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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

Plastics Manufacturing

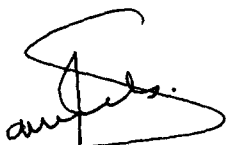
Registered by NSB 06, Manufacturing, engineering and Technology, publishes the following unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purposes of the qualifications, and the titles and specific outcomes of the unit standards upon which qualifications are based. The full qualifications and unit standards can be accessed via the SAQA web-site at www.saqqa.co.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 31 January 2002*. All correspondence should be marked **Standards Setting – SGB for Plastics Manufacturing** and addressed to

The Director: Standard Setting and Development
SAQA

Attention: Mr. D Mphuthing
Postnet Suite 248
Private Bag X06
Waterkloof
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or faxed to 012 – 482 0907



PP SAMUEL B.A. ISAACS
EXECUTIVE OFFICER

National Certificate in Plastics Manufacturing NQF Level 2

Field: Manufacturing, Engineering and Technology - NSB 06

Sub-field: Manufacturing and Assembly

Level: 2

Credit: 122

Issue date:

Review date:

Rationale for the qualification

The plastics manufacturing industry is characterized by sophisticated high-volume manufacturing processes operating in a competitive and challenging environment. The manufactured products have to respond to a wide variety of exacting customer and consumer requirements. In addition, the industry has to respond to competition from exports, export markets, on-going development of new products as the result of changing customer needs, and environmental issues.

This means that people working in the industry require a range of skills and knowledge to help them respond to the exacting quality requirements and ongoing change.

This is the first qualification in a series in a career path involving high-volume plastics manufacturing processes. This series of qualifications reflects the skills, knowledge and understanding required to participate effectively in the plastics manufacturing industry, whether in micro, small, medium or large operations.

Purpose of the qualification

The purpose of the qualification is to provide learners, education and training providers and employers with the standards and the range of learning required to satisfy the challenges of participating effectively in the plastics manufacturing industry.

For those who have been in the workplace for a long time, this qualification can be used in the Recognition of Prior Learning (RPL) process to assess and recognise workplace skills acquired without the benefit of formal education or training.

For the new entrant, this qualification describes the learning outcomes (the skills, knowledge and values) required to effectively participate in a structured workplace.

For education and training providers, this qualification provides guidance for the development of appropriate learning programmes. For employers, this qualification enables skills gaps to be identified and programmes to close skills gaps to be developed, and acts as an external benchmark for fulfilling the criteria of national and international quality standards such as ISO 9000:2000.

This qualification recognises the skills, knowledge and values acquired by learners involved in *monitoring* high-volume plastics manufacturing processes and *working in* enterprises which use such processes.

The chief skills that are recognised in this qualification are recognising and responding to changes that happen during the production process. This capability requires an understanding of quality requirements and of the conversion process. Hand skills play a small role in this qualification.

Qualified learners will also understand:

- the basics of how a business functions
- their role in the business, ie in production and related activities
- how they are affected by legislation, regulations, agreements and policies related to their particular work environment.

With this understanding, learners will be able to participate in workplace activities.

Qualifying learners will also be able to relate what they see and experience to scientific and technological principles and concepts. They will also understand how they should operate within the legislative, safety and quality systems which govern their workplace.

What learners achieve in this qualification will also serve as a basis for further learning where they will engage more directly in the production processes.

Access to the Qualification

This qualification series recognises skills, knowledge and values relevant to a workplace. It is designed for learners who engage actively in the manufacturing process. It is suitable for learners who:

- Have attended courses and then apply the knowledge gained to activities in the workplace (Portfolio to reflect formative assessment)
- Are already workers and have acquired the skills and knowledge without attending formal courses (RPL can be done through the summative assessment and portfolio of evidence)
- Participate in skills programmes and the appropriate work experience

- Are part of a learnership programme which integrates structured learning and work experience
- Acquire their learning through any combination of the above.

Learning assumed to be in place

This qualification assumes learners have a General Education and Training Certificate at NQF level 1, or alternatively, ABET qualifications.

