

GQA PAA\VQSET LEVEL 3 CERTIFICATE IN POLYMER OPERATIONS

603/2792/3

Centre Qualification Handbook

**Competence-based Qualifications
AUGUST 2021 V1**

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PAA\VQ-SET

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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 3 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 covers health, safety and environmental requirements, diagnosing and dealing with process problems, configuring process systems and optimising process operations. Learners may then choose from Optional Units covering carrying out routine servicing, complex sampling operations, providing technical support and planning polymer process activities.

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 198

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 350

Achieving the Qualification

Learner must achieve 6 Units for the qualification.

Mandatory Units: 4 Mandatory Units.

Optional Units: 2 Optional Units.

Mandatory Units

Unit No.	Unit Name
POLY 39	Meet Safety, Health and Environmental Requirements in the Workplace within Polymer Processing and Related Environments
POLY 47	Rectify Process Problems within Polymer Processing and Related Environments
POLY 29	Configure and Set Processing Systems to Meet Production Requirements within Polymer Processing and Related Environments
POLY 30	Optimise Operations Which are Under Process Control within Polymer Processing and Related Environments

Optional Units - (2 Units required)

Unit No.	Unit Name
POLY 27	Carry Out Routine Servicing Procedures on Polymer Process Plant and Equipment within Polymer Processing and Related Environments
POLY 34	Carry Out Complex Sampling Operations within Polymer Processing and Related Environments
POLY 36	Provide Technical Support within Polymer Processing and Related Environments
POLY 38	Plan Polymer Process Activities 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 3 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

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

UNIT POLY 47	RECTIFY PROCESS PROBLEMS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	3
GUIDED LEARNING HOURS	40

Unit Overview

This unit addresses the skills and knowledge required to rectify process problems 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 process problems relating to equipment and materials, and taking actions as described in the Assessment Context
- How to deal with all other types of problems 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 a technician with relevant technical training, seeking accreditation for their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for rectifying process quality problems to ensure that processes run in an optimum manner. It is suitable for process industries personnel who have responsibility for rectifying process quality problems. The unit demands effective problem solving abilities.

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.

Problems relate to: faults or malfunctioning of the process equipment or system, faults or malfunctioning of the control system for the process, faults in the materials supplied to the process, deviations from process quality specifications, departure of process parameters from expected norms.

Problems fall into the following categories: problems that can be dealt with directly, problems that require the assistance of others, problems that must be notified to a superior or specialist colleague.

Actions and Solutions include: making system adjustments and changes by self, seeking the assistance of others with particular expertise, reporting the problem to a superior.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know the procedures relating to the materials involved in the process	1.1. Explain how to interpret information relating to the type of material being processed 1.2. Explain how to identify any significant arrangements from the material safety data sheet 1.3. Explain why it is important to understand the type of material being processed and their characteristics and properties 1.4. Identify the materials being processed and their basic characteristics
2. Know how to operate process equipment and systems	2.1. Explain what process control involves 2.2. Explain the main functions of process equipment and systems 2.3. Explain how the various parts of a system interact 2.4. Identify the types of services that are used by process equipment and systems
3. Know how to minimise process environment risks	3.1. Assess the risks that are present in a process environment 3.2. Explain what risk control measures are in place and why it is important to comply with them
4. Know how to diagnose process problems	4.1. Assess the sorts of problems that can arise with a process and what the early warning signs are 4.2. Explain how to investigate the causes of a problem
5. Be able to diagnose process problems	5.1. Identify promptly when a problem has occurred 5.2. Gather enough information to be able to identify the sort of problem that has occurred 5.3. Use the correct information to decide on the potential cause of the problem
6. Know how to act according to the type of problem	6.1. Assess the interventions that should be applied 6.2. Assess when and by whom interventions should be applied
7. Be able to act according to the type of problem	7.1. Use the correct information to decide whether the problem needs immediate action 7.2. Decide whether a problem can be allowed to continue until a more convenient time before dealing with it 7.3. Use all available information to help decide what action to take 7.4. Make decisions and set them in motion without any unnecessary delay 7.5. Choose a course of action which will safely limit unwanted effects on the system and process

