

GQA PAA\VQSET LEVEL 2 CERTIFICATE IN POLYMER OPERATIONS

Centre Qualification Handbook

Competence-based Qualifications

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PAA\VQ-SET

CONTENTS PAGE

INTRODUCTION TO THE HANDBOOK	3
Qualification Assessment and Support Materials	3
LEVEL 2 CERTIFICATE IN POLYMER OPERATIONS	4
ASSESSMENT REQUIREMENTS.....	6
ASSESSMENT STRATEGY	6
ASSESSMENT METHODS AND TYPES OF EVIDENCE	9
GLOSSARY	11
LEVEL 2 CERTIFICATE IN POLYMER OPERATIONS	13
CONTENT OF THE QUALIFICATION	13
<u>MANDATORY UNITS.....</u>	13
UNIT POLY 39 MEET SAFETY, HEALTH AND ENVIRONMENTAL REQUIREMENTS IN THE WORKPLACE WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS.....	13
<u>OPTION GROUP 1 - PROCESS.....</u>	16
UNIT POLY 11 PREPARE TO START UP A MACHINE-BASED PRODUCTION PROCESS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS.....	16
UNIT POLY 12 START UP AND MAINTAIN A MACHINE-BASED PRODUCTION PROCESS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS.....	20
UNIT POLY 13 SHUTDOWN A MACHINE-BASED PRODUCTION PROCESS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS	24
<u>OPTION GROUP 2 - QUALITY.....</u>	28
UNIT POLY 18 INSPECT PRODUCTS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS	28
UNIT POLY 22 CARRY OUT SIMPLE SAMPLING OPERATIONS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS	31
UNIT POLY 23 CARRY OUT SIMPLE TESTING OPERATIONS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS	34
UNIT POLY 41 CONTRIBUTE TO THE MAINTENANCE OF PRODUCT QUALITY WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS.....	38
<u>OPTION GROUP 3 - ANCILLARY.....</u>	41
UNIT POLY 1 PREPARE MATERIALS FOR PROCESSING ACCORDING TO INSTRUCTIONS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS.....	41
UNIT POLY 17 FINISH PRODUCTS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS.....	44
UNIT POLY 21 CONTRIBUTE TO THE PROVISION OF ANCILLARY SYSTEMS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS	47
UNIT POLY 48 ASSEMBLE PRODUCTS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS	50
UNIT POLY 49 PREPARE TO CONFIGURE PROCESSING EQUIPMENT WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS	53
UNIT POLY 50 CONFIGURE PROCESSING EQUIPMENT WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS ...	57

INTRODUCTION TO THE HANDBOOK

This qualification sits within the Regulated Qualifications Framework (RQF).

This Qualification Handbook has been developed to ensure that GQA Centres understand the requirements of the qualification. The Handbook contains the following information:

- Qualification Structure
- Assessment Requirements
- Assessment Methods
- Glossary
- Qualification Units

This Qualification Handbook has been developed to provide support in the implementation of the qualification as well as giving information to ensure that the assessment and quality assurance is consistent, robust and reliable within each centre and nationally. The handbook also contains details of the skills and/or knowledge the learner must obtain to achieve the units and qualification.

Qualification Structure

This section of the handbook summarises the content of the qualification and the skills and/or knowledge learners that achieve it can be expected to gain. It also outlines the units required to achieve the qualification and will give the learner an idea of how long the qualification will take to achieve through the Total Qualification Time (TQT) and how much contact time they can expect through the Guided Learning Hours (GLH). It also provides information about possible progression opportunities once the qualification has been achieved.

Assessment Requirements

The assessment requirements for the qualification will cover any specific information about how the qualification may be assessed, such as whether assessors require specific qualifications or occupational competence and whether simulation is permitted in the achievement process.

Assessment Methods

This section summarises the different assessment methods and types of evidence that support assessment; these may be used to demonstrate competence or the achievement of knowledge and understanding.

Qualification Units

The unit overview summarises the content of the unit and the skills and/or knowledge the learner will have gained on achievement of the unit. The units may also contain additional information in the assessment context which will describe the areas to be covered and any appropriate assessment guidance and evidence requirements which will outline additional assessment requirements and should be built into assessment plans and included on assessment records. The unit detail will also confirm whether simulation is permitted for that particular unit.

Qualification Assessment and Support Materials

Centres will be sent the following qualification assessment and support materials:

- Assessment Forms - it is not mandatory to use these forms. Centres may wish to use their own assessment documentation - these should be approved by the External Verifier prior to use.
- Learner Guide
- Qualification Handbook
- Registration Spreadsheet & Certification Claim Forms

LEVEL 2 CERTIFICATE IN POLYMER OPERATIONS

Qualification Summary

This qualification will provide recognition of the skills and knowledge of individuals working in the Polymer and Polymer Composite sectors. The qualification contains one Mandatory unit which covers Health and Safety and then learners may choose from Optional units covering starting up, maintaining and shutting down a machine-based production process, inspecting and finishing products, carrying out testing and sampling and other tasks undertaken within the Polymer Industry.

Total Qualification Time (TQT) and Guided Learning Hours (GLH)

Guided Learning Hours (GLH)

Guided Learning Hours are the time the learner is under the immediate supervision or guidance of a lecturer, supervisor, tutor or other appropriate provider or education or training.

The GLH for this qualification is 108

Total Qualification Time (TQT)

Total Qualification Time is comprised of 2 elements:

1. GLH
plus
2. an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by (but not under the immediate supervision of) a lecturer, supervisor, tutor or other appropriate provider or education or training

The TQT for this qualification is 190

Achieving the Qualification

Learners must achieve 6 Units for the qualification.

Mandatory Units: 1 Mandatory Unit.

Optional Units: 5 Optional Units. 2 Optional Units to be taken from Option Group 1, 1 Optional Unit to be taken from each of the Option Groups 2 and 3 and 1 further Optional Unit which may be taken from any of the 3 Option Groups.

Mandatory Unit

Unit No.	Unit Name
POLY 39	Meet Safety, Health and Environmental Requirements in the Workplace within Polymer Processing and Related Environments

Option Group 1 - Process - (2 Units required)

Unit No.	Unit Name
POLY 11	Prepare to Start Up a Machine-Based Production Process within Polymer Processing and Related Environments
POLY 12	Start Up and Maintain a Machine-Based Production Process within Polymer Processing and Related Environments
POLY 13	Shutdown a Machine-Based Production Process within Polymer Processing and Related Environments

Option Group 2 - Quality - (1 Unit required)

Unit No.	Unit Name
POLY 18	Inspect Products within Polymer Processing and Related Environments
POLY 22	Carry Out Simple Sampling Operations within Polymer Processing and Related Environments
POLY 23	Carry Out Simple Testing Operations within Polymer Processing and Related Environments
POLY 41	Contribute to the Maintenance of Product Quality within Polymer Processing and Related Environments

Option Group 3 - Ancillary - (1 Unit required)

Unit No.	Unit Name
POLY 1	Prepare Materials for Processing According to Instructions within Polymer Processing and Related Environments
POLY 17	Finish Products within Polymer Processing and Related Environments
POLY 21	Contribute to the Provision of Ancillary Systems within Polymer Processing and Related Environments
POLY 48	Assemble Products within Polymer Processing and Related Environments
POLY 49	Prepare to Configure Processing Equipment within Polymer Processing and Related Environments
POLY 50	Configure Processing Equipment within Polymer Processing and Related Environments

Progression

This Certificate is part of a suite of qualifications developed from the Polymer/Polymer Composite Operations National Occupational Standards (NOS) at Levels 2 and 3.

Further information can be found on the GQA website www.GQAQualifications.com or on the Register of Regulated Qualifications website <http://register.ofqual.gov.uk>

ASSESSMENT REQUIREMENTS

Assessors must ensure that, when assessing the skills, knowledge and/or understanding, the evidence produced by learners is:

- Valid - does evidence meet the requirements described in the unit?
- Authentic - has the learner produced the evidence?
- Current - has the evidence been produced recently and does it demonstrate current competence?
- Sufficient - is there enough evidence to demonstrate competence?

to enable reliable and consistent judgements to be made about the achievement of all the requirements of the unit(s) and qualification.

GQA Centres must ensure that people involved in the assessment process have the appropriate expertise and are adequately informed and supported to fulfil their responsibilities.

ASSESSMENT STRATEGY

Below is the information to support the assessment requirements of the qualification:

- Mandatory use of evidence from workplace performance
- Use of Simulation
- Occupational competence of assessors and verifiers

Mandatory use of evidence from workplace performance

- a. Unless the use of simulation is expressly permitted within the qualification or unit specific evidence requirements, evidence must demonstrate the learner's competence in a real or realistic environment.
- b. Knowledge and Understanding will be assessed via (pre-set and/or free form) questions, or by inference from performance, which cover three primary types of knowledge:
 - Knowledge of facts and procedures
 - Understanding of principles, concepts and underpinning procedures
 - How to apply principles and procedures in specific contexts

All questions must be asked by the assessor at appropriate moments throughout the assessment process, preferably linked to observed activity and/or review of documentary evidence. The questions asked of, and answers provided by, the learner must be recorded.

Use of Simulation

- c. The qualification or unit specific assessment requirements will define where evidence from simulation is acceptable, and in which contexts.

Simulation should be used only where direct evidence of learner performance cannot be obtained. Under these circumstances simulation may be used for summative assessment. Reasons for the use of simulation should be made clear to and agreed by the external verifier and should include the following details:

- which competence (and standards) the simulation was designed to assess;
- the kind of equipment, facilities and physical environment proposed for the simulation of performance. It is unlikely that the External Verifier will approve a simulation if it does not involve real plant and equipment;
- how the simulated activity relates to the learner's normal work context in terms of the pressures of time, access to resources and access to information, and the communication media; and

- how the simulation was set up and conducted, preferably supported by physical evidence such as photographs or inspection of a test rig.

Assessors, internal verifiers and external verifiers should monitor the proportion of evidence generated via simulations to ensure that it is not the primary source of a learner's claim to competence.

