

No. 1179

20 September 2002

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

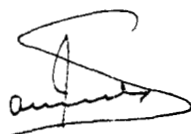
Chemical Engineering

Registered by NSB 06, Manufacturing, Engineering and Technology, publishes the following qualifications and unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the qualification and unit standards upon which qualifications are based. The full qualification and unit standards can be accessed via the SAQA web-site at www.saga.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, 659 Pienaar street, Brooklyn, Pretoria.

Comment on the unit standards should reach SAQA at the address ***below and no later than 21 October 2002***. All correspondence should be marked **Standards Setting – SGB for Chemical Engineering** and addressed to

The Director: Standards Setting and Development
SAQA
Attention: Mr. D Mphuthing
Postnet Suite 248
Private Bag X06
Waterkloof
0145
or faxed to 012 – 482 0907



ff SAMUEL B.A. ISAACS
EXECUTIVE OFFICER

Unit Standards Titles**Unit Standard Titles at NQF 1**

1. Apply financial life skills
2. Apply self management practices in the work place
3. Demonstrate an understanding of quality principles used in the chemical industry
4. Demonstrate knowledge of issues relating to HIV and AIDS
5. Describe chemical process operations and related process chemistry and technology used in the chemical industry
6. Maintain basic safety, health and environmental issues
7. Operate moving equipment to stack, de-stack, and position materials
8. Pack and Palletise products manually
9. Perform lubrication on production equipment
10. Select and use basic hand tools and materials
11. Use wastewater/sewage and storm water systems in industry

Unit Standard Titles at NQF 2

1. Apply process chemistry and related technology in the chemical industry
2. Apply sampling theory and practice in the chemical industry
3. Contribute to maintenance of equipment
4. Demonstrate knowledge of basic Good Manufacturing Practices (GMP) in a Chemical Manufacturing environment
5. Establish equipment start-up conditions to specified state
6. Shut down equipment to a specific state
7. Start up and operate equipment to specified state

Unit Standard Titles at NQF 3

1. Collect and interpret non-routine information regarding system conditions
2. Conform to and apply legislation and operational instructions in chemical processing
3. Contribute to the maintenance of a system
4. Establish system start up conditions
5. Monitor and maintain system conditions
6. Respond to hazardous conditions or emergencies
7. Shut down the system to a specified state
8. Solve operating problems using process chemistry and related technology
9. Start up the system

Unit Standard Titles at NQF 4

1. Collect, interpret and communicate process conditions
2. Control the process within set parameters
3. Establish process start up conditions
4. Respond to abnormal process conditions
5. Respond to hazardous and emergency conditions
6. Shut down the process to a specified state
7. Starting the process

Unit Standards Titles and Specific Outcomes**Unit Standard Titles and Specific Outcomes at NQF 1****TITLE 1: Apply financial life skills**

- SO 1: Develop and operate a personal budget
- SO 2: Describe the benefits and limitations of commercial banking
- SO 3: Use a bank account
- SO 4: The functions and features of hire purchase are explained
- SO 5: A personal document control system is developed and maintained

TITLE 2: Apply self management practices in the work place

- SO 1: Maximise use of time
- SO 2: Manage anger to enhance personal effectiveness
- SO 3: Organise oneself for work
- SO 4: Apply stress management techniques

TITLE 3: Demonstrate an understanding of quality principles used in the chemical industry

- SO 1: Define the terms Quality Assurance, Quality Control and Quality Management
- SO 2: Explain the requirements and processes used to ensure effective Quality Control
- SO 3: Describe the factors that affect product quality
- SO 3: Demonstrate an understanding of the consequences of poor quality control

Title 4: Demonstrate knowledge of issues relating to HIV and AIDS

- SO 1: Explain the nature of HIV and AIDS and its effects on the human system
- SO 2: Demonstrate knowledge of HIV transmission, and practices to reduce the risk of contamination
- SO3: Explore societal and workplace issues related to HIV and AIDS

Title 5: Describe chemical process operations and related process chemistry and technology used in the chemical industry