If the learner does not already have such a qualification, learning in preparation for this qualification would also have to include:

- Literacy and numeracy
- Basic concepts of science and technology.

Exit level Outcomes

Qualifying learners can:

SO1: Understand the manufacturing process and the quality requirements and recognise changes in the production process which will result in reduced levels of safety, health, quality or efficiency and respond to them.

Associated Assessment Criteria

- Manufacture of scrap or faulty products is minimised
- Responses are appropriate to the nature of the change
- Changes and responses are reported accurately and clearly (orally or in writing)
- Can respond to questions and discuss issues related to the manufacturing process relevant to the outcomes

SO2: Understand and use appropriate tools and equipment to:

- make simple adjustments or changes to equipment and process
- convey (move, lift) materials or products.

Associated Assessment Criteria

- Adjustments or changes are appropriate
- Downtime is minimised
- No material or product is damaged or its quality compromised
- Quality, safety and environmental procedures are followed

SO3: Work effectively with others, understand own role in the organisation and understand the purpose of the organisation in the economy of the country.

Associated Assessment Criteria

- Receives and acts on information or decisions
- Reports or passes on relevant information
- Responds to questions and discusses issues at the level of the qualification related to own role and purpose of the organisation

International comparability

This qualification was compared to other, similar outcomes-based qualifications, certifications or skills standards in the United Kingdom, New Zealand and the United States and this qualification broadly corresponds to these.

Integrated Assessment

The integrated assessment must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

- Observing the learner at work (in the primary activity as well as in other interactions)
- Asking questions and initiating short discussions to test understanding
- Looking at records and reports in the portfolio and reviewing previous assessments

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles which underpin the activities and the manufacturing process. The assessment process should also establish how the critical outcomes have been advanced by the learning process.

Recognition of prior learning

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support provided to assist in the process of developing a portfolio. As with integrated assessment, while this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

Articulation possibilities

The qualification has been designed and structured so that qualifying learners can move from one context to another. Employers or institutions should be able to evaluate the outcomes of this qualification against the needs of their context and structure top-up learning appropriately. Equally, holders of other qualifications may be evaluated against this qualification for purpose of RPL.

Moderation Options

Moderators for the qualification should be qualified and accredited with an appropriate Education, Training Quality Assurance Body (ETQA) and have a qualification in manufacturing, preferably in plastics manufacturing.

To assure the quality of the assessment process, the moderation should cover one or more of the following:

1. assessor credentials
2. the assessment instrument
3. the assessment process (including preparation and post-assessment feedback)

Where assessment and moderation are taking place in sectors other than the *Manufacturing, Engineering and Related Services*, assessment and moderation should be in terms of a Memorandum of Understanding negotiated with the MERS ETQA.

Criteria for registration of assessors

The following criteria should be applied by the relevant ETQA:

1. Appropriate qualification in the field of plastics manufacturing – with a minimum of 6 months in plastics manufacturing environments
2. Assessed successfully against a nationally recognised unit standards/s reflecting experience and understanding of assessment theory, processes and practices
3. Good interpersonal skills and the ability to balance the conflicting requirements of:
 - Maintaining national standards
 - The interests of the learner
 - The need for transformation and redressing the legacies of the past
 - The cultural background and language of the learner
4. Any other criteria required by the MERS ETQA or any other relevant ETQA

National Certificate in Plastics Manufacturing NQF Level 5

Field: Manufacturing, Engineering and Technology - NSB 06

Sub-field: Manufacturing and Assembly

Level: 5

Credit: 138

Issue date:

Review date:

Rationale for the qualification

The plastics manufacturing industry is characterized by sophisticated high-volume manufacturing processes operating in a competitive and challenging environment. The manufactured products have to respond to a wide variety of exacting customer and consumer requirements. In addition the industry has to respond to competition from exports, export markets, on-going development of new products as the result of changing customer needs, and environmental issues.

This means that people working in the industry require a range of skills and knowledge to help them respond to the exacting quality requirements and ongoing change.

This is the fourth qualification in a series in a career path involving high-volume plastics manufacturing processes. This series of qualifications reflects the skills, knowledge and understanding required to participate effectively in the plastics manufacturing industry, whether in micro, small, medium or large operations.