- d. Under these circumstances simulations are reserved for aspects of competence illustrated by the following contexts:
- where demonstration of emergency shutdown and related safety procedures would be; **dangerous and/or disruptive** to plant/environment/individuals; **too costly** such as total plant shutdown or dealing with spillage of dangerous substances; where **issues of confidentiality** restrict access to real work opportunities;
 - demonstrating specific aspects of the operation which rarely or never occur due to effective quality assurance systems;
 - the capacity to integrate disparate knowledge to cope with unforeseen events and to solve problems; or
 - aspects of working relationships and communications for which no opportunity has presented for the use of naturally occurring workplace evidence of learner performance.
- e. Simulation must enable the individual to demonstrate competence in a real or realistic work environment. In this context this means in specialist centres which replicate the workplace in terms of equipment and environment, reflect normal working situations and use relevant industrial or commercial standards and procedures. Short work placements or non-realistic work environments which do not replicate the pressures and requirements of normal commercial or industrial activities will not be acceptable. The bulk of the learner's evidence should be drawn from their normal working activity and not consist of artificially contrived opportunities for one-off demonstration of competence. Similarly equipment must be that used in current commercial and industrial contexts. Procedures and standards used should be those which are nationally or internationally recognised or devised by specific companies as standard operating procedure.
- f. Simulation must enable the individual to acquire his/her skills and knowledge in a realistic work environment. In this context this means in specialist centres which replicate the workplace in terms of equipment and environment, it reflects normal working situations and uses relevant industrial or commercial standards and procedures. Where possible providers should attempt to replicate the pressures and requirements of normal commercial or industrial activities. Equipment must be that used in current commercial and industrial contexts. Procedures and standards used should be those which are nationally or internationally recognised or devised by specific companies as standard operating procedure.
- g. Circumstances outside of those listed in Section D above may also be considered suitable for the use of simulation with the agreement of the External Verifier and GQA. Under these circumstances simulation may be used for formative assessment only.

Occupational competence of Assessor and Verifiers

h. Assessors:

- must be competent in the units they are assessing. This is shown through the assessor having achieved the award they are assessing OR providing quality evidence to the external verifier that they are able to make valid judgements of the competence of learners. This could be done through a combination of a) personal interview, b) review of employment histories and/or c) examination of the assessor's judgement during assessments.
- must have a working knowledge of awards and a full understanding of that part of the award for which they have responsibility.
- should hold or be working towards suitable qualifications for assessment, as defined by GQA.

i. Internal verifiers:

- must be either working in the appropriate sector itself OR they must be able to demonstrate they possess practical and up-to-date knowledge of current working practices appropriate to the sector in which they are carrying out verification practices; and
- must be appointed by a GQA recognised centre
- must have a working knowledge of the awards they are internally verifying
- should hold or be working towards suitable qualifications for verification, as defined by GQA.

ASSESSMENT METHODS AND TYPES OF EVIDENCE

The following section gives information on the different assessment methods/types of evidence that support assessment. The following assessment methods/types of evidence may be used to demonstrate competence or that the learner has achieved the required level of knowledge and understanding.

Observation of Performance

Observation allows the assessor to see learners carrying out their work activities. It will take place primarily in the workplace but can also be undertaken in a training scheme. Natural discussion should take place where possible during observation, allowing the assessor to ask questions relating to what they are observing at the time. Assessors must capture their observations either by a written report and/or other methods (e.g. video, audio recording).

Questioning

This method of assessment can be used to ensure that the learner has knowledge and understanding to support their skills. Questions can be used to check knowledge - these questions can either be verbal during or at the end of an observation, or they can be set in a written format in formal or informal conditions. As some units may focus entirely on learners' knowledge, assessors may encourage a variety of evidence to meet the requirements of the unit - use of verbal and/or written questions, learner statements and professional discussion (see below). Verbal questioning or professional discussion should be captured, either by written notes or audio recording.

Products

Work product evidence may be generated as a result of work activities undertaken by learners, and could include reports, letters, or records of work carried out.

Witness Statement or Testimony

A Witness Statement or Testimony is confirmation by others that the learner carried out an activity or series of activities relevant to the requirements of the unit. It could be written by the learner and signed by the witness to confirm that it did take place, or the witness may write the statement. Alternatively, the assessor could speak to the witness and record the discussion. The statement can then be used as evidence within an assessment.

There may be occasions when an Expert Witness may be required to contribute to the assessment process. GQA's definition of an Expert Witness is 'an experienced employee who works in partnership with the assessor, by observing the learner carrying out their duties and recording their observations in line with the assessment procedures'. It should be noted that while the Expert Witness makes a valued contribution to the assessment process, it is the assessor who makes the assessment decision.

Simulation

Simulations are a source of performance evidence showing how an activity is carried out. Simulations require careful planning to ensure that they reflect as near as possible "real life" conditions and the requirements of the qualification(s). As a result of this the costs to set up a simulation may be considerable. Simulations are likely to be used in the following situations:

- they occur infrequently (e.g. dealing with emergencies)
- they involve unusual working conditions (e.g. working in isolation, outside the workplace)
- the work is hazardous
- it is not cost effective

Any use of simulation should be discussed and agreed with the GQA External Verifier and approved prior to implementation.

Recognition of Prior Learning (RPL)

This is the process whereby credit is given to experienced individuals for their previous achievements. It requires careful mapping of the individual's experience to the unit(s) to ensure that it meets the requirements. This exercise must be referred to the External Verifier to ensure that all the evidence presented is acceptable.

Professional Discussion

A Professional Discussion gives the learner the opportunity to tell their assessor what they are doing and why they are doing it in a particular way. The discussion should be supported by appropriate evidence - an observation report, work product or witness testimony. Professional Discussions should be planned to give the learner the chance to prepare, and should be recorded.

Learner Statements

A Learner Statement is an account of an activity that took place, described by the learner. A detailed statement could demonstrate skill, and also provides evidence of knowledge and understanding. Learner statements should be authenticated by an appropriate person.

Photographs and use of other media

Photographs and use of other media, e.g. video and audio, can provide detail of work activities carried out and questioning. Photographs are more effective when used with supporting statements. Video and audio evidence should be effectively referenced to allow specific activities or questioning to be found easily. It is important to note that if photographs and other media are to be used, the learner and assessor should ensure that permission is gained from all people who may be involved.

GLOSSARY

Term	Definition
Access Arrangements	Arrangements that are approved in advance of an examination or assessment to allow achievement to be demonstrated by learners with a disability, special learning needs (including where the learner's first language is not English, Welsh or Irish) or to avoid unlawful discrimination
Appeal	The process through which an awarding organisation may be challenged on the outcome of an enquiry about results or, where appropriate, other procedural decisions affecting a centre or an individual learner
Assessment	The process of making judgements about the extent to which a learner's work meets the requirements of a unit, or any additional assessment requirements of a qualification
Assessor	A person who assesses a learner's work
Award of Qualifications	A certificate (electronic or paper-based) issued to an individual that recognises their achievement
Award	A qualification with a TQT value between 10 and 129
Awarding Organisation	A body recognised by the qualifications regulators to award qualifications
Centre	An organisation accountable to an awarding organisation for assessment arrangements leading to the award of qualifications
Centre Recognition	A process through which a centre wishing to offer an award or awards is confirmed as being able to maintain the required quality and consistency of assessment, and comply with other requirements of the awarding organisation
Certificate (1) for a Unit or Qualification	A record of attainment of a qualification issued by an awarding organisation
Certificate (2)	A qualification with a TQT value between 130 and 369
Credit	An award that may be made to a learner in recognition of the achievement of a unit or qualification
Credit Value	The number of credits that may be awarded to a learner for the successful achievement of a unit or qualification
Diploma	A qualification with a TQT value of 370 or above
Guided Learning Hours	The number of hours of teacher-supervised or directed study time required to teach a qualification or unit of a qualification
Learning Time	The amount of time a learner at the level of the unit is expected to take, on average, to complete the unit to the standard required
Level	An indication of the relative demand, complexity and/or depth of achievement, and/or the autonomy of the learner in demonstrating that achievement

Term	Definition
Mandatory Units	Units that must be achieved for the qualification to be awarded
National Occupational Standards (NOS)	Describe what a person needs to do, know and understand in a job to carry out the role in a consistent and competent way
Optional Unit	A unit that a learner may choose to complete to achieve the required number of units for award of the qualification
Pathway	A route to the achievement of a qualification that requires particular units to be achieved and is identified by an endorsement to a qualification title
Qualification	An award made to a Learner for the achievement of the required units or other components for that qualification
Qualification Level	An indication of the relative demand, complexity and/or depth of achievement, and/or the autonomy of the learner, represented by a qualification
Qualifications Regulators	Government-designated statutory organisations required to establish national standards for qualifications and secure consistent compliance with them
Recognition of Prior Learning (RPL)	A method of assessment that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and do not need to develop through a course of learning
Sector Skills Council	A body responsible for formulating and reviewing occupational standards for a specific sector across the UK, and for supporting the development of units and qualifications based on these standards. Each SSC is an employer-led, independent organisation and is licensed by government
Standardisation Of Assessment	A process to ensure that assessment leading to the award of qualifications is applied consistently by individuals, centres and awarding organisations
Unique Learner Number (ULN)	The unique number that is used to identify an individual learner
Unit	A component of a qualification

LEVEL 2 CERTIFICATE IN POLYMER OPERATIONS

CONTENT OF THE QUALIFICATION

MANDATORY UNITS

UNIT POLY 39	MEET SAFETY, HEALTH AND ENVIRONMENTAL REQUIREMENTS IN THE WORKPLACE WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	18

Unit Overview

This unit addresses the skills and knowledge required to meet safety, health and environmental requirements in the workplace within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Consistently following Safety, Health and Environmental practices and procedures, including housekeeping, over an 8 week period.
- Reporting hazards relating to all those described in the Assessment Context
- Following procedures for dealing with all types of emergency described in the Assessment Context

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is acceptable in the assessment of this unit.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

Information on use of Assessment Context

This unit is for those with responsibilities for meeting safety, health and environment requirements in the workplace. It is suitable for process industries personnel who work within an organisational context which provides them with specifications to work to and criteria for choosing between possible causes and solutions to the sorts of problems that can arise.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Personal protective equipment appropriate to the task includes: eye protection, hearing protection, safety gloves, safety footwear, hard hats, respirators and personal protective equipment for working in sterile areas.