8. Know how to communicate the required information to resolve a problem	8.1. Explain what lines of communication and command should be followed in a given situation
9. Be able to communicate the required information needed to resolve the problem	9.1. Provide those carrying out remedial actions with enough detail to ensure that the problem is dealt with fully and effectively
10. Be able to modify process parameters	10.1. Adjust process settings to be within set parameters and specification 10.2. Adjust process settings in accordance with the manufacturer's recommendations
11. Know how to monitor the chosen solution to the problem	11.1. Identify the level of monitoring required by the process 11.2. Explain why it is important to follow specified monitoring procedures
12. Be able to monitor chosen solution to the problem	12.1. Gather information to allow accurate monitoring of how effective a solution is in dealing with the problem 12.2. Carry out assessments according to how quickly the effects of the solution should be apparent 12.3. Continue with assessments until the problem has been fully resolved 12.4. Use the correct data in judging the effectiveness of the solution
13. Be able to adjust the solution if necessary	13.1. Modify the actions taken if the problem changes or they do not work as intended
14. Know how to communicate information about process problems	14.1. Identify the sorts of records that are kept and how to complete them 14.2. Identify where information relating to the type of material being processed can be found
15. Be able to communicate information about process problems	15.1. Keep accurate and complete records 15.2. Identify and report any information arising during monitoring which may affect the diagnosis and response to similar problems in the future
16. Know how to work to organisational and operational procedures	16.1. Identify personal responsibilities with regard to health, safety and the environment in the working area 16.2. Identify the working practices and authorisations that apply and where to find out about these 16.3. Identify the safety standards that apply to the process environment 16.4. Identify the personal protective equipment requirements appropriate to the processing tasks
17. Be able to work to organisational and operational procedures	17.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines

UNIT POLY 29	CONFIGURE AND SET PROCESSING SYSTEMS TO MEET PRODUCTION REQUIREMENTS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	3
GUIDED LEARNING HOURS	32

Unit Overview

This unit addresses the skills and knowledge required to configure and set processing systems to meet production requirements 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 configuration requirements as described in the Assessment Context
- Dealing with problems that can be dealt with directly
- How to request specialist assistance and when this may be required

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 a technician seeking recognition of their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for configuring and setting processing systems to meet production requirements. It is suitable for process industries personnel who work within an organisational context which requires them to achieve clearly defined specifications. The scope of the work is such that the individual would be expected to know when problems which might arise can be dealt with directly or when specialist assistance is required. The processing system may be for continuous or batch production and should include ancillary equipment.

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.

Configuration requirements relate to: the processing and ancillary equipment to be configured, the timescales and deadlines and the processing requirements and tolerances.

Information relates to: processing specification, product specification, production schedule.

Resources are: physical (e.g. tools, equipment, materials), human and energy.

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

Processing parameters relate to: temperature, pressure, rate, sequence.

Sources of information can be from: visual checks on products, reading from instruments, analysing sample test results, reading from process control logs, measuring process parameters directly, output rate.

Equipment relates to: material conditioning, material forming, finishing operations, packaging operations, monitoring production.

Others relates to: process operators, quality control, personnel, maintenance and engineering staff, line management.

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 identify configuration requirements from specifications and schedules 1.2. Explain why safety inspections are important and how and when these should be carried out 1.3. Identify the safety protection devices and warning notices that are required and state how these should be positioned 1.4. Explain how specified settings may conflict with production requirements 1.5. Explain why it is important to meet production requirements
2. Know how to prepare equipment to configure and set process systems	2.1. Identify the processing and ancillary equipment required to meet production requirements 2.2. Explain the importance of integrating process and ancillary equipment and how to achieve this 2.3. Explain how equipment configuration contributes to production requirements 2.4. Identify the tolerances that apply and how to set equipment to meet the specified tolerance limits 2.5. Explain the significance of not identifying defects in processing equipment 2.6. Explain the financial implications of replacement or equipment repair and lost production, if defects are not identified 2.7. Explain how to use visual inspections, monitoring devices and test results to identify information about equipment settings

