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • describing importance of workplace documentation in relation to job role • applying organization, operational, quality and safety policies and procedures • applying workplace codes such as numbers, symbols, signs, colour and other codes.
Underpinning Skills	Must demonstrate skills of: • ability to read and interpret work instructions, procedures, operating manuals, job card and other documents provided to operators. • Writing skills required to the level of completing workplace forms. • numeracy skills required to the extent required by work instructions and procedures. • Application of organization, operational, quality and safety policies and procedures • Application of workplace codes such as numbers, symbols, signs, color and other codes.

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 II	
Unit Title	**Observe Permit Work**
Unit Code	**IND SDM2 15 0613**
Unit Descriptor	This competency covers the safety observer role for permits requiring a safety observer. It may be undertaken by a member of the work team or an operator may perform this role. It includes understanding the permit system and the individual permit's requirements, observing work being performed and noting any change in conditions and taking required action.

Elements	Performance Criteria
1. Prepare for the job	1.1 The permit(s) issues are checked if appropriate and sufficient for the work to be done. 1.2 A rescue/***incident response*** plan is prepared in accordance with procedures. 1.3 Plan is checked if workable within the approved job procedures and issued permit(s) 1.4 Revision of job procedures and or permit(s) is requested to ensure rescue/incident response plan is practical.
2. Control the permit site	2.1 The hazard controls required by the permit(s) is interpreted. 2.2 All hazard controls are checked if complied with all the time. 2.3 Constant communication with workers is maintained. 2.4 Entry to and exit from the work site are controlled in accordance with the ***requirements of the permit***(s). 2.5 The environment of the work site and adjacent areas are monitored. 2.6 Scope and location of work as defined by the permit(s) are monitored. 2.7 Permit is withdrawn and work site is shut down if conditions vary from those required by the permit.
3. Take appropriate action for potential incident	3.1 All required first response equipment if in the location specified by the permit(s) and if in working condition is ensured. 3.2 All required monitoring if carried out as required by permit(s) is ensured. 3.3 Permit is withdrawn and work site is shut down if in the event of an alarm or monitoring failure.

	3.4 The alarm is raised in the event of an incident. 3.5 Rescue/incident response plan as required by procedures is implemented.
4. Complete safety observer role	4.1 Hand over to oncoming safety observer before leaving role 4.2 Complete all required documentation and reports

Variable	**Range**
Incident response	May include: • first response to fire • some initial rescues • first aid/CPR • other responses • These responses are not included in this units of competency but are the subject of their own unit of competency.
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'	May include 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)	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.
Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Ethiopian/international standards, the latest version must be used.

Evidence Guide	
Critical Aspects of Competence	Specify the requirements and then select the best solution to meet the necessary and desirable requirements. It includes: • Prepare for the job • Control the permit site. • Take appropriate action for potential incident. • Complete safety observer role.
Underpinning Knowledge and Attitudes	Competence of the unit includes demonstration of the following knowledge: • hazards associated with the job and the plant

	• hazard analysis and control • HSE legislative requirements related to plant • incident response procedures • permit principles and procedures.
Underpinning Skills	Demonstrates skills of: • observation • decision making • communication • leadership
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 II	
Unit Title	**Undertake Minor Maintenance**
Unit Code	**IND SDM2 16 0613**
Unit Descriptor	This unit applies to operators who are involved in providing basic maintenance and the resolving of routine problems to procedures. It does not cover activities normally requiring traditional trade training. The operator will be aware of and contribute to a safe working environment, identify and check equipment for faults, perform basic maintenance to procedures, and complete logs and reports.