Report hazards relate to: those that arise from fittings, fixtures and environmental factors in the workplace, the use and disposal of materials and substances, the use and care of equipment and machinery and accidental breakages and spillages.

Procedures and types of emergency relate to: fire, contamination (e.g. from leaks, spillages, gas emission), accident and injury to persons.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to protect the environment	1.1. Identify the hazards to the environment that can arise from processing operations and how to recognise them 1.2. Explain how to comply with the environmental policy and objectives 1.3. Identify the environmental monitoring records that are kept
2. Know how to ensure own safety	2.1. Describe the safety standards that apply to own working environment 2.2. Explain the principles of safe manual handling
3. Be able to ensure own safety	3.1. Check that all guards and protective devices are in position and working before starting the equipment 3.2. Use all work items provided in the workplace correctly
4. Know how to use and care for personal protective equipment	4.1. Identify the personal protective equipment that is appropriate to different tasks, and how to use and maintain it 4.2. Explain how to use noise control equipment and ear protection and why it is important
5. Be able to use and care for personal protective equipment	5.1. Use personal protective equipment correctly and keep it in a fit state for use 5.2. Report the loss or any obvious defects in personal protective equipment to the appropriate person immediately
6. Know how to minimise and deal with hazards	6.1. Identify the hazards associated with own working environment and the risks they pose 6.2. Explain what risk control measures are in place and why it is important to comply with them 6.3. Identify who to report accidents, incidents, hazards and breaches of safety standards to
7. Be able to minimise and deal with hazards	7.1. Identify hazards and take appropriate action 7.2. Follow the designated procedures to deal with hazards encountered at work

	7.3. Report any accidents, potential hazards and hazardous incidents in the work area promptly to the responsible person 7.4. Conduct and present self in the workplace in ways that are safe and do not pose hazards for others
8. Know how to deal with emergencies	8.1. Describe how to prevent emergencies 8.2. Explain what actions to take in an emergency 8.3. Explain what the effects of emergency shutdown are 8.4. Identify when and how to use different types of emergency response equipment 8.5. Identify the location and, where appropriate, the use of fire-fighting equipment
9. Know how to respond to emergency alarms	9.1. Identify the alarm systems that are used and when to use them 9.2. Describe the action taken on an alarm activation
10. Be able to respond to emergency alarms	10.1. Comply fully and promptly with emergency response procedures if an emergency alert is given
11. Be able to deal with accidents and incidents	11.1. Request appropriate assistance without delay on discovering an accident 11.2. Take steps, on discovering an accident, which will limit further injury or damage 11.3. Provide accurate and complete information on accidents and incidents in accordance with required procedures
12. Be able to apply good housekeeping practices	12.1. Keep the work area in a safe, clean and tidy condition 12.2. Minimise the production of waste in the operation
13. Be able to suggest improvements to working practices	13.1. Contribute information and ideas to help improve safety, health and environmental management
14. Know how to work to organisational and operational procedures	14.1. Identify own responsibilities in respect of Health and Safety and Environment and the limit of that responsibility 14.2. Describe the legal responsibility for own health and safety and the health and safety of others 14.3. Explain where to obtain details about safety, health and environmental protection
15. Be able to work to organisational and operational procedures	15.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines 15.2. Use safe manual handling and lifting techniques

OPTION GROUP 1 - PROCESS

UNIT POLY 11 **PREPARE TO START UP A MACHINE-BASED PRODUCTION PROCESS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS**

LEVEL **2**

GUIDED LEARNING HOURS **28**

Unit Overview

This unit addresses the skills and knowledge required to prepare to start up a machine-based production process within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Dealing with all preparations as described in ‘prepare process’ in the Assessment Context
- Dealing with problems relating to equipment and materials
- How to deal with all other types of equipment faults and the appropriate remedial action as described in the Assessment Context
- How to deal with all non-conforming materials and variances as described in the Assessment Context

In order to demonstrate consistent performance, evidence should be provided to show different examples of the learner’s competence in activities relating to this unit.

For the Assessment Criteria relating to the learner’s knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for preparing to start up a machine-based production process to meet processing and production requirements. It is suitable for process operators who work within an organisational context that provides them with procedures to work to and criteria for making decisions and taking actions. The process operation may relate to continuous or batch production and may be a primary or secondary operation.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Production requirements relate to: processing specification, product specification, production schedule, rate of production.

Information relates to: resources, safety, production output, quality of output, communication using oral and written.

Prepare process relates to: cleaning, setting up, service connections, ancillary connections.

Equipment relates to: processing equipment, ancillary equipment, test equipment.

Faults relate to: damage, wear, malfunction, breakage.

Remedial action relates to: reporting faults, isolating defective equipment, requesting specialist assistance.

Relevant people relates to: co-workers, supervisors, technician, manager, Quality Assurance person, Team leader.

Specification information relates to: type and grade of materials, quantity, quality.

Non-conforming materials relates to: incorrect grade, contaminated, inadequately prepared.

Variances relate to: over supply, under supply.

Handling load relates to: manual, mechanical.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to meet production requirements	1.1. Explain where to find production requirements and how to interpret these 1.2. Explain the importance of current, accurate and complete information about production requirements 1.3. Explain the importance of agreeing work allocations to meet production requirements and how to do this
2. Be able to organise preparations for the production process	2.1. Confirm and agree work instructions with colleagues 2.2. Agree the allocation of work to achieve production requirements 2.3. Organise and prepare the work area to be free from potential hazards
3. Know how to prepare equipment for the production process	3.1. Identify the processing and ancillary equipment needed for the process operation 3.2. Explain the importance of preparing equipment to meet production requirements 3.3. Identify the equipment settings required for the process 3.4. Identify the tolerances that apply 3.5. Explain the importance of checking equipment before use

4. Be able to prepare equipment for the production process	4.1. Select and prepare the correct equipment to process materials 4.2. Adjust equipment settings to be within set tolerances 4.3. Integrate equipment operation to maximise output without compromising safety or quality 4.4. Complete equipment safety checks in accordance with organisational procedures
5. Know how to prepare materials for the production process	5.1. Identify where to locate information relating to the type of material being used 5.2. Identify how to interpret the information relating to the type of material being used 5.3. Explain why it is important to understand the type of material being processed, its characteristics and properties 5.4. Identify what preparations are required to meet the material specification 5.5. Identify any significant arrangements from the material safety data sheet 5.6. Explain the importance of product labelling and product codes for material identification 5.7. Describe the requirements and procedures for loading materials
6. Know how to control the use of materials to ensure quality and safety	6.1. Identify the potential effects of using materials out of sequence and how to prevent this from happening 6.2. Explain the importance of meeting the required material specification and the implications of not doing so 6.3. Explain the importance of handling materials or products safely and the risks associated with unsafe handling procedures 6.4. Explain the consequences of different sorts of material variances 6.5. Explain how to identify non-conforming materials and the implications of not doing this 6.6. Identify where non-conforming materials should be placed and who they should be reported to
7. Be able to prepare materials for the production process	7.1. Identify the correct materials and their characteristics 7.2. Prepare and check that the materials conform to the specification 7.3. Identify non-conforming materials and move these to the designated isolation area and report to the appropriate person 7.4. Assemble and load materials in the correct sequence for processing 7.5. Adjust settings to be within set parameters and specifications 7.6. Follow manufacturers' recommended specifications to adjust settings 7.7. Safely dispose of waste materials in accordance with organisational and legal requirements

8. Know how to deal with problems when preparing for the production process	8.1. Identify the actions to take to deal with faulty equipment and the importance of taking prompt action 8.2. Identify who to report equipment defects and deviancies from the set tolerances to 8.3. Identify who to report material variances to
9. Be able to deal with problems when preparing for the production process	9.1. Identify equipment faults and take appropriate action to deal with these 9.2. Identify and respond to problems and difficulties when preparing for a processing operation 9.3. Identify any deviance from set equipment tolerances and report these promptly to the relevant people 9.4. Identify variances in material supply and promptly report these to the appropriate person
10. Know how to maintain records	10.1. Explain what sorts of records are kept and how to complete them 10.2. Explain the purpose of different records and the implications of not maintaining them effectively
11. Be able to maintain records	11.1. Complete and maintain records required for monitoring production, quality and product identification 11.2. Ensure that records are accurate and legible in accordance with organisational requirements
12. Know how to work to organisational and operational procedures	12.1. Explain what the potential work area hazards are and how they can be minimised 12.2. Identify what safety devices and guards are required, what are their specific functions and what safety checks should be carried out on them 12.3. Explain the safe working practices that apply to own job role for processing operations 12.4. Explain the workplace procedures for reporting potential hazards that are not able to be dealt with by self 12.5. Identify own scope and responsibility for dealing with potential hazards in the work area 12.6. Explain what lines of communication and command should be followed in a given situation
13. Be able to work to organisational and operational procedures	13.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines

UNIT POLY 12	START UP AND MAINTAIN A MACHINE-BASED PRODUCTION PROCESS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	28

Unit Overview

This unit addresses the skills and knowledge required to start up and maintain a machine-based production process within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Dealing with problems relating to equipment and materials and taking the appropriate remedial action
- How to deal with all types of problems and faults and the appropriate remedial action as described in the Assessment Context
- How to deal with all types of emergency as described in the Assessment Context

In order to demonstrate consistent performance, evidence should be provided to show different examples of the learner's competence in activities relating to this unit.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for starting up and running a machine-based production process to achieve production requirements. It is suitable for process operators who work within an organisational context that provides them with procedures to work to and criteria for making decisions and taking actions. The process operation may relate to continuous or batch production and may be a primary or secondary operation.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Work methods and techniques relate to: material handling, operation and control of equipment, handling products.

Production requirements relate to: product specification, process specification, production schedule, rate of production, quantity of output.

Problems relate to: services, equipment, materials, products.