	<p>2.8. Explain how to identify deviations from the required settings from the visual inspections</p> <p>2.9. Explain how to deal with defective equipment</p>
3. Be able to prepare to configure and set process systems	<p>3.1. Make sure the necessary equipment, tools and people are available to complete the configuration safely within the specified timescale</p> <p>3.2. Position safety devices and warning notices to protect both the process operators and people who work in the immediate area</p> <p>3.3. Identify the materials being processed and their basic characteristics</p>
4. Know how to configure and set process systems	<p>4.1. Explain the consequences of not achieving specified tolerances at the different stages of the processing operation</p> <p>4.2. Identify the conditions and processing parameters required to produce the product within specification</p> <p>4.3. Explain how to set and adjust the processing parameters to achieve the required specification</p> <p>4.4. Explain why it is important to set and adjust processing parameters</p> <p>4.5. Explain the importance of following the prescribed sequence for setting processing parameters and the implications of not doing so</p>
5. Be able to configure and set process systems	<p>5.1. Configure the equipment to function effectively and within set tolerances</p> <p>5.2. Set and adjust processing parameters to comply with the processing specification</p> <p>5.3. Integrate processing equipment and ancillary equipment to function as an effective and efficient system</p>
6. Know how to monitor process systems	<p>6.1. Identify the level of monitoring that is required by different processing systems</p> <p>6.2. Explain why it is important to gather sufficient information before reaching conclusions</p>
7. Be able to monitor the process system	<p>7.1. Use visual inspections, monitoring devices and test results to check and verify equipment settings</p> <p>7.2. Monitor the process system to identify variances from specification</p> <p>7.3. Explain how to compare data with expected values</p> <p>7.4. Test the system over a period of time to ensure consistency of performance</p> <p>7.5. Take action to rectify variances and maximise efficiency and effectiveness of the system</p> <p>7.6. Identify and report specified settings that appear to conflict with production requirements</p>

8. Be able to identify and take appropriate action to deal with hazards	8.1. Carry out safety checks to ensure that equipment and the work area are safe and free from potential hazards 8.2. Deal with hazards effectively
9. Know how to maintain records	9.1. Explain what sorts of records are kept and how to complete them 9.2. Explain the purpose of different records and the implications of not maintaining them effectively 9.3. Identify the information that needs to be gathered and when this should be done
10. Be able to maintain records	10.1. Maintain the records needed to keep specifications up-to-date
11. Be able to communicate information about the process system	11.1. Provide information to those who will run, maintain or quality assure the processing system
12. Know how to work to organisational and operational procedures	12.1. Identify organisational Health and Safety, environmental and other policies that are relevant to own job role 12.2. Explain why these policies are important to self and the organisation 12.3. Explain the safe working practices that apply to own job role 12.4. Explain why it is important to work within the 'rules' of the organisation 12.5. Identify when, which and how personal protective equipment should be used 12.6. Identify the lines of communication and command that 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 13.2. Wear the correct personal protective equipment

UNIT POLY 30	OPTIMISE OPERATIONS WHICH ARE UNDER PROCESS CONTROL WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	3
GUIDED LEARNING HOURS	42

Unit Overview

This unit addresses the skills and knowledge required to optimise operations which are under process control 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 types of variance as described in the Assessment Context
- Dealing with problems that can be dealt with directly
- How to request specialist assistance and when this may be required
- How to conclude the process operation covering all situations 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 a technician seeking recognition of their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for optimising operations which are under process control. It is suitable for process industries personnel who work within an organisational context which requires them to achieve clearly defined specifications. The work is such that the individual would be expected to solve problems which may arise both directly and/or by calling for specialist assistance. Standard process operations are routine, self-contained operations which have only a limited number of parameters to be taken into account and which are run on equipment and systems which are pre-determined.

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.

Problems to be dealt with include: those which can be dealt with directly, those that need to be reported and those where the assistance of a specialist is needed.

Data to be gathered includes: visual checks on products, readings from instruments, analysing sample test results, readings from process control logs, measuring process parameters directly, output rate.

Variances relate to: minor variances which take the product or process to the edges of acceptability, deviations which take the product or process out of specification but can be dealt with by adjustments at the time, deviations that require production to be halted until the specification can be restored.