Purpose of the qualification

The purpose of the qualification is to provide learners, education and training providers and employers with the standards and the range of learning required to satisfy the challenges of participating effectively in the plastics manufacturing industry

For those who have been in the workplace for a long time, this qualification can be used in the Recognition of Prior Learning (RPL) process to assess and recognise workplace skills acquired without the benefit of formal education or training.

For the new entrant or for someone changing from another field, this qualification describes the learning outcomes (the skills, knowledge and values) required to effectively participate in a structured workplace.

For education and training providers, this qualification provides guidance for the development of appropriate learning programmes. For employers, this qualification enables skills gaps to be identified and programmes to close skills gaps to be developed, and acts as an external benchmark for fulfilling the criteria of national and international quality standards such as ISO 9000:2000.

This qualification recognises the skills, knowledge and values acquired by learners to maintain all aspects of an efficient production system by:

- optimising current processes and practices
- implementing new products, materials or technology
- interact with the workgroup, customers, suppliers in order to achieve the above

What learners achieve in this qualification will also serve as a basis for further learning where they will engagement with issues of management and advanced technology.

Access to the Qualification

This qualification series recognises skills, knowledge and values relevant to a workplace. It is designed for learners who engage actively in the manufacturing process. It is suitable for learners who:

- Have attended courses and then apply the knowledge gained to activities in the workplace (Portfolio to reflect formative assessment)
- Are already workers and have acquired the skills and knowledge without attending formal courses (RPL can be done through the summative assessment and portfolio of evidence)
- Participate in skills programmes and the appropriate work experience
- Are part of a learnership programme which integrates structured learning and work experience
- Acquire their learning through any combination of the above.

Learning assumed to be in place

National Certificate in Plastics Manufacturing NQF Level 3.

If the learner does not already have such a qualification, this does not preclude him/her from starting. It will, however, require an increase in learning time.

Exit level Outcomes

Qualifying learners can:

SO1: Maintain and optimise all aspects of the manufacturing process and determine processing conditions for new moulds or dies or materials

Associated Assessment Criteria

- Current efficiencies are maintained
- Improvements and new settings or procedures are documented and result in products that meet and continue to meet customer needs
- Information on all aspects of the manufacturing process is collected, summarised and recorded
- Changes and improvements are reported, recorded in operating procedures and communicated to workgroup members
- Any changes or recommendations are based on systematic analysis and the effects of implementation are recorded and reported

SO2: Monitor and enforce systems relating to quality and safety, health and the environment

Associated Assessment Criteria

- Responses to deviations and non-conformance are appropriate and speedy
- The workplace is clean, safe, ordered and operating without bottlenecks or hazards
- Conditions and incidents are accurately documented in records and reports
- All workgroup members apply appropriate procedures and use appropriate protective equipment
- Issues and problems are discussed, decisions are made and implemented

SO3: Counsel, lead, guide and develop the workgroup and workgroup members

Associated Assessment Criteria

- Problems are identified and resolved
- Support, training and motivation of workgroup members is appropriate to their needs
- Issues raised by workgroup members are listened to and responded to in accordance with organisational policies and agreements

SO4: Discuss and resolve issues with external customers and suppliers

Associated Assessment Criteria

- Key issues are identified, discussed and documented
- Resolutions are agreed and documented with clear actions, responsibilities, timeframes and reporting issues
- Views, suggestions and alternatives are listened to and considered
- Implementation and progress are reported internally and externally

International comparability

This qualification was compared to other, similar outcomes-based qualifications, certifications or skills standards in the United Kingdom, New Zealand and the United States and this qualification broadly corresponds to these.

Integrated Assessment

The integrated assessment must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

- Observing the learner at work (in the primary activity as well as in other interactions)
- Asking questions and initiating short discussions to test understanding
- Looking at records and reports in the portfolio and reviewing previous assessments

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles which underpin the activities and the manufacturing process. The assessment process should also establish how the critical outcomes have been advanced by the learning process.