Remedial actions relate to: implementing procedures to correct faults within the limits of authority, requesting specialist assistance.

Appropriate action relates to: move them to the designated isolation area, report to the appropriate person.

Emergencies relate to: accident, fire, loss of power, equipment breakdown, hazardous spillage.

Supply relates to: manual, mechanical.

Quality assurance relates to: programmed checks, spot checks.

Faults to include both of the following: specified tolerances, outside specified tolerances.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to meet production requirements	1.1. Describe the function of different processing equipment used and how these interact in the production process 1.2. Explain how to operate and control the processing equipment to achieve and maintain the required running conditions 1.3. Describe how to interpret and use specifications 1.4. Identify which work methods to use to achieve production requirements 1.5. Describe the importance of achieving production requirements and the consequences of not doing so
2. Know how to maintain the production process	2.1. Identify the running conditions required for the process operation 2.2. Identify what the production schedule is and the implications of failing to meet timescales and deadlines 2.3. Explain the importance of disposing of waste materials safely and how to do this 2.4. Identify the effects of downtime and wastage and how these can be minimised 2.5. Identify what services are required to maintain process operations 2.6. Explain the implications of variances in service supply and what actions to take in response to these

3. Be able to start up and maintain the production process	3.1. Start up the production process in accordance with organisational procedures 3.2. Carry out production processes to minimise downtime and wastage 3.3. Forward output to the next operation to meet production requirements 3.4. Meet the requirements for quantity, quality and rate of output
4. Know how to gather the required information about the materials that are to be used	4.1. Identify where to locate information relating to the type of material being used 4.2. Identify how to interpret the information relating to the type of material being used 4.3. Identify any significant arrangements from the material safety data sheet 4.4. Identify the different types of materials required for the process operation, their properties and handling characteristics
5. Know how to use the materials in the production process	5.1. Explain the importance of identifying non-conforming materials and products 5.2. Explain the actions to take in response to these 5.3. Identify what material loading systems are used for the processing operation 5.4. Explain how to use the material loading systems effectively and safely
6. Be able to use the materials in the production process	6.1. Locate and interpret information relating to the type of material and any significant arrangements from the material safety data sheet 6.2. Identify materials and their characteristics in preparation for processing operations 6.3. Adjust settings to be within set parameters and specifications in accordance with the manufacturers' recommended specifications 6.4. Process materials effectively and efficiently 6.5. Ensure the consistency and continuity of material supplies to the process operation to meet production requirements
7. Know how to deal with problems	7.1. Describe the sorts of processing problems that might occur 7.2. Describe the appropriate remedial actions to take in response to processing problems
8. Be able to deal with problems	8.1. Identify and take appropriate actions to deal with start-up problems and emergencies 8.2. Identify processing faults 8.3. Take appropriate remedial action to deal with problems or emergencies

9. Be able to maintain quality	9.1. Identify the purpose and importance of quality assurance checks, and when and how these should be carried out 9.2. Identify equipment and service defects and promptly report these to the appropriate person 9.3. Identify non-conforming materials and take prompt action to isolate and report them to the appropriate person 9.4. Carry out and complete quality assurance checks in accordance with organisational procedures
10. Know how to maintain records	10.1. Explain what sorts of records are kept and how to complete them 10.2. Explain the purpose of different records and the implications of not maintaining them effectively
11. Be able to maintain records	11.1. Complete documentation required for monitoring production, quality and product identification 11.2. Ensure that documentation is accurate and legible in accordance with organisational requirements
12. Know how to work to organisational and operational procedures	12.1. Identify what agreed workplace health and safety procedures relate to controlling risks to Health and Safety in the process environment 12.2. Identify the specific organisational Health and Safety policies covering machine-based processing operations 12.3. Describe the contingency procedures for responding to an accident, fire, loss of power or equipment breakdown 12.4. Explain what safe working practices apply to own job role for machine-based processing operations 12.5. Explain the organisational structure 12.6. Explain why it is important to work within the 'rules' of the organisation
13. Be able to work to organisational and operational procedures	13.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines 13.2. Follow appropriate work methods and techniques to achieve production requirements 13.3. Safely dispose of waste materials in accordance with organisational and legal requirements 13.4. Follow organisational procedures in the event of an emergency

UNIT POLY 13	SHUTDOWN A MACHINE-BASED PRODUCTION PROCESS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	20

Unit Overview

This unit addresses the skills and knowledge required to shutdown a machine-based production process within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Dealing with all aspects of shutdown requirements as described in the Assessment Context
- How to deal with all types of hazard described in the Assessment Context

In order to demonstrate consistent performance, evidence should be provided to show different examples of the learner's competence in activities relating to this unit.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is about shutting down a machine-based production process to meet safety and production requirements. It is suitable for process operators who work within an organisational context that provides them with procedures to work to and criteria for making decisions and taking actions. The process operation may relate to continuous or batch production and may be a primary or secondary operation.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Shutdown requirements relate to: timescale and deadlines, shutdown procedures, cleaning requirements, servicing and maintenance requirements.

Information relates to: oral, written.

Relevant people are: co-workers, service and support personnel.

Hazards and control measures relate to: spillages, obstructions, surplus materials, dangerous substances (e.g. solvents, fumes, hazardous wastes) personal protective equipment.

Re-useable materials relate to: excess materials, part-processed materials or products, recoverable by-products.

Equipment and tools relate to: hand tools, process equipment, ancillary equipment.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to prepare for shutdown	1.1. Identify why co-workers and line managers need to know when shutdown settings have been inputted 1.2. Identify shutdown requirements from specifications, schedules, procedures and instructions 1.3. Identify what cleaning and purging materials are required for the processing equipment 1.4. Describe the associated safety and handling requirements for cleaning and purging materials
2. Be able to prepare to shutdown	2.1. Inform relevant people of the shutdown requirements 2.2. Confirm requirements for the timing of the shutdown 2.3. Agree the procedures to be used for the shutdown 2.4. Confirm an understanding of, and commitment to, shutdown procedures and deadlines with relevant others 2.5. Select cleaning tools and agents in accordance with specified material and equipment requirements 2.6. Clean and tidy the work area and make sure that it is safe and free from potential hazards
3. Know how to prepare the equipment and tools that will be used in the shutdown process	3.1. Explain the importance of cleaning equipment and tools 3.2. Describe how to clean equipment and tools safely and effectively 3.3. Describe the requirements for servicing different equipment and tools 3.4. Identify the organisational procedures for arranging the service of equipment and tools to be carried out
4. Be able to prepare the equipment and tools that will be used in the shutdown process	4.1. Isolate equipment and services from their operating sources 4.2. Ensure equipment and tools are serviced and cleaned in accordance with operational requirements

5. Know how to use materials cost-effectively	5.1. Identify the factors to be taken into account when limiting the supply of materials to the production process 5.2. Explain the implications of limiting materials to both the quality and quantity of outputs produced at the end of the production process and successful shutdown 5.3. Identify the re-useable materials and recoverable by-products that will be left after shutdown 5.4. Identify the actions to take to isolate re-useable materials from waste materials
6. Be able to use materials cost-effectively	6.1. Estimate and limit the quantity of materials required to complete the production run 6.2. Limit supplies to the identified level to minimise waste and surplus 6.3. Identify and separate re-useable materials from waste materials in accordance with organisational requirements
7. Know how to shutdown the production process	7.1. Explain how to confirm shutdown mode 7.2. Explain what shutdown procedures should be inputted and the importance of inputting them correctly 7.3. Explain the importance of stopping processes in the correct sequence 7.4. Explain the consequences of not following the prescribed sequence to shutdown the production process 7.5. Describe the organisational and legal requirements for safely disposing of different types of waste materials
8. Be able to shutdown the production process	8.1. Input shutdown procedures in accordance with organisational procedures 8.2. Set process variables and, where appropriate, services to shutdown mode 8.3. Follow the shutdown procedures in the correct sequence for safe and effective shutdown 8.4. Inform co-workers and line manager to ensure they know that shutdown is taking place 8.5. Dispose of waste materials in accordance with organisational and legal requirements
9. Know how to deal with hazards	9.1. Identify what the potential shutdown hazards are 9.2. Explain personal scope and responsibility for dealing with potential hazards in the work area 9.3. Describe the workplace procedures for reporting potential hazards that are unable to be dealt with by self
10. Be able to deal with hazards	10.1. Identify and take appropriate actions to deal with potential shutdown hazards

11. Know how to maintain records	11.1. Explain what sorts of records are kept and how to complete them 11.2. Explain the purpose of different records and the implications of not maintaining them effectively
12. Be able to maintain records	12.1. Use the relevant documentation 12.2. Maintain records required for monitoring safety, production, quality and traceability 12.3. Forward the completed documentation in accordance with organisational procedures
13. Know how to work to organisational and operational procedures	13.1. Explain what actions can be taken to minimise risk to people, property and the environment 13.2. Identify the specific organisational Health and Safety policies covering the shutdown of machine-based production processes 13.3. Identify the agreed workplace health and safety procedures that relate to controlling risks to Health and Safety in the process environment 13.4. Describe the safe working practices that apply to own job role in shutting down machine-based processing operations 13.5. Describe the lines of communication and command that should be followed in a given situation 13.6. Identify the personal protective equipment that is required for shutdown operations 13.7. Describe how to fit and use personal protective equipment correctly and the actions to take with defective equipment 13.8. Explain why it is important to work within the 'rules' of the organisation
14. Be able to work to organisational and operational procedures	14.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations legislations and guidelines 14.2. Select and correctly fit the personal protective equipment required for shutdown operations

OPTION GROUP 2 - QUALITY

UNIT POLY 18	INSPECT PRODUCTS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	20

Unit Overview

This unit addresses the skills and knowledge required to inspect products within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Carrying out programmed inspections and spot checks of products
- Taking action to deal with non-conforming products as described in the Assessment Context