The conclusion of a process operation relates to: end of a production run, for routine maintenance purposes, for urgent shutdown.

Materials relate to: residual materials for recycling, waste materials for disposal.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to use the process specification	1.1. Explain why a specification is needed for a process and where to obtain the specification 1.2. Identify the information that is normally given in a process specification 1.3. Explain how to read and interpret a process specification
2. Know how to work safely	2.1. Explain what precautions and procedures should be applied when handling materials at each stage of the process and in storage 2.2. Identify the materials used in different processes 2.3. Identify the safety standards that apply to the process environment 2.4. Explain the sorts of risks that are present in a process environment 2.5. Explain the risk control measures that are in place and why it is important to comply with them 2.6. Explain the parts of a system and its services that may need to be isolated
3. Know the hazards that can affect people and the environment	3.1. Identify the potential hazards to the environment that can arise from processing operations 3.2. Identify the potential hazards to people and the environment that can arise from mishandling and misprocessing materials
4. Be able to prepare to optimise standard operations	4.1. Obtain accurate and complete details on the specification to be achieved 4.2. Check that everyone who will be involved in the operation is ready and knows what to do 4.3. Check and confirm that any services needed are operational

<p>5. Know how to ensure the correct functioning of equipment and systems</p>	<p>5.1. Explain how to check that the services needed by the equipment and system are operational</p> <p>5.2. Explain how equipment and systems are set up to meet a given specification</p> <p>5.3. Identify the main functions of process equipment and systems</p>
<p>6. Know how to monitor the process operation</p>	<p>6.1. Explain what start-up checks should be carried out to ensure that the equipment and system are fit for use</p> <p>6.2. Identify the routine checks and inspections that are carried out</p> <p>6.3. Explain the level of monitoring that is required by own process</p> <p>6.4. Explain why it is important to follow specified monitoring procedures</p>
<p>7. Know how to detect faults</p>	<p>7.1. Describe how to recognise possible faults and defects in equipment and systems</p> <p>7.2. Describe how to recognise possible spillages, leaks and emissions</p>
<p>8. Be able to monitor process operations to ensure correct operating conditions</p>	<p>8.1. Check and confirm that materials of the specified quality and amount are available</p> <p>8.2. Confirm that equipment controls are to the settings needed for the operation to run to specification</p> <p>8.3. Check whether the equipment and system have any faults and defects</p> <p>8.4. Check that the process control system is operating properly</p>
<p>9. Know how to interpret the results of monitoring data</p>	<p>9.1. Explain how to compare data with expected values</p> <p>9.2. Explain how to read and analyse relevant data in tables, printouts and schematics</p> <p>9.3. Identify the environmental monitoring records that are kept</p> <p>9.4. Identify the units of measurement that are used and what they mean</p> <p>9.5. Explain what information to gather and when</p>
<p>10. Be able to monitor performance</p>	<p>10.1. Interpret data correctly to judge if the process and product are in specification and the operation is running optimally</p> <p>10.2. Keep operational data up to date, accurate and complete</p> <p>10.3. Complete the relevant records accurately</p>
<p>11. Know the reporting procedures</p>	<p>11.1. Explain what reporting procedures must be followed with regard to checks and inspections</p>
<p>12. Know the limits of own authority</p>	<p>12.1. Identify which equipment and system adjustments and maintenance can be carried out by the operator and which need specialist attention</p> <p>12.2. Explain which symptoms indicate a problem that needs maintenance attention</p>