Elements	Performance Criteria
1. Identify maintenance requirements	1.1 ***Equipment*** variations/irregularities using observed data and plant records are identified. 1.2 The urgency/priority of the situation is assessed. 1.3 Appropriate corrective action is identified. 1.4 Correct tools and equipment are identified. 1.5 The impact of the maintenance activity is assessed and communicated to appropriate personnel. 1.6 Hazards and risk controls are identified. 1.7 Work permit requirements are identified.
2. Prepare for maintenance activity	2.1 Ensure equipment is turned off and isolated as required. 2.2 The area of obstructions and ***hazardous*** materials is cleared. 2.3 Appropriate tools, parts, materials and ***procedures*** are obtained. 2.4 The appropriate work permits are obtained and adhered to the requirements. 2.5 The impending maintenance activity is communicated to the appropriate personnel.
3. Perform maintenance activity	3.1 All relevant information is accessed. 3.2 ***Maintenance activity*** according to procedures is undertaken. 3.3 Tools and maintenance techniques are used correctly. 3.4 Equipment is restored to normal working condition. 3.5 The work area is left in a clean and safe condition. 3.6 Permits are signed off as appropriate is ensured.

4. Test equipment	4.1 Equipment is tested according to ***procedures.*** 4.2 Equipment is returned to service. 4.3 Equipment meets normal operating requirements is ensured.
5 Record maintenance activity	5.1 Maintenance logs/plant history ***data and records*** are completed. 5.2 Maintenance activity is reported to relevant personnel. 5.3 Outstanding maintenance requirements are identified and reported to relevant personnel.

Variable	**Range**
Tools and equipment	May include such as: • hand tools • specialized tools • measuring and aligning equipment.
Maintenance activities	May include: • operational maintenance (e.g. connection-disconnection of hoses, greasing, lubrication and lubricant systems, adjusting sealing glands, cleaning and changing filters, 'nipping up' flanges) • general cleaning • removal and replacement (e.g. gland packing, changing blades or cutters, replacing gaskets, replacing /maintaining seals, changing filter elements, servicing strainers).
Data and records	May include: • plant data • log sheets • operational and performance reports • physical aspects such as noise, smell, feel and pressure condition monitoring information • planned maintenance schedules • procedures • manufacturer specifications, instructions, service manuals and other information.
Hazards	May include: • rotating and moving machinery • process materials, solids, liquids and gases under pressure or flowing • hot surfaces or materials • temporary connections or by-passes • electrical, hydraulic or pneumatic energy sources • out of specification operation.
Procedures	May include: • All operations are performed in accordance with procedures.

	• Procedures mean all relevant workplace procedures, work instructions, temporary instructions, standard operating procedures, plant description manuals, manufacturer instructions, specifications, service manuals, machine circuit diagrams for hydraulic/pneumatic and electrical/electronic circuits and relevant industry and government codes and standards.
Problems	Respond to/rectify 'non-routine problems' means 'apply known solutions to a variety of predictable problems'. Typical process and product problems may include: • out-of-specification product or variations • response of equipment to materials variations • equipment in need of maintenance.
Key variables to be monitored	May include: • equipment performance (eg speed, output, variations) • equipment component performance • sequences and timing of operations • materials changes (desired and not desired).

Evidence Guide	
Critical Aspects of Competence	Must demonstrate skills and knowledge to: • understand the procedures and know the importance of critical operational systems • recognize potential situations requiring action and then implement appropriate action. Consistent performance in that: • early warning signs of equipment in need of attention/with potential problems are recognized • appropriate equipment tests are undertaken and analyzed appropriately • proposals for equipment repair are based upon the most appropriate and cost effective method to return equipment to full performance in a timely manner • maintenance activities are completed safely and to procedures.
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: • equipment operation and maintenance practices sufficient to recognize fault and no-fault conditions in standard and non-standard situations and then determine appropriate action which is consistent with operational guidelines is required. • Knowledge of organization procedures and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards. • Application of the knowledge of managing risks using the hierarchy of controls applied to the process.