Assessors should also evaluate evidence that the learner has been performing consistently over a period of time. The assessment can include a small project or projects which need more time to complete than is practical in a live assessment session.

Recognition of prior learning

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support provided to assist in the process of developing a portfolio. As with integrated assessment, while this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

Articulation possibilities

The qualification has been designed and structured so that qualifying learners can move from one context to another. Employers or institutions should be able to evaluate the outcomes of this qualification against the needs of their context and structure top-up learning appropriately. Equally, holders of other qualifications may be evaluated against this qualification for the purpose of RPL.

Moderation Options

Moderators for the qualification should be qualified and accredited with an appropriate Education, Training Quality Assurance Body (ETQA) and have a qualification in manufacturing, preferably in plastics manufacturing.

To assure the quality of the assessment process, the moderation should cover one or more of the following:

1. assessor credentials
2. the assessment instrument
3. the assessment process (including preparation and post-assessment feedback)

Where assessment and moderation are taking place in sectors other than the *Manufacturing, Engineering and Related Services*, assessment and moderation should be in terms of a Memorandum of Understanding negotiated with the MERS ETQA.

Criteria for registration of assessors

The following criteria should be applied by the relevant ETQA:

1. Appropriate qualification in the field of plastics manufacturing – with a minimum of 6 months in plastics manufacturing environments
2. Assessed successfully against a nationally recognised unit standards/s reflecting experience and understanding of assessment theory, processes and practices
3. Good interpersonal skills and the ability to balance the conflicting requirements of:
 - Maintaining national standards
 - The interests of the learner
 - The need for transformation and redressing the legacies of the past
 - The cultural background and language of the learner
4. Any other criteria required by the MERS ETQA or any other relevant ETQA

Level 5

Level 5 Fundamental		Level 5 Core		Level 5 Elective: Choice of	
Communication	Manufacturing	Manufacturing	Manufacturing	Manufacturing	Manufacturing
Choice of communication unit standards reflecting use of communication in work-related contexts outcomes and reflecting the following outcomes >>	Optimise a production process	Co-ordinate installation of new manufacturing equipment	Co-ordinate installation of new manufacturing equipment	24	10
	Maintain production efficiencies		Production planning	12	8
	Conduct mould or material trials			12	
	Schedule and arrange maintenances			4	
	Materials				
Choice of any mathematics literacy unit standards at this level	Manage inventory to meet production requirements			3	4
The outcomes should, however, reflect the following outcomes >>	Safety, Health & Environmental Quality Assurance				
	Support and maintain the safety system in the workplace, reflecting the following outcomes >>			6	3
	Maintain quality system and implement continuous improvement processes, reflecting the following outcomes >>			6	4
	People: Interacting, leading, developing				
	Co-ordinate work group to produce product, reflecting the following outcomes >>			8	10
Working with information					
Analysing information, reflecting the following outcomes >>	Business Relations				10
	Maintain business processes >>			10	6
Total Fundamental	Total Core			85	
Total for qualification					12

National Certificate in Plastics Manufacturing NQF Level 4

Field: Manufacturing, Engineering and Technology - NSB 06

Sub-field: Manufacturing and Assembly

Level: 4

Credit: 135

Issue date:

Review date:

Rationale for the qualification

The plastics manufacturing industry is characterized by sophisticated high-volume manufacturing processes operating in a competitive and challenging environment. The manufactured products have to respond to a wide variety of exacting customer and consumer requirements. In addition, the industry has to respond to competition from exports, export markets, on-going development of new products as the result of changing customer needs, and environmental issues.

This means that people working in the industry require a range of skills and knowledge to help them respond to the exacting quality requirements and ongoing change.

This is the third qualification in a series in a career path involving high-volume plastics manufacturing processes. This series of qualifications reflects the skills, knowledge and understanding required to participate effectively in the plastics manufacturing industry, whether in micro, small, medium or large operations.

Purpose of the qualification

The purpose of the qualification is to provide learners, education and training providers and employers with the standards and the range of learning required to satisfy the challenges of participating effectively in the plastics manufacturing industry

For those who have been in the workplace for a long time, this qualification can be used in the Recognition of Prior Learning (RPL) process to assess and recognise workplace skills acquired without the benefit of formal education or training.