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is about inspecting products to achieve the required product specifications and quality standards. It is suitable for people who work within an organisational context that provides them with procedures to work to and criteria for making decisions and taking actions. The inspecting process may apply to new or re-treaded tyres, plastic mouldings, extrusions or any other polymer product that requires an inspection operation.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Actions to deal with non-conforming products relate to: segregate, mark or label, record, report.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to maintain quality	1.1. Identify the purpose and importance of product quality checks 1.2. Explain when and how quality checks should be carried out 1.3. Explain the importance of identifying non-conforming products 1.4. Identify the actions to take in response to non-conforming products
2. Be able to maintain quality	2.1. Carry out the required product quality checks 2.2. Ensure that finished products meet the relevant quality standards in accordance with organisational procedures 2.3. Identify non-conforming products 2.4. Take appropriate actions to segregate, mark and report these in accordance with organisational procedures
3. Be able to finish products that meet the required standards	3.1. Identify and label finished products that comply with the required quality standards and meet organisational requirements 3.2. Store finished products to ensure their safety and security and prevent damage
4. Know how to deal with hazards	4.1. Identify what potential hazards are associated with inspection processes 4.2. Identify the appropriate actions required to minimise risk to people, property and the environment 4.3. Identify own scope and responsibility for dealing with potential hazards in the work area 4.4. Explain the workplace procedures for reporting potential hazards that are unable to be dealt with by self
5. Know how to maintain records	5.1. Explain what sorts of records are kept and how to complete them 5.2. Explain the purpose of different records and the implications of not maintaining them effectively
6. Be able to maintain records	6.1. Maintain the records required for monitoring production, quality and product identification on the relevant documentation
7. Know how to work to organisational and operational procedures	7.1. Identify what agreed workplace health and safety procedures relate to controlling risks to Health and Safety in the process environment 7.2. Identify the specific organisational Health and Safety procedures covering inspection operations 7.3. Identify what working practices apply 7.4. Identify what personal protective equipment should be used, how to fit and use it correctly and how to deal with defective equipment

	7.5. Explain what safe working practices apply to personal job role in carrying out inspection operations 7.6. Explain what lines of communication and command should be followed in a given situation 7.7. Explain why it is important to work within the 'rules' of the organisation
8. Be able to work to organisational and operational procedures	8.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines

UNIT POLY 22	CARRY OUT SIMPLE SAMPLING OPERATIONS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	14

Unit Overview

This unit addresses the skills and knowledge required to carry out simple sampling operations within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role.

In order to demonstrate consistent performance, evidence should be provided to show the learner's competence in activities relating to this unit on three different occasions.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for carrying out routine sampling activities using prescribed standard operating procedures involving the taking of basic samples. Such samples require limited judgment and involve following standard operating procedures. The equipment to be used, the conditions necessary for taking the sample and the specific operations to be performed are defined in written instructions. Responsibility is limited to carrying out the defined procedure and recording the result. Any deviations from the standard operating procedures are referred to others for action.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Conditions for sampling access relate to: location; timing; sampling points; frequency; duration; safety, health and environmental impact.

Standard Operating Procedures relate to: organisational requirements, instructions, departmental procedures, codes of practice, organisational requirements, in-house procedures, British, European and International Standards.

Resources relate to: equipment, including personal protective equipment; materials; documentation.

Safe practices relate to: personal protective equipment; safe materials handling; safe lifting and moving techniques; disposal and storage.

Appropriate action relates to: any action taken relating to either materials, personnel and /or equipment within the limits of personal responsibility.

Working practices relate to: those relating to working environment conducive to good health; equipment including personal protective equipment; standard operating procedures; materials; safe disposal of waste and approved codes of practice.

Information to be recorded relates to: time; conditions; location; nature of sample; known hazards; required storage conditions; possible contamination sources.

Documentation relates to: sample taking records, labelling systems and quality assurance results.

Maintain condition of the sample by means of: preservation; transportation; packaging; documentation.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know the factors to consider when carrying out simple sampling operations	1.1. Identify the methods to use for handling, storing and disposing of materials 1.2. Identify the methods to use for safe lifting and handling of materials and equipment 1.3. Explain how to re-use materials
2. Know how to achieve the correct conditions for sampling	2.1. Explain how to control conditions when sampling 2.2. Explain why it is important to maintain conditions when sampling
3. Be able to ensure the correct conditions for sampling	3.1. Ensure that the conditions for sampling are in accordance with laid down procedures 3.2. Ensure that the required resources are available and are appropriate for sampling
4. Know how to care for the equipment that is used for sampling	4.1. Explain how to identify defective equipment used for sampling and the appropriate action to take 4.2. Explain how to clean equipment used in sampling operations
5. Be able to prepare equipment and materials that will be used for sampling	5.1. Check that equipment and materials selected conform to instructions 5.2. Prepare all equipment and materials in accordance with standard operating procedures 5.3. Check that equipment is in calibration
6. Know how to take a sample	6.1. Describe what a sampling plan is 6.2. Explain how to interpret and use a sampling plan 6.3. Identify the methods to use for labelling samples

7. Be able to take a sample	7.1. Follow safe practices when taking the sample 7.2. Obtain, identify and correctly label the required sample 7.3. Ensure that the sample taken meets sample plan procedure
8. Be able to maintain the integrity of the sample	8.1. Maintain the integrity and the condition of the sample according to instructions 8.2. Protect the sample from external sources of contamination
9. Be able to prepare equipment and materials for the next sampling operation	9.1. Clean the sampling equipment and materials to be re-used appropriately 9.2. Dispose of other equipment and materials according to working practice
10. Know how to record the information from the sampling operation	10.1. Explain why it is important to record information accurately and legibly 10.2. Explain how to ensure traceability of samples, and why this is important
11. Be able to record the information from the sampling operation	11.1. Record all information about the sample accurately using appropriate documentation to permit traceability 11.2. Record any deviations from set procedure or anticipated results
12. Know how to act if an abnormal result is found	12.1. Explain how to identify an abnormal sample result 12.2. Identify the actions to take when an abnormal result is found
13. Be able to report abnormal results	13.1. Take the appropriate action when an abnormal result is identified 13.2. Take the appropriate action in the event of abnormal occurrences affecting sample condition
14. Know how to work to organisational and operational procedures	14.1. Explain what own responsibilities are with regard to health, safety and the environment in the working area 14.2. Identify the legal responsibility for personal health and safety, and the health and safety of others 14.3. Identify working practices that ensure the working environment is conducive to good health 14.4. Identify what the approved codes of practice/working practices are and why it is important to follow them
15. Be able to work to organisational and operational procedures	15.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines

UNIT POLY 23	CARRY OUT SIMPLE TESTING OPERATIONS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	18

Unit Overview

This unit addresses the skills and knowledge required to carry out simple testing operations within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role.

In order to demonstrate consistent performance, evidence should be provided to show the learner's competence in activities relating to this unit on three different occasions.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for carrying out simple testing activities using prescribed standard operating procedures to perform basic tests. Such tests require limited judgement by the user and involve following standard operating procedures.

The equipment to be used, the conditions necessary for testing and the specific operations to be performed are defined in written instructions. Responsibility is limited to carrying out the defined procedure and recording the result. Any deviations from the standard operating procedures are referred to others for action.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Serviceable condition relates to: checks on equipment: calibration; serviceability; cleanliness and preparation.

Resources relate to: materials; personal protective equipment; utilities.

Controlled conditions that must be confirmed relates to: health and safety; environment; time; recording systems; cleanliness; any external influences giving rise to variations.

Integrity to be checked relates to: free from subsequent defects, damage and decomposition; homogeneity.
The term sample may include specimen.

Standard operating procedures relate to: organisational requirements, instructions, departmental procedures, codes of practice, organisational requirements, in house procedures, British, European and International standards.

Documentation relates to: standard operating procedures supported by correctly labelled samples and the test results produced from using those samples such as performance reports, pass/fail sheets, test records and quality assurance results, finished test sheets; standard operating procedures supported by performance reports.

Appropriate action relates to: action taken relating to either materials, personnel and/or equipment within the limits of responsibility.

Immediate environment relates to: people; materials; equipment and conditions under which test is conducted.

Information to be recorded relates to: sample identification; results of tests; calculations and data processing; conditions of test.

Relevant people relates to: supervisors, team leaders, managers, heads of departments, health and safety officers.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to achieve the correct conditions for testing operations	1.1. Explain how to check that all the required resources are available and correctly prepared in accordance with standard operating procedures 1.2. Explain why testing conditions are important 1.3. Explain how to control testing conditions
2. Be able to ensure the correct conditions for testing operations	2.1. Ensure that the relevant controlled conditions for testing are present and confirmed 2.2. Ensure the effects of the test on the immediate environment are taken into account
3. Know how to care for the equipment that is used for testing operations	3.1. Explain how to prepare testing equipment 3.2. Explain how to check the calibration of equipment 3.3. Explain how to check that equipment is ready to use 3.4. Identify the correct method of reporting defective equipment
4. Be able to prepare equipment that will be used for testing operations	4.1. Ensure that testing equipment is in a serviceable condition and has been calibrated correctly 4.2. Ensure that the equipment used to prepare the sample is operated in accordance with standard operating procedures 4.3. Identify any unserviceable equipment and report according to agreed procedure
5. Know how to take a sample for testing	5.1. Explain how the integrity and identity of samples should be checked 5.2. Explain the methods of sample preparation that should be used 5.3. Identify the safe storage methods that should be used 5.4. Explain how to calculate test results
6. Be able to take a sample for testing	6.1. Ensure that the correct sample has been selected and conducted safely 6.2. Ensure that the identity of the sample is established 6.3. Check the integrity of the sample 6.4. Handle and use test samples safely in accordance with standard operating procedures 6.5. Prepare and test samples in accordance with standard operating procedures 6.6. Identify and store test samples correctly until required 6.7. Restore the working area to an appropriate condition 6.8. Perform simple calculations following set procedures
7. Be able to prepare for the next test	7.1. Clean and store appropriately any equipment and materials that are to be re-used