<p>13. Be able to optimise standard operations</p>	<p>13.1. Identify promptly when a process is not meeting optimum conditions and take appropriate action</p> <p>13.2. Give clear instructions and information to others on what they need to do to optimise the operation</p> <p>13.3. Make suitable adjustments to the process control system to make sure that specifications are met</p> <p>13.4. Respond promptly to variances, taking whatever action is needed</p> <p>13.5. Maximise the use of resources</p> <p>13.6. Optimise the process and keep the product within specification</p> <p>13.7. Ensure that, as far as possible, product schedules are maintained</p>
<p>14. Be able to deal with problems</p>	<p>14.1. Take prompt and effective action to deal with any problems with the equipment, services and materials</p> <p>14.2. Use the correct procedures to call for any maintenance needed</p>
<p>15. Know how to shutdown standard operations</p>	<p>15.1. Describe the procedures that need to be followed to shutdown a process</p> <p>15.2. Explain why it is important that the correct procedure is followed</p> <p>15.3. Explain why equipment and systems may need servicing before producing a product to a different specification</p>
<p>16. Be able to shutdown standard operations</p>	<p>16.1. Confirm with others that all aspects of the operation have been concluded</p> <p>16.2. Shutdown and isolate equipment under your control in the sequence and timings needed to maintain the safety of the entire system</p> <p>16.3. Clear and clean equipment where this is needed before it can be used again</p> <p>16.4. Ensure the process equipment and work area is ready for the next operation</p>
<p>17. Know how to deal with waste</p>	<p>17.1. Explain why processed, part-processed materials, excess materials and recoverable by-products should be separated out as they are produced</p> <p>17.2. Identify the sorts of containment and storage that are used for processed, part-processed materials, excess materials and recoverable by-products</p>
<p>18. Be able to deal with waste</p>	<p>18.1. Remove residual and waste materials into suitable storage, handling them safely to avoid loss and contamination</p>
<p>19. Be able to work to organisational and operational procedures</p>	<p>19.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines</p> <p>19.2. Follow the safety, health and environmental procedures for the operation, including shutdown</p>

The plant or equipment to be serviced relates to: Polymer processing machines, primary equipment, downstream equipment, ancillary equipment, finishing equipment.

Maintenance schedules and related specifications would normally include:

- Authorisation procedures
- Product worksheets
- Tests
- Internal maintenance/servicing schedules
- Safe working practices
- Method statements
- Records
- Timescales

Servicing procedures and activities to be followed are fully defined within the company maintenance/service procedures.

The quality standards and accuracy to be achieved relate to: Company quality assurance, quality control specifications.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to carry out routine services	1.1. Describe the maintenance schedules and related specifications that are to be worked to 1.2. Identify the servicing methods and procedures including the recording procedures 1.3. Identify personal responsibilities for the care and control of equipment
2. Be able to carry out routine services	2.1. Follow the relevant maintenance schedules to carry out the required work 2.2. Carry out the maintenance activities within the limits of personal authority 2.3. Carry out the maintenance activities in the specified sequence and in an agreed time scale
3. Be able to deal with problems	3.1. Report any instances where the maintenance activities cannot be fully met 3.2. Report identified defects outside the planned schedule
4. Know how to record and report the required information	4.1. Describe personal responsibilities with regard to the reporting lines and procedures in own working environment
5. Be able to record and report the required information	5.1. Complete relevant maintenance records accurately 5.2. Pass the records on to the appropriate person
6. Know how to work to organisational and operational procedures	6.1. Describe the relevant regulations and the safe working practices and procedures required within own work area 6.2. Explain the authorisation procedures that should be followed and limits of responsibility and authority in line with company and manufacturers' procedures 6.3. Identify personal responsibilities in respect of Health, Safety and Environment 6.4. Describe the legal responsibility for personal health and safety and the health and safety of others 6.5. Describe the appropriate methods and waste disposal procedures in relation to legislation, regulation and procedures for waste segregation
7. Be able to work to organisational and operational procedures	7.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines 7.2. Dispose of waste materials in accordance with safe working practices and approved procedures

UNIT POLY 34	CARRY OUT COMPLEX SAMPLING OPERATIONS WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	3
GUIDED LEARNING HOURS	36

Unit Overview

This unit addresses the skills and knowledge required to carry out complex 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 experienced operator/technician seeking recognition of their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for carrying out complex sampling activities.

Complexity can be characterised in a number of ways depending upon the work context and occupational area. The activity may, for example, involve the performance of progressive and sequential operations that are operator and environment sensitive. Special conditions may apply to the sample taking and may have to be carefully monitored during sampling. Variations and contingencies may be critical to the successful taking of the sample with opportunities to make adjustments to the process as necessary. The consequences of error in terms of cost, danger or environmental impact may also have an effect on the level of complexity at work.