For the new entrant or for someone changing from another field, this qualification describes the learning outcomes (the skills, knowledge and values) required to effectively participate in a structured workplace.

For education and training providers, this qualification provides guidance for the development of appropriate learning programmes. For employers, this qualification allows skills gaps to be identified and programmes to close skills gaps to be developed, and acts as an external benchmark for fulfilling the criteria of national and international quality standards such as ISO 9000:2000.

This qualification recognises the skills, knowledge and values acquired by learners to *initiate* and *maintain* plastics manufacturing processes by:

- solving common problems to produce quality products to meet customer needs
- interacting with others to achieve manufacturing objectives.

Hand skills play a role in this qualification.

What learners achieve in this qualification will also serve as a basis for further learning where they will maintain production efficiencies and optimise the production processes.

Access to the Qualification

This qualification series recognises skills, knowledge and values relevant to a workplace. It is designed for learners who engage actively in the manufacturing process. It is suitable for learners who:

- Have attended courses and then apply the knowledge gained to activities in the workplace (Portfolio to reflect formative assessment)
- Are already workers and have acquired the skills and knowledge without attending formal courses (RPL can be done through the summative assessment and portfolio of evidence)
- Participate in skills programmes and the appropriate work experience
- Are part of a learnership programme which integrates structured learning and work experience
- Acquire their learning through any combination of the above.

Learning assumed to be in place

National Certificate in Plastics Manufacturing NQF Level 3.

If the learner does not already have such a qualification, this does not preclude him/her from starting. It will, however, require an increase in learning time.

Exit level Outcomes

Qualifying learners can:

SO1 Install required tooling, set up and start up the manufacturing process, maintaining efficiency of the process and the quality of the manufactured product

Associated Assessment Criteria

- The manufacturing process and the manufactured products conform to all specifications
- Installation, setup and start up process are planned, organised and carried out efficiently and safely and within standard times
- Instructions to workgroup members are clear and records and instructions are maintained
- Issues relating to product design, the manufacturing process and the materials used are discussed and resolved

SO2: Solve common manufacturing process problems and identify areas for improvement

Associated Assessment Criteria

- Problems are identified and resolved quickly, systematically and in such a way as to minimise reoccurrence
- Problems and solutions are recorded and monitored for reoccurrence
- Problems and solutions and opportunities for improvement are discussed and resolved with workgroup members and internal customers and partners
- The underlying causes and related issues are explained or discussed (science and technology)

SO3: Maintain a safe, effective and efficient workplace, developing the skills and performance of workgroup members

Range: 'Safe' also includes issues of health and issues relating to reducing negative impacts on the environment

Associated Assessment Criteria

- The conditions in the workplace and the condition of the tools and equipment, safety equipment and services are safe and arranged to reduce waste
- Hazards are dealt with quickly and effectively
- Workgroup members are supported, coached and influenced to work effectively, efficiently and safely

SO4: Understand and work with internal customers and partners

Range: Internal customers and partners include those with roles relating to material preparation and supply, quality assurance, safety, health and the environment, sales and marketing, management, unions or worker representatives and any others who interact with the manufacturing environment

Associated Assessment Criteria

- Key issues are identified, discussed and resolved
- Actions, responsibilities, timeframes and reporting issues are clarified
- Other persons' opinions, suggestions and alternatives are listened to
- Key ideas, decisions and plans are recorded and implemented

International comparability

This qualification was compared to other, similar outcomes-based qualifications, certifications or skills standards in the United Kingdom, New Zealand and the United States and this qualification broadly corresponds to these.

This qualification is equivalent to the artisan-equivalent plastics manufacturing qualification in German-speaking countries as laid out in their content and assessment schedules.

Integrated Assessment

The integrated assessment must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

- Observing the learner at work (in the primary activity as well as in other interactions)
- Asking questions and initiating short discussions to test understanding
- Looking at records and reports in the portfolio and reviewing previous assessments

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process or preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles which underpin the activities and the manufacturing process. The assessment process should also establish how the critical outcomes have been advanced by the learning process.