8. Know how to record the information from the testing operation	8.1. Explain what documentation to use and why it is important to complete it accurately and legibly 8.2. Explain how to present the test result information
9. Be able to record the information from the testing operation	9.1. Check that the correct documentation is available before testing commences 9.2. Ensure that the correct documentation is completed and stored in accordance with standard operating procedures 9.3. Record relevant information and data according to standard operating procedures 9.4. Record any deviations from set procedure using appropriate documentation
10. Know how to act if an abnormal result is found	10.1. Describe when and how to take appropriate action in the event of deviations 10.2. Identify who to report deviations to and what information they will need
11. Be able to report deviations and abnormalities	11.1. Report any deviations from expected results promptly to the relevant people
12. Know how to work to organisational and operational procedures	12.1. Explain what own responsibilities are with regard to health, safety and the environment in the working area 12.2. Identify what the approved codes of practice are and why it is important to follow them 12.3. Describe the organisation's policy and procedures on safe working practices 12.4. Explain why it is important to follow safe operating procedures when using equipment and/or materials 12.5. Identify the methods that should be used for the safe disposal of materials and waste
13. Be able to work to organisational and operational procedures	13.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines 13.2. Deal with any waste material in accordance with standard operating procedures 13.3. Handle and dispose of safely and correctly any other equipment and materials

UNIT POLY 41	CONTRIBUTE TO THE MAINTENANCE OF PRODUCT QUALITY WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	1
GUIDED LEARNING HOURS	18

Unit Overview

This unit addresses the skills and knowledge required to contribute to the maintenance of product quality within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Carrying out either programmed quality checks or spot checks
- How to deal with all types of non-conforming items as described in the Assessment Context

In order to demonstrate consistent performance, evidence should be provided to show different examples of the learner's competence in activities relating to this unit.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is acceptable in the assessment of this unit.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

Information on use of Assessment Context

This unit is for those with responsibility for contributing to the maintenance of product quality by following clearly defined procedures to check for and respond to problems with products or materials. It is suitable for process industries' personnel who work within an organisational context which provides them with specifications to work to and requires them to play an active role in ensuring quality.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Quality checks can be: spot checks and programmed checks.

Records can be: oral, written and use of IT.

Non-conforming items can be: incorrect grade, not meeting quality specification or contamination.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Understand how process materials affect the quality checks that are carried out	1.1. Identify the importance of understanding the types of material being processed
2. Know how to prepare for quality checks	2.1. Identify where to locate information relating to the type of material 2.2. Identify any special arrangements from the material safety data sheet 2.3. Identify quality requirements from operating/sampling instructions or guidance materials 2.4. Identify materials being processed
3. Know how to make quality checks	3.1. Outline the quality control measurements that are taken with regard to product quality 3.2. Identify at what stages in production product quality is checked 3.3. Outline the quality control systems present in the workplace
4. Be able to make quality checks	4.1. Make the quality checks required in accordance with operating/sampling instructions 4.2. Label and record appropriately
5. Know how to record the results of quality checks	5.1. Identify the sorts of records kept, where they are stored and who has access to them 5.2. Outline how to complete the records that need to be kept
6. Be able to record the results of quality checks	6.1. Clearly and accurately record all information
7. Know how to deal with problems	7.1. Identify typical problems that may occur and how to deal with them 7.2. Identify who to report problems to that are beyond own control
8. Be able to deal with problems	8.1. Segregate non-conforming items according to the operating/sampling instruction 8.2. Promptly identify quality problems 8.3. Deal with problems that are within own area of responsibility 8.4. Report any problems that cannot be solved and that are outside own area of responsibility
9. Know how to work to organisational and operational procedures	9.1. Identify what working practices apply 9.2. Identify the lines of communication and procedures that should be followed in a given situation 9.3. Indicate why it is important to work within the 'rules' of the organisation 9.4. Identify when and how to wear personal protective equipment 9.5. State what personal responsibilities are with regard to health and safety

10. Be able to work to organisational and operational procedures	10.1. Wear PPE when appropriate 10.2. Work safely at all times 10.3. Communicate to give accurate information at all times
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OPTION GROUP 3 - ANCILLARY

UNIT POLY 1	PREPARE MATERIALS FOR PROCESSING ACCORDING TO INSTRUCTIONS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	14

Unit Overview

This unit addresses the skills and knowledge required to prepare materials for processing according to instructions within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Using two of the measuring systems described in the Assessment Context
- Dealing with problems relating to materials and equipment
- How to handle materials described in 'monitoring' in the Assessment Context

In order to demonstrate consistent performance, evidence should be provided to show different examples of the learner's competence in activities relating to this unit.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

Information on use of Assessment Context

This unit is for those with responsibility for preparing processing materials according to instructions to ensure that they are handled in a way that is safe and that contributes to the business success of the organisation. It is suitable for process industries personnel who have material preparation responsibilities.

This unit deals with the following:

- Measure out materials in specified quantities
- Prepare materials for process operations
- Having sound knowledge of materials of process operation

During this work the learner must take account of the relevant operational requirements and safe working practices AS THEY APPLY TO THE LEARNER.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Measuring: automated measuring, semi-automated measuring, manual measuring, computer controlled measuring.

Preparation and handling of materials include: raw materials, resins, pellets, granules, powders, liquids, bales, colour, additives.

Organisation requirements: those with specific safety, health and environment implications which require the use of Personal Protective Equipment.

Monitoring: those which are easily damaged, spilled or easily contaminated, materials with a very high value, materials with specific storage arrangements.

Problems: materials do not meet quality or condition specification, faulty or defective handling or measuring equipment.

Materials: identify type of material being processed and their properties. Locate and interpret information relating to materials being processed including any significant hazards or special arrangements from the material safety data sheet. Cost appropriate to material being processed.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to measure out materials in specified quantities	1.1. Describe how to measure out specified quantities of materials 1.2. Identify materials / products used in the process environment
2. Know how to prepare materials for process operations	2.1. Explain why material has to be prepared 2.2. Describe why it is important to understand the type of material being processed and their characteristics and properties 2.3. Identify what precautions and procedures should be applied when handling materials and in storage
3. Know how to locate and interpret information, specification and records	3.1. Identify where to locate and interpret information relating to the type of material and any significant arrangements from the material safety data sheet 3.2. Identify where to get the specification for a job 3.3. State why it is important to make sure the specification is met 3.4. Describe how to read and interpret a specification 3.5. Identify what sort of records are kept and how to complete them

4. Know how to identify hazards and risks	4.1. Identify what hazards to people and the environment arise from materials 4.2. Identify the risks associated with the working environment 4.3. Identify what risk control measures are in place and how to comply with them
5. Know how to work to organisational and operational procedures	5.1. Identify the safety standards which apply to the process environment 5.2. State the safety, health and environmental procedures for the materials in use 5.3. Identify what personal protective equipment is required
6. Be able to measure out materials in specified quantities	6.1. Check that any unusual quantities stated in work instructions are correct before starting the task 6.2. Measure out the quantities required accurately, keeping material wastage to a minimum 6.3. Use measuring or metering equipment and systems safely and effectively
7. Be able to prepare materials for process operations	7.1. Control material preparation so that specification is met 7.2. Use material handling techniques which are safe and which keep material wastage to a minimum 7.3. Operate preparation equipment safely and effectively 7.4. Prepare materials for use by blending and temperature control 7.5. Check that the material matches the specification 7.6. Identify materials being processed and their basic characteristics
8. Be able to control the use of materials to ensure quality and safety	8.1. Be aware of and ensure material quality is maintained 8.2. Promptly report any problems that cannot be dealt with personally 8.3. Keep up to date, accurate and complete records 8.4. Accurately and promptly report any damage, loss and contamination to materials within area of personal responsibility, and prevent the materials from being used until the problem has been dealt with 8.5. Check that materials are within specification before transferring them onto the next stage
9. Be able to work to organisational and operational procedures	9.1. Obtain and work to the correct instructions 9.2. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines

UNIT POLY 17	FINISH PRODUCTS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	14

Unit Overview

This unit addresses the skills and knowledge required to finish products within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Meeting all product specification and production requirements as described in the Assessment Context
- Dealing with problems relating to product quality and potential workplace hazards

In order to demonstrate consistent performance, evidence should be provided to show different examples of the learner's competence in activities relating to this unit.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is about finishing products to achieve the required product specifications and quality standards. It is suitable for people who work within an organisational context that provides them with procedures to work to and criteria for making decisions and taking actions. The finishing process may apply to new or re-treaded tyres, plastic mouldings, extrusions or any other polymer product that requires a finishing operation.

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Work methods and techniques relate to: trimming, minor assembly and packing.

Product specification relates to: finishing requirements, quantity, quality.

Production requirements relate to: production schedule, rate of production, quality of output.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to meet production requirements	1.1. Explain how to interpret and use product specifications to identify finishing requirements 1.2. Explain the importance of achieving production requirements and the consequences of not doing so 1.3. Identify the work methods and techniques that should be used to achieve different product specifications
2. Be able to meet production requirements	2.1. Identify handling tasks which require the assistance of others and seek appropriate assistance promptly 2.2. Use appropriate work methods and techniques to handle products, operate tools and equipment 2.3. Sequence activities to achieve the product specification and production requirements
3. Know how to finish products	3.1. Identify the effects of downtime and wastage and how these can be minimised 3.2. Explain the importance of disposing of waste materials safely and how to do this 3.3. Identify the organisational requirements for maintaining the condition, safety and security of finished products 3.4. Describe the working practices and authorisations that apply to finishing products
4. Be able to finish products	4.1. Prepare work area for finishing operations 4.2. Identify and label finished products that comply with quality standards and meets organisational requirements 4.3. Forward finished components to the next operation to meet production requirements 4.4. Store finished products according to customer or organisational requirements 4.5. Leave the work area clean and tidy after finished product has been safely and securely stored
5. Know how to deal with problems	5.1. Describe the sorts of problems that might occur when finishing products
6. Be able to deal with problems	6.1. Deal promptly and effectively with any problems within personal control 6.2. Report problems that cannot be solved