	• Application of approved hazard control, safety procedures, use of PPE in relation to handling materials, equipment operation and clean up. • Knowledge as a basis for solving maintenance problems, including: ➢ principles of operation of the equipment to be maintained ➢ function and troubleshooting of major internal components and their problems ➢ appropriate testing procedures and use of equipment for a range of equipment faults ➢ typical causes of equipment failures and the service conditions which may increase maintenance ➢ types and nature of maintenance (preventative, predictive, corrective) uses, benefits and limitations ➢ urgency and timeliness factors in maintenance ➢ maintenance planning/scheduling/records systems ➢ identification of tools, materials and spare parts ➢ basic techniques for using and handling tools ➢ physical measurement, alignment and clearance principles.
Underpinning Skills	Demonstrates skills of: • plan own work, including predicting consequences and identifying improvements • identify factors which may affect product quality or production output and appropriate remedies • identify when the operator is able to rectify faults and when assistance is required. • ability to read and interpret typical equipment specifications schematics and diagrams. • Writing skills required to the level of completing workplace forms and production reports. • numeracy skills to interpret plant data and maintenance schedules.
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 II	
Unit Title	**Follow Emergency Response Procedures**
Unit Code	**IND SDM2 17 0613**
Unit Descriptor	This unit relates to the appropriate response to emergency situations for any new workers at the workplace, possibly delivered as part of an induction program.

Elements	Performance Criteria
1. Know when emergency happens	1.1 ***Emergency signals*** and controls on machines and/or at the worksite are located. 1.2 The signals are interpreted to take appropriate action. 1.3 emergencies where there is no mechanical/ electronic signal are identified.
2. Follow emergency procedures	2.1 Emergency is reported according to ***procedures***. 2.2 Emergency leader is identified. 2.3 Workplace procedures and work instructions for dealing with a range of emergencies, under direct supervision of emergency leader are followed. 2.4 The potential consequences of failing are described to follow these procedures and instructions. 2.5 What to do if the emergency leader cannot be located when ***emergency*** occurs is described.

Variable	Range
Emergency signals	May include: • visual - flashing lights • auditory – alarms
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
Tools and equipment	May include use of equipment and tools such as PPE required for emergency response.
Hazards 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 environments subjected to heat, noise, dusts or vapours • fire and explosion.

Personnel may include:	• employer • supervisor • employees elected as emergency team leader • other personnel with emergency team leader responsibilities
Emergency issues may include:	• observation of injury or incident in the workplace • fires • chemical or oil spills • gas leak or vapor emission • utilities failure and failure or malfunction of plant/machinery.

Evidence Guide	
Critical Aspects of Competence	Must demonstrates knowledge and skills to : • recognize potential emergency situations • take the appropriate action. • demonstrate prompt communication of emergency situations • demonstrate understanding and follow up of emergency procedures
Underpinning Knowledge and Attitudes	Must demonstrate knowledge of: • relevant OHS and environmental requirements, and organization standard operating procedures • emergency, fire and accident procedures • chemical spill procedures • procedures for the use of personal protective clothing and equipment • organization Standard Operating Procedures (SOPs) • hazard policies and procedures • safety procedures • personal protective clothing relevant to the required response to the emergency situation
Underpinning Skills	Must demonstrate skills to: • identify location of emergency signals on machines and/or at the worksite • identify emergency situations in which there is no mechanical/electronic signal • report identified emergency signals/situations to the designated person • identify the emergency leader • follow emergency procedures
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 II	
Unit Title	**Participate in Environmentally Sustainable Work Practice**
Unit Code	**IND SDM2 18 0613**
Unit Descriptor	This competency covers the outcomes required to effectively measure current resource use and carry out improvements including those reducing negative environmental impacts of work practices. This competency applies to operators/team members who are required to follow procedures so as to work in an environmentally sustainable manner. This ensures regulatory compliance and also aims at minimizing environmental risks and maximizes the environmental performance of the process and the organization.

Elements	Performance Criteria
1. Identify current resource use and environmental issues	1.1 Workplace ***environmental and resource efficiency issues*** are identified according to workplace and environmental protection regulation or guidelines. 1.2 Resources used in own work role according to work place requirements is identified. 1.3 Current usage of resources using ***appropriate techniques*** are ***measured*** and recorded. 1.4 Workplace environmental hazards are identified and reported to appropriate personnel according to legislative requirements.
2. Comply with environmental regulations	2.1 Procedures are followed to ensure ***compliance*** in accordance with relevant standards. 2.2 Environmental ***incidents*** are reported to appropriate personnel.
3. Seek opportunities to improve environmental practices and resource efficiency	3.1 ***Enterprise plans*** are followed to improve environmental practices and resource efficiency according to workplace and environmental protection regulation or guidelines. 3.2 ***Suggestions*** for improvements are made to workplace practices in own work area as per company work requirements.