- SO 1: Describe chemical process operations
- SO 2: Identify and describe process-variables related to physical/chemical occurrences that take place in a chemical process operation

TITLE 6: Maintain basic safety, health and environmental issues

- SO 1: Identify, recognise and describe safety health and environmental statutory and organizational requirements and responsibilities
- SO 2: Follow and observe safety, health and environmental requirements
- SO 3: Implement good hygiene and housekeeping practices
- SO 4: Recognise and report hazardous situations

TITLE 7: Operate moving equipment to stack, de-stack, and position materials

- SO 1: Prepare to stack and de-stack loads
- SO 2: Stack and de-stack loads using a range of moving equipment
- SO 3: Position materials at various locations and on varying surfaces

TITLE 8: Pack and Palletise products manually

- SO 1: Pack products in containers
- SO 2: Palletize packed products manually
- SO 3: Apply knowledge of the correct handling of finished product

TITLE 9: Perform lubrication on production equipment

- SO 1: Conduct a visual inspection of machinery
- SO 2: Select lubricant and identify lubrication points
- SO 3: Lubricate production machinery
- SO 4: Conduct post-lubrication activities

TITLE 10: Select and use basic hand tools and materials

- SO 1: Select and arrange tools and materials for maintenance, assembly or process operation
- SO 2: Use basic hand tools in accordance with their purpose
- SO 3: Clean, maintain and store hand tools
- SO 4: Explain the reasons for using specific materials in a specific chemical plant
- SO 5: Identify and report faulty and damaged tools and materials

TITLE 11: Use wastewater/sewage and storm water systems in industry

- SO 1: Apply basic water pollution prevention practices
- SO 2: Describe and discuss wastewater/sewage and storm water systems in industry without reference to information
- SO 3: Maintain good effluent control practices
- SO 4: Maintain good hygiene and housekeeping practices when using industrial water

UNIT STANDARD TITLES AND SPECIFIC OUTCOMES AT NQF 2**TITLE 1: Apply process chemistry and related technology in the chemical industry**

- SO 1: Describe and explain physical and chemical factors that influence an activity or operation of equipment in a chemical process
- SO 2: Quantify and evaluate the factors that influence an activity or operation of equipment in a chemical process

TITLE 2: Apply sampling theory and practice in the chemical industry

- SO 1: Explain the purpose of sampling; and the scientific and technical basis upon which sampling is based
- SO 2: Take a variety of samples in a process or process related environment
- SO 3: Evaluate sampling as practiced in a process or process related environment

TITLE 3: Contribute to maintenance of equipment

- SO 1: Demonstrate an understanding of the processes and procedures for equipment maintenance
- SO 2: Prepare equipment for maintenance purpose
- SO 3: Demonstrate an understanding of the preparation of a work area for maintenance
- SO 4: Prepare the work area for maintenance
- SO 5: Receive equipment back after maintenance is completed

TITLE 4: Demonstrate knowledge of basic Good Manufacturing Practices (GMP) in a Chemical Manufacturing environment

- SO 1: Demonstrate knowledge of GMP as it relates to self and others.
- SO 2: Demonstrate knowledge of GMP as it pertains to the use of tools and equipment.
- SO 3: Demonstrate knowledge of GMP as it pertains to material and product handling and storage.

TITLE 5: Establish equipment start-up conditions to specified state

- SO 1: Demonstrate an understanding of the start up conditions for equipment
- SO 2: Accomplish start up conditions for equipment by completing a range of checks and tests
- SO 3: Demonstrate an understanding of actions to correct abnormal start up conditions

TITLE 6: Shut down equipment to a specific state

- SO 1: Establish equipment shutdown conditions
- SO 2: Shut down equipment to a specified state

TITLE 7: Start up and operate equipment to specified state

- SO 1: Establish conditions for and start up designated equipment
- SO 2: Achieve and maintain normal operating conditions
- SO 3: Communicate information concerning operating conditions
- SO 4: Correct abnormal equipment operating conditions