7. Be able to maintain quality	7.1. Segregate and clearly identify non-conforming products in accordance with organisational procedures 7.2. Work to achieve the required quantity and quality of output 7.3. Minimise downtime, wastage and risks to people, property and the environment
8. Know how to deal with hazards	8.1. Identify what potential hazards are associated with finishing processes 8.2. Identify the appropriate actions required to minimise risk to people, property and the environment 8.3. Identify own scope and responsibility for dealing with potential hazards in the work area 8.4. Explain the workplace procedures for reporting potential hazards that are unable to be dealt with personally
9. Be able to deal with hazards	9.1. Identify and take prompt and effective action against potential hazards to minimise risks to people, property and the environment
10. Know how to maintain records	10.1. Explain what sorts of records are kept and how to complete them
11. Be able to maintain records	11.1. Complete information on the relevant documentation accurately and legibly
12. Know how to work to organisational and operational procedures	12.1. Identify what agreed workplace health and safety procedures relate to controlling risks to Health and Safety in the process environment 12.2. Identify the specific organisational Health and Safety procedures covering finishing operations 12.3. Identify what personal protective equipment should be used, how to fit and use it correctly and how to deal with defective equipment 12.4. Explain what safe working practices apply to personal job role in finishing products
13. Be able to work to organisational and operational procedures	13.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines 13.2. Safely and effectively dispose of waste materials in accordance with organisational and legal requirements

UNIT POLY 21	CONTRIBUTE TO THE PROVISION OF ANCILLARY SYSTEMS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	26

Unit Overview

This unit addresses the skills and knowledge required to contribute to the provision of ancillary systems within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Ensuring necessary maintenance is carried out by self (minor servicing) and maintenance staff
- Dealing with problems that can be solved by simple adjustment and those that require engineering/maintenance support

In order to demonstrate consistent performance, evidence should be provided to show three different examples of the learner's competence in activities relating to this unit.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for contributing to the provision of ancillary systems to ensure that processes run in an optimum manner. It is suitable for process industries personnel who have responsibility for ancillary systems linked to process operations and who work within an organisational context which provides them with specifications to work to and criteria for choosing between possible causes and solutions to the sorts of problems that can arise. Typical examples of ancillary systems might include:-

- Heating/cooling systems
- Generators, conveyors

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Necessary maintenance relates to: minor servicing carried out by self, routine maintenance carried out by maintenance staff according to the schedule.

Problems relate to: those can be dealt with by self by simple adjustments to the system, those which require specialist engineering/maintenance support.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to provide ancillary systems to meet production requirements	1.1. Describe what ancillary systems are used in the process and what they do 1.2. Explain how to start up, shutdown and control ancillary systems
2. Be able to provide ancillary systems to meet production requirements	2.1. Start up and shutdown the operation of ancillary systems to meet production schedules 2.2. Make sure that other people working on the process know when ancillary systems are in operation
3. Know how to control and regulate ancillary systems	3.1. Explain why it is important to make sure that the outputs of ancillary systems meet the specification
4. Be able to control and regulate ancillary systems	4.1. Regulate ancillary systems to produce the outputs needed to support the process 4.2. Check the condition of ancillary systems at scheduled intervals during operations 4.3. Monitor the ancillary system to ensure correct working order 4.4. Keep accurate, complete and up to date records of the condition of ancillary systems and equipment
5. Know how to maintain the condition of ancillary systems	5.1. Identify the tests and checks that are carried out to ensure that ancillary systems are running properly 5.2. Identify how to call for maintenance and engineering support
6. Be able to maintain the condition of ancillary systems	6.1. Carry out simple operational tests to check ancillary systems process settings against operational requirements 6.2. Carry out required operational tests accurately and safely 6.3. Ensure that any necessary maintenance is carried out
7. Know how to deal with problems	7.1. Describe the procedures that should be followed in the event of emergencies or hazardous occurrences 7.2. Identify the sorts of risks that are present in a process environment 7.3. Identify the risk control measures that are in place and why it is important to comply with them 7.4. Describe the alarm systems that are used and when to use them 7.5. Explain the effects of an emergency shutdown

8. Be able to deal with problems	8.1. Shutdown and isolate ancillary systems promptly and safely in an emergency 8.2. Call for specialist support promptly when there are faults and unusual conditions in ancillary systems 8.3. Act promptly to deal with problems with ancillary systems 8.4. Maintain safe control of ancillary systems during operation
9. Know how to work to organisational and operational procedures	9.1. Identify the relevant Health and Safety legislation, regulations and safe working practices and procedures that apply 9.2. Identify responsibilities for own safety and that of colleagues 9.3. Describe the sorts of records that are kept and how to complete them
10. Be able to work to organisational and operational procedures	10.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines 10.2. Follow the safety, health and environmental procedures relevant to work on and around ancillary systems 10.3. Follow personal protective equipment requirements appropriate to different processing tasks 10.4. Work in line with the standard operating procedures for the system

UNIT POLY 48	ASSEMBLE PRODUCTS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	16

Unit Overview

This unit addresses the skills and knowledge required to assemble products within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role. For this unit this should include evidence of:

- Dealing with workplace hazards and problems relating to equipment and materials/products and taking appropriate remedial action
- How to deal with all other hazards and problems described in the Assessment Context

In order to demonstrate consistent performance, evidence should be provided to show different examples of the learner's competence in activities relating to this unit.

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is about assembling products to achieve product specifications and production requirements. It is suitable for process operators who work within an organisational context that provides them with procedures to work to and criteria for making decisions and taking actions.

Examples of production operations that might be involved include:-

- Assembly
- Sub Assembly

During this work the learner must take account of the relevant worksite operational requirements, procedures and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining **all relevant** health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Product specification relates to: processing requirements, quality, quantity.

Work methods and techniques relate to: material and product handling, operation and control of equipment and tools, sequencing process operations.

Production requirements relate to: rate of production, production schedule.

Problems relate to: equipment and tool malfunction, variances in material supplies, non-conforming materials or products.

Remedial actions relate to: implementing procedures to correct faults within the limits of authority, requesting specialist assistance.

Quality checks relate to: programmed checks, spot checks.

Prepare process relates to: protection of the product, storage requirements, safety, security.

Hazards and control measures relate to: spillages, obstructions, surplus materials, dangerous substances (*e.g. solvents, fumes, hazardous wastes*) dangerous machinery, equipment and tools, personal protective equipment.

Equipment and tools relate to: hand tools, hand held power tools, process equipment, ancillary equipment.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to meet production requirements	1.1. Describe what documentation is required to meet product specification 1.2. Describe the action to take if documentation contains inaccuracies or omissions 1.3. Explain the effects of downtime and wastage and how these can be minimised 1.4. Identify to whom you should report concerns relating to assembly processes
2. Be able to utilise documentation to produce products to specification	2.1. Identify assembly requirements using production documentation 2.2. Record required information 2.3. Report promptly and concisely issues related to documentation or assembly process
3. Know how to assemble products	3.1. State what equipment, tools and components are required to assemble products 3.2. Describe how to identify materials and components 3.3. Describe the correct sequence for the assembly process 3.4. State what quality checks and samples are used during assembly
4. Be able to assemble products to specification	4.1. Confirm the identity and conformity of materials and components prior to use 4.2. Carry out assembly in the correct sequence 4.3. Use tools and equipment in an effective manner 4.4. Ensure material and component supply maintains the production schedule 4.5. Ensure checks are carried out in line with company quality requirements

5. Know how to deal with non-conforming products during assembly	5.1. State how to identify non-conforming components and products 5.2. Describe common assembly faults and how these should be dealt with 5.3. Identify which products or assembly components can be reused and/or recycled 5.4. Explain the importance of labelling non-conforming products or components 5.5. Explain the effects of downtime and wastage 5.6. Describe the process to isolate and report non-conforming products
6. Be able check assembled products	6.1. Carry out quality checks against sample/specification 6.2. Recognise and react to assembly related faults 6.3. Monitor and adjust conditions and settings to maintain the product quality 6.4. Ensure correct procedures are followed regarding rework and recycling 6.5. Store products according to requirements 6.6. Complete required documentation
7. Know how to assemble products in safe manner	7.1. State what potential hazards are associated with assembly processes 7.2. Describe the organisational requirements for the safe and secure storage of products, components and equipment 7.3. State what personal protective equipment should be used, how to fit and use it correctly and how to deal with defective equipment 7.4. Describe how to safely and effectively dispose of waste materials in accordance with organisational and legal requirements 7.5. State to whom hazards or concerns regarding health and safety should be reported
8. Be able to carry out a assembly process safely	8.1. Identify and take prompt and effective action against potential hazards to minimise risks to people, property and the environment 8.2. Use personal protective equipment as required 8.3. Store materials and equipment safely and securely 8.4. Safely and effectively dispose of waste materials in accordance with organisational and legal requirements 8.5. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines

UNIT POLY 49	PREPARE TO CONFIGURE PROCESSING EQUIPMENT WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	33

Unit Overview

This unit addresses the skills and knowledge required to carry out the necessary preparations for un-mounting, mounting and initially set up a forming tool including any ancillary equipment.

It is suitable for process industries personnel who work within an organisational context that provides them with procedures to work to and clear criteria for making decisions and taking actions. The processing equipment may be for continuous or batch production and should include ancillary equipment. Configuring process equipment may involve, for example, mounting moulds or extrusion dies within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role.

In order to demonstrate consistent performance, evidence should be provided to show the learner's competence in activities relating to this unit on three different occasions

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

Information on use of Assessment Context

This unit is for those with responsibility for preparing forming tools, processing equipment and where applicable ancillary equipment for the mounting of the forming tool in that is safe and that contributes to the business success of the organisation. It is suitable for process industries personnel who have forming tool set up responsibilities.

This unit deals with the following:

- Establishing configuration and production requirements
- Organising the work area and communication with relevant people
- Carrying out forming tool servicing and maintenance Having knowledge of safe and effective procedures and methods for handling, mounting and dealing with associated hazards

During this work the learner must take account of the relevant operational requirements and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Production requirements relate to: the forming tool required and any attachments, production schedule, timescales

Information relates to: resources, safety, communication using oral, written or computer input

Lifting and handling relates to: equipment required or manual lifting and handling methods, assistance from others

Forming tool service requirements relates to: checking, cleaning, any lubrication.