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.

The sampling purpose can be:

- Sampling materials prior to post moulding
- Measuring moulded components for tolerances and variances

- Monitoring shrinkage parameters and variances
- Sampling moulded components for stress factors
- Conduct impact testing relevant to the components material and function

Variability to be established relates to: location; time; stability; homogeneity; temperature.

Conditions to be taken into account are: access; location; timing; sampling points; frequency; duration; health and safety; environmental impact; hazards and risks.

Sampling plans and procedures relate to: time, frequency, duration, sequence and location.

Resources required for sampling are: equipment including personal protective equipment; materials; documentation.

Requirements for sample quality relate to: contamination; changing conditions; stability of sample; variability of source.

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

Information to be recorded relates to: relevant information concerning; time, conditions, locations, nature of sample, known hazards, required storage conditions, possible contamination sources.

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

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

Learning Outcome and Assessment Criteria

Learning outcomes	Assessment criteria
The learner will:	The learner can:
1. Know how to evaluate the requirements for sampling	1.1. Explain what the procedures for sampling are 1.2. Identify the principles of sampling systems and testing 1.3. Explain the purposes of sampling and the specific uses to which the sample may be put
2. Be able to evaluate the requirements for sampling	2.1. Identify the purpose of sampling 2.2. Establish the variability inherent in the sample source and assess the implications on the purpose for which the sample is being taken 2.3. Evaluate the options to minimise the variables resulting from different sampling methods
3. Know how to achieve the correct conditions for sampling	3.1. Explain how to control conditions when sampling and why it is important 3.2. Explain why it is important to maintain conditions when sampling 3.3. Identify the methods that should be used for sampling and their impact on the source and the sample taken from it

<p>4. Be able to ensure the correct conditions for sampling</p>	<p>4.1. Select the optimum sampling procedure</p> <p>4.2. Establish the criteria that will lead to the appropriate sample being taken which is fit for end purpose</p> <p>4.3. Control the conditions for sampling to optimise sample quality</p> <p>4.4. Amend sampling plans and procedures when necessary to suit conditions and to deal with contingencies</p> <p>4.5. Sequence the sampling procedure correctly</p> <p>4.6. Select sampling points and frequency to ensure an appropriate sample is provided</p>
<p>5. Know how to prepare resources that are used for sampling</p>	<p>5.1. Identify the equipment that should be used for sampling, and what variability the equipment would introduce</p> <p>5.2. Explain why calibration is important and how to check calibration</p> <p>5.3. Explain how to identify defective equipment and the appropriate action to take to minimise risk to the source</p>
<p>6. Be able to prepare resources that are used for sampling</p>	<p>6.1. Ensure that the equipment selected is appropriate to sampling process</p> <p>6.2. Prepare equipment in accordance with standard operating procedures</p> <p>6.3. Check that the equipment is in serviceable condition and confirm calibration status as being current</p> <p>6.4. Ensure that all required resources are ready and available</p>
<p>7. Know how to take a sample</p>	<p>7.1. Summarise the essential features of a sampling plan</p> <p>7.2. Explain what constitutes a representative sample for identified purposes</p> <p>7.3. Identify the documentation and labelling systems that should be used to ensure traceability during sampling</p>
<p>8. Be able to take a sample</p>	<p>8.1. Identify the conditions for sampling and take account of these when taking a sample</p> <p>8.2. Ensure that the samples taken are representative of requirements</p> <p>8.3. Ensure that the samples are taken following sampling plans and procedures</p> <p>8.4. Label and identify the sample correctly</p>
<p>9. Know how to maintain the integrity of the sample</p>	<p>9.1. Identify the factors that influence the integrity of the sample</p> <p>9.2. Explain the basic principles and techniques of maintaining sample integrity</p> <p>9.3. Identify the factors that can affect sample quality</p> <p>9.4. Explain methods that can be used to maintain, stabilise and store the sample</p> <p>9.5. Explain the methods that can be used for dealing with the handling, storage and disposal of materials</p>

