

No. 1170

9 December 2005

**SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

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

Welding

Registered by Organising Field 06, Manufacturing, Engineering and Technology, publishes the following qualification and unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the qualification and unit standard. The qualification and unit standard 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, Hatfield Forum West, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the unit standards should reach SAQA at the address ***below and no later than 13 January 2006***. All correspondence should be marked Standards Setting – SGB for **Welding** and addressed to

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ACTING DIRECTOR: STANDARDS SETTING AND DEVELOPMENT



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

1

Cut rails of various profiles and grades

SAQA US ID	UNIT STANDARD TITLE		
120438	Cut rails of various profiles and grades		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	5	Level 2	Regular

SPECIFIC OUTCOME 1

Plan and prepare resources and equipment prior to the cutting of rails.

SPECIFIC OUTCOME 2

Plan and prepare for the cutting of different rail types.

SPECIFIC OUTCOME 3

Cut rails of various profiles and grades.

SPECIFIC OUTCOME 4

Complete the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

2'

SAQA US ID	UNIT STANDARD TITLE		
120439	Repair 14% cast manganese frogs		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Fabrication and Extraction	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	34	Level 4	Regular

SPECIFIC OUTCOME 1

Plan and prepare machines, equipment and resources prior to the repairing of 14% cast manganese frogs.

SPECIFIC OUTCOME 2

Plan and prepare for the repairing of 14% cast manganese frogs in accordance with permanent way specifications.

SPECIFIC OUTCOME 3

Repair 14% cast manganese frog safely and correctly in accordance with company procedures and specifications.

SPECIFIC OUTCOME 4

Complete the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

3

SAQA US ID		UNIT STANDARD TITLE	
120440		Repair battered rail ends	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	18	Level 2	Regular

Plan and prepare machines, equipment and resources prior to the repairing of battered rail ends.

SPECIFIC OUTCOME 2

Plan and prepare for the repairing of battered ends.

SPECIFIC OUTCOME 3

Repair battered ends.

SPECIFIC OUTCOME 4

Complete the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

4

SAQA US ID	UNIT STANDARD TITLE		
120442	Repair rail-manufacturedfrogs		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	23	Level 3	Regular

SPECIFIC OUTCOME 2

Plan and prepare for the repairing of rail-manufacturedfrogs according to company specifications and procedures.

SPECIFIC OUTCOME 3

Repair rail-manufacturedfrog.

SPECIFIC OUTCOME 4

Compile the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

5

SAQA US ID	UNIT STANDARD TITLE		
120445	Grind rails of various profiles and grades		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	13	Level 2	Regular

SPECIFIC OUTCOME 1

Plan and prepare resources and equipment prior to the grinding of rails.

SPECIFIC OUTCOME 2

Plan and prepare for the grinding of rails.

SPECIFIC OUTCOME 3

Grind rails of various profiles and grades.

SPECIFIC OUTCOME 4

Complete the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

6

SAQA US ID'	UNIT STANDARD TITLE		
120446	Operate rail grinding machine		
SGB NAME		ORGANISING FIELD ID	PROVIDERNAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	4	Level 2	Regular

SPECIFIC OUTCOME 2

Operate grinding machine.

SPECIFIC OUTCOME 3

Perform post-operational procedures.

SPECIFIC OUTCOME 4

Apply safe working procedures.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

7

Repair points blades

SAQA US ID	UNIT STANDARD TITLE		
120447	Repair points blades		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	9	Level 4	Regular

SPECIFIC OUTCOME 1

Plan and prepare machines, equipment, vehicle and resources prior to the repairing of points blades.

SPECIFIC OUTCOME 2

Plan and prepare for the repairing of points blades in accordance with company procedures and permanent way welding specifications.

SPECIFIC OUTCOME 3

Repair points blades.

SPECIFIC OUTCOME 4

Complete the relevant technical documentation.

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

8

Shear rails of various profiles and grades

SAQA US ID	UNIT STANDARD TITLE		
120448	Shear rails of various profiles and grades		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	13	Level 2	Regular

SPECIFIC OUTCOME 1

Plan and prepare resources and equipment prior to the shearing of rails.

SPECIFIC OUTCOME 2

Plan and prepare for the shearing of rails.

SPECIFIC OUTCOME 3

Shear rails of various profiles.

SPECIFIC OUTCOME 4

Compile the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

9

SAQA US ID	UNIT STANDARD TITLE		
120449	Operate hydraulic rail shearing machine		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Engineering and Related Design	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined			

SPECIFIC OUTCOME 1

Prepare to operate the hydraulic rail-shearing machine.

SPECIFIC OUTCOME 2

Operate hydraulic rail-shearing machine.

SPECIFIC OUTCOME 3

Perform post-operational procedures.