Assessors should also evaluate evidence that the learner has been performing consistently over a period of time. The assessment can include a small project or projects which need more time to complete than is practical in a live assessment session.

Recognition of prior learning

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support provided to assist in the process of developing a portfolio. As with integrated assessment, while this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

Articulation possibilities

The qualification has been designed and structured so that qualifying learners can move from one context to another. Employers or institutions should be able to evaluate the outcomes of this qualification against the needs of their context and structure top-up learning appropriately. Equally, holders of other qualifications may be evaluated against this qualification for the purpose of RPL.

Moderation Options

Moderators for the qualification should be qualified and accredited with an appropriate Education, Training Quality Assurance Body (ETQA) and have a qualification in manufacturing, preferably in plastics manufacturing.

To assure the quality of the assessment process, the moderation should cover one of more of the following:

1. assessor credentials
2. the assessment instrument
3. the assessment process (including preparation and post-assessment feedback)

Where assessment and moderation are taking place in sectors other than the *Manufacturing, Engineering and Related Services*, assessment and moderation should be in terms of a Memorandum of Understanding negotiated with the MERS ETQA.

Criteria for registration of assessors

The following criteria should be applied by the relevant ETQA:

1. Appropriate qualification in the field of plastics manufacturing – with a minimum of 6 months in plastics manufacturing environments
2. Assessed successfully against a nationally recognised unit standards/s reflecting experience, and understanding of assessment theory, processes and practices
3. Good interpersonal skills and the ability to balance the conflicting requirements of:
 - Maintaining national standards
 - The interests of the learner
 - The need for transformation and redressing the legacies of the past
 - The cultural background and language of the learner
4. Any other criteria required by the MERS ETQA or any other relevant ETQA

NQF Level 4

Level 4 Fundamental	Level 4 Core	Level 4 Elective Choice of:
Communication	Manufacturing	Manufacturing
Choice of any generic communication unit standards at this level	Set production equipment	Set up non-standard process devices
Choice of generic communication literacy unit standards reflecting both learning and work-related contexts	Install and set moulds, dies and forming devices	
Choice of workplace communication unit standards reflecting the following outcomes >>	Maintain equipment, tools and workstations (= having the maintenance done)	
Maths	Materials	
Choice of any unit standards at this level	Prepare and use materials	
The outcomes should, however, reflect the following outcomes >>	Safety, Health & Environmental Quality Assurance	Compound materials
Working with information	Maintain the discipline of the safety system, reflecting the following outcomes >>	Safety, Health & Environmental Quality Assurance
Unit standards reflecting the following outcomes >>	Maintain the quality system and procedures >>	Perform role of safety representative
Manage costs and report against budgets	Conduct laboratory tests on manufactured products and raw materials	Calibrate equipment
Life skills	People: interacting, leading, developing	
Explain financial planning options (savings, retirement, insurance) and develop a plan	Assist and coach workgroup members as needed, reflecting the following outcomes >>	
	Business Relations	
	Contribute to the maintenance of business processes >>	Business Relations
		Frame and implement an individual action plan to improve productivity within an organisational unit
		Life skills
		Develop a personal portfolio and a learning plan and prepare for assessment, reflecting the following outcomes >>
Total Fundamental	Total Core	Elective credits required for qualification
48	75	12
Total for qualification		
135		

National Certificate in Plastics Manufacturing NQF Level 3

Field:	Manufacturing, Engineering and Technology - NSB 06
Sub-field:	Manufacturing and Assembly
Level:	3
Credit:	122
Issue date:	
Review date:	

Rationale for the qualification

The plastics manufacturing industry is characterized by sophisticated high-volume manufacturing processes operating in a competitive and challenging environment. The manufactured products have to respond to a wide variety of exacting customer and consumer requirements. In addition, the industry has to respond to competition from exports, export markets, on-going development of new products as the result of changing customer needs, and environmental issues.

This means that people working in the industry require a range of skills and knowledge to help them respond to the exacting quality requirements and ongoing change.