UNIT STANDARD TITLES AND SPECIFIC OUTCOMES (SO) AT NQF 3**TITLE 1: Collect and interpret non-routine information regarding system conditions**

- SO 1: Gather information pertaining to faults affecting system condition
- SO 2: Diagnose faults affecting system conditions and take appropriate action
- SO 3: Record field readings, of non-routine system conditions
- SO 4: Communicate non-routine information on system conditions

TITLE 2: Conform to and apply legislation and operational instructions in chemical processing

- SO 1: Explain relevant legislation and related standard operating procedures
- SO 2: Review compliance in the workplace with relevant legislation and related standard operation procedures in a critical manner
- SO 3: Comply with relevant legislation and related standard operating procedures
- SO 4: Comment on compliance with relevant legislation and related standard operating procedures

TITLE 3: Contribute to the maintenance of a system

- SO 1: Prepare the system for maintenance
- SO 2: Prepare the work area for maintenance
- SO 3: Accept system back after maintenance is completed

TITLE 4: Establish system start up conditions

- SO 1: Prepare for system start up
- SO 2: Complete checks and tests for system start up
- SO 3: Communicate information concerning checks and tests

SO 4: Report and rectify abnormal pre start up conditions of a system

TITLE 5: Monitor and maintain system conditions

- SO 1: Hand over and accept a shift
- SO 2: Prepare for and record system routines and checks
- SO 3: Complete routine system checks
- SO 4: Maintain availability of system consumables
- SO 5: Demonstrate an understanding of maintaining the system free of contaminants

TITLE 6: Respond to hazardous conditions or emergencies

- SO 1: Report incidents, hazardous conditions or emergencies
- SO 2: Respond to incidents, hazard conditions or emergencies
- SO 3: Correct incidents, hazardous conditions or emergencies

TITLE 7: Shut down the system to a specified state

- SO 1: Establish shut down conditions for the system
- SO 2: Shut down the system to a specified state
- SO 3: Communicate information concerning system shut down
- SO 4: Correct abnormal system shut down conditions

TITLE 8: Solve operating problems using process chemistry and related technology

- SO 1: Identify and quantify the process variables deviating from the standard during process operation
- SO 2: Establish and execute the optimum action to be taken
- SO 3: Select solutions
- SO 4: Implement solutions and carryout follow-up activities

TITLE 9: Start up the system

- SO 1: Start designated system
- SO 2: Achieve normal operating conditions
- SO 3: Communicate information concerning system start-up
- SO 4: Correct abnormal system start-up conditions

UNIT STANDARD TITLES AND SPECIFIC OUTCOMES (SO) AT NQF 4

TITLE 1: Collect, interpret and communicate process conditions

- SO 1: Monitor and analyse information concerning process conditions
- SO 2: Communicate information on process conditions
- SO 3: Exchange information on process conditions at handover

TITLE 2: Control the process within set parameters

- SO 1: Exchange of information during control of process
- SO 2: Control process effectively

TITLE 3: Establish process start up conditions

- SO 1: Prepare for process start up
- SO 2: Complete checks and tests for process start up
- SO 3: Communicate information concerning checks and tests

SO 4: Report and rectify abnormal pre start up process conditions

TITLE 4: Respond to abnormal process conditions

SO 1: Diagnose faults affecting process conditions as per operating principles and theory

SO 2: Correct abnormal process conditions as per operating principles and theory

SO 3: Communicate abnormal process conditions on actions taken

TITLE 5: Respond to hazardous and emergency conditions

SO 1: Report incidents, hazardous conditions and / or emergencies

SO 2: Respond to incidents, hazardous conditions or emergencies according to procedures

TITLE 6: Shut down the process to a specified state

SO 1: Establish shut down conditions for the process

SO 2: Shut down the process to a specified state

SO 3: Communicate information concerning process shut down

SO 4: Correct abnormal process shut down conditions

TITLE 7: Starting the process

SO 1: Demonstrate an understanding of the start-up process

SO 2: Start designated process

SO 3: Achieve normal operating conditions

SO 4: Communicate information concerning process start up