Records and documents relates to: safety checklist, forming tool preparation checklist, production schedule

Configuration procedures relates to: connection of services, securing methods, preparation of ancillaries and any attachments

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Establish configuration requirements for processing equipment	1.1. Identify all the information required for the task 1.2. Confirm the production requirements for processing equipment 1.3. Identify any inadequate information 1.4. Identify the forming and ancillary equipment required 1.5. Identify the lifting and handling requirements 1.6. Confirm processing equipment and forming tool specifications 1.7. Identify the timescales involved
2. Know the required information to prepare processing equipment within polymer processing and related environments	2.1. Describe how to establish configuration requirements from schedules, specifications and procedures 2.2. Describe the significance of process settings to configuration requirements 2.3. State what working practices and authorisations apply 2.4. Describe the records and documents that should be kept and how they should be completed 2.5. Describe the purpose of records and documents and the implications of not maintaining them
3. Communicate the configuration requirements to the required personnel within polymer processing and related environments	3.1. Decide the information that should be communicated 3.2. Present the information clearly and accurately using the appropriate medium and communicate to the appropriate people 3.3. Respond to any enquiries quickly and accurately

4. Know how to communicate configuration requirements effectively within polymer processing and related environments	4.1. Describe the importance of briefing others to achieve objectives and deadlines 4.2. Describe the importance of informing people of work requirements and potential hazards and problems 4.3. Explain why it is important to follow the procedures of the organisation
5. Organise and prepare the work area using safe working practices for configuring processing equipment within polymer processing and related environments	5.1. Work safely at all times, complying with relevant health and safety regulations, legislation and guidelines 5.2. Take action against potential hazards in polymer processing and related environments 5.3. Organise the work area to meet operational requirements 5.4. Identify and obtain all necessary tools for polymer processing 5.5. Obtain and work to the correct configuration procedures 5.6. Ensure the work area and equipment is safe and uncluttered for use in polymer processing
6. Know how to organise and prepare a safe environment for configuring processing equipment	6.1. Describe potential hazards in the workplace and what actions should be taken to minimise risk to people, property and the environment 6.2. Describe the potential hazards associated with changing a forming tool and what actions should be taken to minimise risk to people, property and the environment 6.3. List the workplace health and safety procedures that relate to controlling risks to Health and Safety in the process environment 6.4. Describe the specific organisational Health and Safety procedures covering the configuration of processing equipment 6.5. Describe the safe working practices that apply to the job role in configuring processing equipment 6.6. Outline the personal protective equipment which should be used, how to fit and use it correctly and how to deal with defective equipment 6.7. Describe the personal responsibilities for dealing with potential hazards in the work area 6.8. Describe the workplace procedures for reporting potential hazards that cannot be dealt with personally
7. Prepare the processing equipment and forming tools for configuring processing equipment	7.1. Ensure processing equipment is in a safe condition 7.2. Isolate appropriate processing and ancillary equipment 7.3. Identify any forming tool servicing requirements 7.4. Identify the forming tool attachments required 7.5. Identify services required 7.6. Identify and select suitable process support and ancillary equipment and their connections

8. Know the requirements for preparing processing equipment for re-configuring	8.1. Outline the operation of the processing equipment 8.2. Describe the importance of carrying out forming tool maintenance and the consequences of not doing this correctly 8.3. Describe the importance of ensuring that processing and ancillary equipment is safe and isolated from services before carrying out any preparation tasks 8.4. Outline the consequences of damage to equipment in terms of repair and replacement costs and loss of production 8.5. Describe the function and operation of the forming tool 8.6. Describe the function and operation of any ancillary equipment used with the forming tool
9. Prepare lifting and handling equipment	9.1. Identify lifting requirements for the configuration 9.2. Identify any handling equipment for moving the forming tool 9.3. Ensure the availability of suitable lifting and handling equipment 9.4. Ensure any lifting and handling equipment is safe and appropriate
10. Know the requirements and limitations of lifting and handling of forming tools	10.1. Describe safe manual handling techniques 10.2. List what removal equipment is required, the checks that should be carried out and how to report defects and deficiencies

UNIT POLY 50	CONFIGURE PROCESSING EQUIPMENT WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	2
GUIDED LEARNING HOURS	31

Unit Overview

This unit addresses the skills and knowledge required to un-mount, mount and initially set up a forming tool including any ancillary equipment.

It is suitable for process industries personnel who work within an organisational context that provides them with procedures to work to and clear criteria for making decisions and taking actions. The processing equipment may be for continuous or batch production and should include ancillary equipment. Configuring process equipment may involve, for example, mounting moulds or extrusion dies within polymer processing and related environments.

Assessment Guidance and Evidence Requirements

Evidence Requirements

The learner should provide evidence to meet the requirements of the Assessment Criteria, and those aspects of the Assessment Context (described below) that are relevant to their workplace and work role.

In order to demonstrate consistent performance, evidence should be provided to show the learner's competence in activities relating to this unit on three different occasions

For the Assessment Criteria relating to the learner's knowledge, different types of evidence and assessment methods could be used, for example learner statements, questioning and professional discussion which should be recorded for verification.

Assessment Guidance

- The use of simulation is not acceptable in the assessment of this unit.
- Workplace performance evidence is mandatory.
- This unit is subject to the requirements of GQA as set out in this Qualification Handbook.
- The assumption is made that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

Information on use of Assessment Context

During this work the learner must take account of the relevant operational requirements and safe working practices as they apply to the learner.

Regulations and guidelines include: maintaining all relevant health, safety and environmental requirements and regulations. Work within the scope of the standard operating procedure or in accordance with organisational procedures and guidelines.

Lifting requirements relate to: mechanical or manual methods e.g. hoist or manual lifting and handling of the forming tool

Configuration relates to: securing, aligning, connecting to services, fitting any attachments, establishing any movements

Authorisation relates to: requirements for formal training and licensing to operate mechanical lifting and moving equipment

Settings relates to: processing values e.g. temperatures, speeds, pressures

Documentation relates to: safety checklists, fitting/set-up reports, written requests for specialist support

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Remove the forming tool and ancillary equipment	1.1. Work safely at all times, complying with relevant health and safety regulations, legislation and guidelines 1.2. Take action against potential hazards when removing the forming tool and ancillary equipment 1.3. Confirm that the ancillary equipment and forming tool are safe and isolated ready for removal 1.4. Remove existing ancillary connections and equipment using safe working practices 1.5. Select appropriate lifting requirements and remove existing forming tool from machine using safe working practices 1.6. Operate any lifting equipment and handling equipment following safe systems of work 1.7. Disconnect and store ancillary equipment and connections according to safe systems of work 1.8. Store forming tool and attachments using safe systems of work
2. Know the safe working practices and procedures when removing forming tools	2.1. Describe the importance of checking that equipment is safe and isolated from services before starting work on it, and the checks and actions required to confirm this 2.2. State the potential hazards associated with removal of the forming tool and ancillary equipment and what actions to take to minimise risks to people, property and the environment 2.3. Describe the organisational procedures and requirements for storing forming tools and ancillary equipment when not in use 2.4. State the importance of protecting the forming tool and ancillary equipment from damage and the cost implications of damage in terms of repair, replacement and lost production
3. Replace the forming tool and ancillary equipment	3.1. Work safely at all times, complying with relevant health and safety regulations, legislation and guidelines 3.2. Take action against potential hazards when replacing the forming tool and ancillary equipment 3.3. Select appropriate lifting and handling equipment 3.4. Identify and prepare forming tool attachments and connect to forming tool using safe working practices

	3.5. Identify and use appropriate hand tools and equipment 3.6. Prepare the machine for the forming tool 3.7. Manoeuvre and lift the forming tool to the machine 3.8. Align and secure the forming tool into the machine following safe systems of work 3.9. Connect the required services and confirm they are safe and secure 3.10. Position and attach the ancillary equipment ensuring it is secure and safe
4. Know the safe working practices and procedures when replacing forming tools	4.1. Describe what equipment and tools are required for the configuration of the forming tool and what safety and performance standards apply 4.2. Describe the importance of safe lifting techniques and the risks associated with unsafe lifting practices 4.3. Describe the importance of correct alignment and configuration of the forming tool and the implications of not achieving this 4.4. Outline what working practices and authorisations apply to replacing forming tools
5. Ensure the safety of the process equipment and work area within polymer processing and related environments	5.1. Ensure the work area is safe, tidy and hazard free 5.2. Take action against potential hazards when working with processing equipment 5.3. Carry out prescribed safety checks on the processing equipment according to procedures 5.4. Confirm the processing equipment is safe and ready for production
6. Know the safety requirements for the process equipment and work area	6.1. Describe the importance of safety inspections and how and when these should be carried out 6.2. List the workplace health and safety procedures that relate to controlling risks to Health and Safety in the process environment 6.3. List the specific organisational Health and Safety procedures covering the configuration of processing equipment 6.4. Outline what safe working practices apply to the job role when configuring processing equipment 6.5. Describe the personal protective equipment that should be used, how to fit and use it correctly and how to deal with defective equipment 6.6. Describe the workplace procedures for reporting potential hazards that cannot be dealt with personally
7. Handover equipment for production activity within polymer processing and related environments	7.1. Identify and input pre-set parameters 7.2. Ensure any settings meet requirements 7.3. Carry out any pre-processing checks 7.4. Work safely at all times, complying with relevant health and safety regulations, legislation and guidelines

	7.5. Take prompt action against potential hazards when handing over equipment in polymer processing and related environments 7.6. Complete any required documentation clearly and accurately 7.7. Establish that the installation and area is ready for production set up including support equipment and services
8. Know the requirements for handing over equipment for production activities	8.1. Describe the importance of checking the safety and functioning of equipment and how this should be completed before handing it over for production 8.2. Describe the potential hazards associated with handover and what actions to take to minimise risks to people, property and the environment 8.3. Describe the importance of setting and adjusting pre-processing parameters and how this should be completed 8.4. Describe the importance of following the prescribed sequence of handover actions and the implications of not doing this 8.5. Describe the purpose of records and the implications of not maintaining them effectively