This is the second qualification in a series in a career path involving high-volume plastics manufacturing processes. This series of qualifications reflects the skills, knowledge and understanding required to participate effectively in the plastics manufacturing industry, whether in micro, small, medium or large operations.

Purpose of the qualification

The purpose of the qualification is to provide learners, education and training providers and employers with the standards and the range of learning required to satisfy the challenges of participating effectively in the plastics manufacturing industry.

For those who have been in the workplace for a long time, this qualification can be used in the Recognition of Prior Learning (RPL) process to assess and recognise workplace skills acquired without the benefit of formal education or training.

For the new entrant or for someone changing from another field, this qualification describes the learning outcomes (the skills, knowledge and values) required to effectively participate in a structured workplace.

For education and training providers, this qualification provides guidance for the development of appropriate learning programmes. For employers, this qualification enables skills gaps to be identified and programmes to close skills gaps to be developed, and acts as an external benchmark for fulfilling the criteria of national and international quality standards such as ISO 9000:2000.

This qualification recognises the skills, knowledge and values acquired by learners involved in *controlling operations* in high-volume plastics manufacturing processes and *influencing decisions* in enterprises which use such processes. The chief skills required for this qualification are:

- Understanding basic approaches to using and looking after machinery and equipment
- Understanding and implementing procedures related to various aspects of the production process
- Relating principles and concepts to workplace activities, materials and equipment.

Hand skills play a minor role in this qualification.

Qualified learners will also understand:

- the basics of how a business functions
- their role in the business, ie in production and related activities
- how they are affected by legislation, regulations, agreements and policies related to their particular work environment.

With this understanding, learners will be able to participate in workplace activities.

Qualifying learners will also be able to relate what they see and experience to scientific and technological principles and concepts. They will also understand how they should operate within the legislative, safety and quality systems which govern their workplace.

What learners achieve in this qualification will also serve as a basis for further learning where they will engage more directly in controlling and troubleshooting the production processes.

Access to the Qualification

This qualification series recognises skills, knowledge and values relevant to a workplace. It is designed for learners who engage actively in the manufacturing process. It is suitable for learners who:

- Have attended courses and then apply the knowledge gained to activities in the workplace (Portfolio to reflect formative assessment)

- Are already workers and have acquired the skills and knowledge without attending formal courses (RPL can be done through the summative assessment and portfolio of evidence)
- Participate in skills programmes and the appropriate work experience
- Are part of a learnership programme which integrates structured learning and work experience
- Acquire their learning through any combination of the above.

Learning assumed to be in place

National Certificate in Plastics Manufacturing NQF Level 2.

If the learner does not already have such a qualification, this does not preclude him/her from starting. It will, however, require an increase in learning time.

Exit level Outcomes

Qualifying learners can:

SO1: Perform routine operations on volume manufacturing equipment using related information

Associated Assessment Criteria

- Materials, moulds, dies and forming devices and finished product are transported safely and effectively
- Routine operations, including cleaning, starting and stopping processes and assistance with the installation of tools, dies and forming devices are carried out safely, effectively and together with other team members

SO2: Understand, use and apply policies and procedures to maintain materials, equipment, work-place relations, safety and quality

Associated Assessment Criteria

- Procedures can be explained and applied routinely and effectively
- Reports, recording of conditions, outputs and incidents is done accurately and timeously

SO3: Contribute to workgroup efforts

Associated Assessment Criteria

- Production schedules and assignments are met
- Production workflow is managed efficiently
- Workgroup goals are met
- Assistance and support is provided where required
- Active participation in workgroup discussions, in workgroup problem solving activities and in the implementation of solutions
- Relevant information is received and passed on

International comparability

This qualification was compared to other, similar outcomes-based qualifications, certifications or skills standards in the United Kingdom, New Zealand and the United States and this qualification broadly corresponds to these.

Integrated Assessment

The integrated assessment must be based on a summative assessment guide. The guide will spell out how the assessor will assess different aspects of the performance and will include:

- Observing the learner at work (in the primary activity as well as in other interactions)
- Asking questions and initiating short discussions to test understanding
- Looking at records and reports in the portfolio and reviewing previous assessments

The learner may choose in which language s/he wants to be assessed. This should be established as part of a process of preparing the learner for assessment and familiarising the learner with the approach being taken.