SPECIFIC OUTCOME 4

Apply safe working procedures and instructions.

SPECIFIC OUTCOME 5

Complete the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

10

Join rails by means of the exothermic welding process

SAQA US ID	UNIT STANDARD TITLE		
120451	Join rails by means of the exothermic welding process		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Engineering and Related Design	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
		Level 3	

SPECIFIC OUTCOME 1

Plan and prepare machines, equipment and resources prior to the exothermic welding of rails.

SPECIFIC OUTCOME 2

Plan and prepare for the exothermic welding process of rails in accordance with company procedures and specifications.

SPECIFIC OUTCOME 3

Join rails by means of the exothermic welding process safely and correctly in accordance with laid down procedures and specifications.

SPECIFIC OUTCOME 4

Complete the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

11

SAQA US ID	UNIT STANDARD TITLE		
120452	Repair rail bound frogs		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Engineering and Related Design	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	42	Level 4	Regular

SPECIFIC OUTCOME 1

Plan and prepare machines, equipment and resources prior to the repairing of rail bound frogs.

SPECIFIC OUTCOME 2

Plan and prepare for the repairing of rail bound frogs.

SPECIFIC OUTCOME 3

Repair rail bound frogs.

SPECIFIC OUTCOME 4

Compile the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

12

Weld wheel spin burns

SAQA US ID	UNIT STANDARD TITLE		
120453	Weld wheel spin burns		
SGB NAME	ORGANISING FIELD ID	PROVIDER NAME	
SGB Manufacturing and Assembly Processes	6		
UNIT STANDARD TYPE	ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION	
Regular	Manufacturing, Engineering and Technology	Engineering and Related Design	
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	15	Level 2	Regular

SPECIFIC OUTCOME 1

Plan and prepare machines, equipment and resources prior to repairing of wheel-spin burns.

SPECIFIC OUTCOME 2

Prepare for repairing wheel-spin burns.

SPECIFIC OUTCOME 3

Weld wheel-spin burns.

SPECIFIC OUTCOME 4

Compile the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

13

SAQA US ID	UNIT STANDARD TITLE		
120454	Operate petrol- air pre heating machine		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	4	Level 2	Regular

SPECIFIC OUTCOME 2

Operate the petrol-air preheating machine.

SPECIFIC OUTCOME 3

Perform post-operational procedures.

SPECIFIC OUTCOME 4Apply **safe** working procedures and instructions.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

14

SAQA US ID		UNIT STANDARD TITLE	
120455		Operate rail disc-cutting machine	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Engineering and Related Design
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	6	Level 2	Regular

SPECIFIC OUTCOME 2

Operate the rail disc-cutting machine.

SPECIFIC OUTCOME 3

Perform post-operational procedures.

SPECIFIC OUTCOME 4

Apply safe working procedures and instructions.

SPECIFIC OUTCOME 5

Complete the relevant technical documentation.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

15

SAQA US ID	UNIT STANDARD TITLE		
120497	Weld ferrous and non-ferrous materials with the gas tungsten arc welding in all positions		
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	20	Level 5	Regular

SPECIFIC OUTCOME 1

Describe and explain the gas tungsten arc welding equipment.

SPECIFIC OUTCOME 2

Select, assemble and conduct pre operational checks of gas tungsten arc welding equipment.

SPECIFIC OUTCOME 3

Prepare plate and pipes prior to welding.

SPECIFIC OUTCOME 4

Weld workpieces.

SPECIFIC OUTCOME 5

Inspect welded workpieces for defects.

SPECIFIC OUTCOME 6

Care and store welding consumables and equipment.



SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

.16

Weld workpieces with the gas tungsten **arc welding** process in the down-hand position

SAQA USID		UNIT STANDARD TITLE	
120498		Weld workpieces with the gas tungsten arc welding process in the down-hand position	
SGB NAME		ORGANISING FIELD ID	PROVIDER NAME
SGB Manufacturing and Assembly Processes		6	
UNIT STANDARD TYPE		ORGANISING FIELD DESCRIPTION	SUBFIELD DESCRIPTION
Regular		Manufacturing, Engineering and Technology	Manufacturing and Assembly
ABET BAND	CREDITS	NQF LEVEL	UNIT STANDARD TYPE
Undefined	15	Level 3	Regular

SPECIFIC OUTCOME 1

Describe and explain the gas tungsten arc welding equipment.

SPECIFIC OUTCOME 2

Select, assemble and conduct pre operational checks of gas tungsten arc welding equipment.

SPECIFIC OUTCOME 3

Prepare work pieces prior to welding.

SPECIFIC OUTCOME 4

Weld workpieces.

SPECIFIC OUTCOME 5

Inspect welded work piece for defects.

SPECIFIC OUTCOME 6

Care and store welding consumables and equipment.