Variable	Range
Environmental and resource efficiency issues	include minimization of environmental risks and maximization of opportunities to improve business environmental performance and to promote more efficient production and consumption of natural resources, for example by: • minimization of waste, through implementation of the waste management hierarchy

	• efficient and effective use of energy and other resources • seeking alternative sources of energy • efficient use of materials and appropriate disposal of waste • use of controls to minimize the risk of environmental damage from hazardous substances • efficient water use • reducing emissions • life cycle analysis applied to issues such as energy supply, materials, transport, production
Measure	Should be interpreted in a manner consistent with the scope of the job and may include things like: • counting the number of items entering/leaving a work area • reading indicators in the work area • obtaining relevant information from support personnel • other simple means
Appropriate techniques	May include: • material fed to/consumed by plant/equipment • plant meters and gauges • job cards • examination of MSDS from suppliers • measurements made under different conditions • examination of relevant information and data.
Compliance	Includes meeting relevant government laws, regulations and mandated codes of practice. It also includes any codes and standards that the enterprise applies voluntarily.
Incidents	May include: • breaches or potential breaches of regulations • occurrences outside of standard procedure which may lead to lower environmental performance.
Enterprise plans	May include: • documented policies and procedures • work plans to minimize waste, increase efficiency of water/energy use, minimize environmental hazards
Suggestions	Include ideas that help to: • prevent and minimize environmental risks and maximize opportunities • reduce emissions of greenhouse gases • reduce use of non-renewable resources • improve energy efficiency • increase use of renewable, recyclable, reusable and recoverable resources • reduce waste • increasing the reusability/recyclability of wastes/products • reduce water usage and/or water wastage.

Procedures	All operations are performed in accordance with procedures including all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills to: • identify and measure resources used in their job • identify situations likely to lead to an environmental incident • follow procedures related to environmental performance. • work is done routinely to procedures • the minimum of resources is used consistent with the job requirements, good practice and the procedures.
Underpinning Knowledge and Attitudes	Must demonstrate sufficient knowledge to : • have a basic understanding of sustainability • know the environmental hazards/risks, resource use and inefficiencies associated with own workplace (at an appropriate level) • know the relevant environmental and resource efficiency systems and procedures for own work area • know the impact of laws and regulations to a level relevant to the work context
Underpinning Skills	Must demonstrate skills to: • report as required by procedures • follow procedures and instructions and respond to change • ask questions and seek clarifications relating to work requirements • Reading and writing is required in order to interpret required procedures and complete required workplace forms/reports. • Numeracy is required to interpret numeric workplace information, readings and measurements, handle data as required and complete numeric components of workplace forms/reports.
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 exam • Observation/Demonstration with Oral questioning
Context of Assessment	Competence may be assessed in the workplace or in a simulated work environment.

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Participate In Workplace Communication**
Unit Code	**IND SDM2 19 0613**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace requirements.

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

Variable	Range
Appropriate sources	May include: • Team members • Suppliers • Trade personnel • Local government • Industry bodies
Medium	May include: • Memorandum • Circular • Notice • Information discussion • Follow-up or verbal instructions • Face to face communication
Storage	May include: • Manual filing system • Computer-based filing system
Protocols	May include: • Observing meeting • Compliance with meeting decisions • Obeying meeting instructions
Workplace interactions	May include: • Face to face • Telephone • Electronic and two way radio • Written including electronic, memos, instruction and forms, non-verbal including gestures, signals, signs and diagrams
Forms	• Personnel forms, telephone message forms, safety reports

Evidence Guide	
Critical Aspects of Competency	Demonstrates skills and knowledge to: • Prepare written communication following standard format of the organization • Access information using communication equipment • Make use of relevant terms as an aid to transfer information effectively • Convey information effectively adopting the formal or informal communication
Underpinning Knowledge and Attitudes	Demonstrate knowledge of: • Effective communication • Different modes of communication • Written communication • Organizational policies • Communication procedures and systems