While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

The assessment process should cover both the explicit tasks required for the qualification as well as the understanding of the concepts and principles which underpin the activities and the manufacturing process. The assessment process should also establish how the critical outcomes have been advanced by the learning process.

Recognition of prior learning

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support provided to assist in the process of developing a portfolio. As with integrated assess, while this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

Articulation possibilities

The qualification has been designed and structured so that qualifying learners can move from one context to another. Employers or institutions should be able to evaluate the outcomes of this qualification against the needs of their context and structure top-up learning appropriately. Equally, holders of other qualifications may be evaluated against this qualification for the purpose of RPL.

Moderation Options

Moderators for the qualification should be qualified and accredited with an appropriate Education, Training Quality Assurance Body (ETQA) and have a qualification in manufacturing, preferably in plastics manufacturing.

To assure the quality of the assessment process, the moderation should cover one or more of the following:

1. assessor credentials
2. the assessment instrument
3. the assessment process (including preparation and post-assessment feedback)

Where assessment and moderation are taking place in sectors other than the *Manufacturing, Engineering and Related Services*, assessment and moderation should be in terms of a Memorandum of Understanding negotiated with the MERS ETQA.

Criteria for registration of assessors

The following criteria should be applied by the relevant ETQA:

1. Appropriate qualification in the field of plastics manufacturing – with a minimum of 6 months in plastics manufacturing environments
2. Assessed successfully against a nationally recognised unit standards/s reflecting experience and understanding of assessment theory, processes and practices
3. Good interpersonal skills and the ability to balance the conflicting requirements of:
 - Maintaining national standards
 - The interests of the learner
 - The need for transformation and redressing the legacies of the past
 - The cultural background and language of the learner
4. Any other criteria required by the MERS ETQA or any other relevant ETQA

NQF Level 3

Level 3 Fundamental		Level 3 Core		Level 3 Elective Choice of:	
Communication	Manufacturing	Manufacturing	Manufacturing	Manufacturing	Manufacturing
Choice of any generic communication unit standards at this level	10	Operate volume manufacturing equipment	10	Post-treat products	4
Choice of generic communication literacy unit standards reflecting both learning and work-related contexts	5	Perform preventative maintenance and routine repair	4	Pack non-standard items	4
Choice of workplace communication unit standards reflecting the following outcomes >>	5	Monitor and respond to equipment indicators and effective operating	2	Computer skills	10
		Move, lift, lower and look after moulds, dies and forming devices	6	Materials	
		Materials		Control stores and inventories	4
Maths	16	Work with, transport, store and look after materials in the production process	12	Drive forklift / crane	?
Choice of any unit standards at this level		Safety, Health & Environmental Quality Assurance		Safety, Health & Environmental Quality Assurance	
The outcomes should, however, reflect the following outcomes >>		Explain and apply safety procedures, reflecting the following outcomes >>	6	Perform role of safety representative	4
Working with information		Perform quality procedures, reflecting the following outcomes >>	8	Provide basic first aid	3
Analyse information, reflecting the following outcomes >>	5	People: interacting, leading, developing		Understanding and dealing with HIV / Aids personally and in the workplace	2
Keyboard skills to capture and record information	3	Contribute to work group performance >>	3	Conduct simple tests (line function)	3
		Develop learning strategies and techniques, reflecting the following outcomes >>	3		
Life skills				Business Relations	
Discuss and explain personal financial concepts (pay deductions, bank accounts, interest, insurance)	4	Business Relations		Frame and implement an individual action plan to improve productivity within an organisational unit	3
		Relate own role to role of business, customers and markets, reflecting the following outcomes >>	2	Life skills	
		Explain and use procedures >>	6	Develop a personal portfolio and a learning plan and prepare for assessment, reflecting the following outcomes >>	6
Total Fundamental	48	Total Core	62	Elective credits required for qualification	12
Total for qualification	122				