	• Technology relevant to the enterprise and the individual's work responsibilities
Underpinning Skills	Demonstrate skills to: • Follow simple spoken language • Perform routine workplace duties following simple written notices • Participate in workplace meetings and discussions • Complete work related documents • Estimate, calculate and record routine workplace measures • Do basic mathematical processes of addition, subtraction, division and multiplication • relate to people of social range in the workplace • Gather and provide information in response to workplace Requirements
Resource Implications	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Work In Team Environment**
Unit Code	**IND SDM2 20 0613**
Unit Descriptor	This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

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

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

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

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

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Develop Business Practice**
Unit Code	**IND SDM2 21 0613**
Unit Descriptor	This unit specifies the outcomes required to establish a business operation from a planned concept. It includes researching the feasibility of establishing a business operation, planning the setting up of the business, implementing the plan and reviewing operations once commenced.

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

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

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

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

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

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

Occupational Standard: Soap and Detergent Manufacturing Operation Level II	
Unit Title	**Standardize and Sustain 3S**
Unit Code	**IND SDM2 22 0613**
Unit Descriptor	This unit of competence covers the knowledge, skills and attitudes required by worker to standardize and sustain 3S to his/her workplace. It covers responsibility for the day- to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.

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

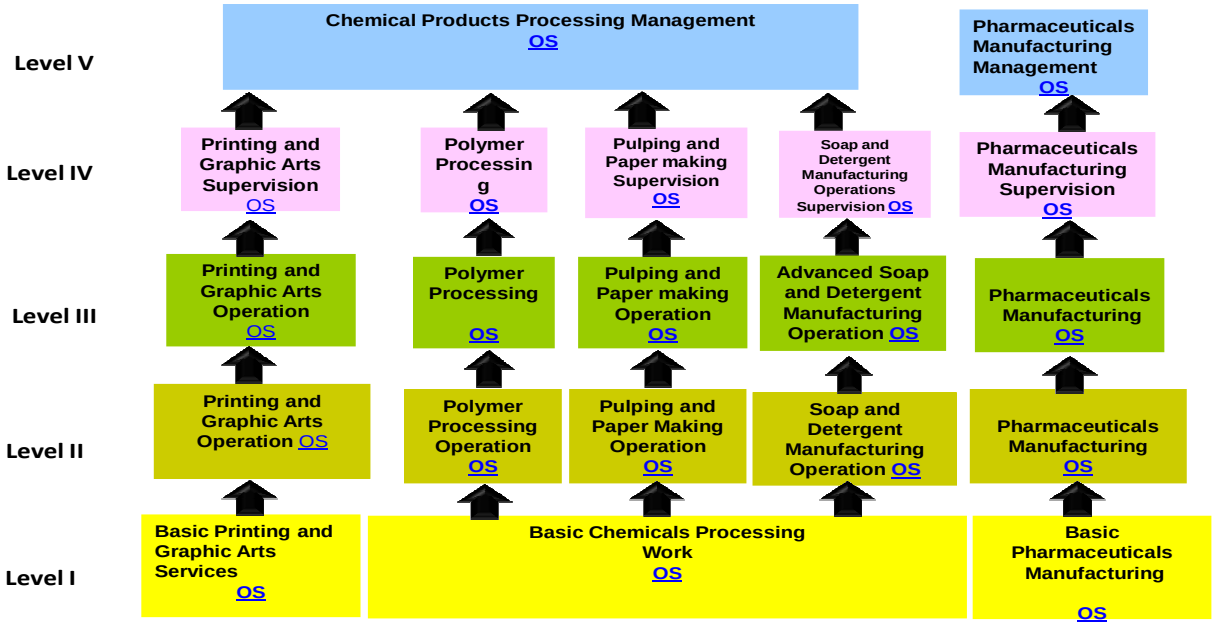
	3.5 Situations are identified where compliance to standards is unlikely and actions specified in procedures are taken. 3.6 Improvements are recommended to lift the level of compliance in the workplace. 3.7 Checklists are followed to sustain activities and reported to relevant personnel. 3.8 Problems are avoided by sustaining activities.

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

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

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

Sector: Industry
Chemical Products Manufacturing



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