10. Be able to maintain the integrity of the sample	10.1. Record the conditions under which the sample is taken 10.2. Stabilise and maintain the condition of the sample 10.3. Protect the sample from sources of contamination
11. Know how to prepare equipment for the next sampling operation	11.1. Identify the cleaning materials and methods that should be used 11.2. Identify when equipment should be disposed of
12. Be able to prepare equipment for the next sampling operation	12.1. Clean the sampling equipment and materials to be re-used appropriately 12.2. Dispose of other equipment and materials according to working practice
13. Be able to record the information from the sampling operation	13.1. Record all information about the sample accurately using appropriate documentation to permit traceability 13.2. Record any deviations from set procedure or anticipated results and take appropriate action
14. Be able to report abnormal results	14.1. Take the appropriate action in the event of abnormal occurrences affecting sample condition
15. Know how to work to organisational and operational procedures	15.1. Explain what own responsibilities are with regard to health, safety and the environment in the working area 15.2. Identify the legal responsibility for personal health and safety, and the health and safety of others 15.3. Identify working practices that ensure the working environment is conducive to good health 15.4. Identify what the approved codes of practice/working practices are and why it is important to follow them
16. Be able to work to organisational and operational procedures	16.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations and guidelines

UNIT POLY 36	PROVIDE TECHNICAL SUPPORT WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	4
GUIDED LEARNING HOURS	40

Unit Overview

This unit addresses the skills and knowledge required to provide technical support 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:

- Providing at least two types of support as described in ‘meeting requirements’ 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 a technician seeking recognition of their skills and knowledge.

Information on use of Assessment Context

This unit is for those who provide technical support to others. Technical support can be for information, services, advice, guidance or instruction on the use of materials and equipment. Such support will be sought in the event of defective materials and processes or fault identification. Part of the role involves updating technical information and/or adapting procedures to meet new requirements such as process alterations or changes in legislation. Such technical support might be provided by a specialist department, such as a customer’s technical services unit, or may be part of the job role of a technical specialist within a more general context.

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.

Requests can either be written and/or oral: internal or external customers; colleagues; or any end user of the service.

Assistance can be: technical support for procedure; problem diagnosis and solution; advice and guidance.

Documentation relates to: relevant COSHH data sheets and risk assessments and may include: customer contact forms; job requests; proposed action plan; company archive information; standard reference sources; standard operating procedures; national and international standards; job files; work plans and schedules; written customer endorsement.

Information to be obtained relates to: standards organisational; national; European and International; instructions; operating procedures; organisational requirements.

Updating of information relates to: new standards; changes in legislation; new methods and techniques; findings from internal activities.

Meeting requirements include: trouble shooting a problem; updating a technical process following introduction of new equipment and processes; investigating a defective product or piece of equipment; evaluating the possible use of a new raw material within an existing process.

Sources of support can come from: colleagues, equipment, personnel, information, materials.

Evaluation criteria includes: customer specification; resources committed; effectiveness of strategy adopted.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know how to evaluate customer requests	1.1. Clarify the processes involved in establishing customer requests 1.2. Evaluate the processes involved in meeting customer requirements 1.3. Identify what the procedures for making requests are
2. Be able to evaluate customer requests	2.1. Receive requests and respond to them correctly
3. Know how to deal with materials and equipment in accordance with organisational procedures	3.1. Explain what materials and equipment are appropriate to the provision of technical services 3.2. Explain what the constraints of the processes and equipment are 3.3. Summarise what the properties of materials are
4. Be able to structure the nature of the technical assistance	4.1. Evaluate the capacity to meet the required assistance 4.2. Design technical assistance in response to customer requests
5. Know how to utilise information	5.1. Explain how to access information sources 5.2. Explain the methods used for obtaining, storing and retrieving information 5.3. Analyse what constitutes current and relevant information
6. Be able to obtain and update technical information	6.1. Obtain information that is accurate and sufficient 6.2. Check that comprehensive information is available to support the service provided 6.3. Interpret the information correctly 6.4. Apply the information to specific situations 6.5. Update the information sources as required

<p>7. Know how to provide technical support in accordance with organisational procedures</p>	<p>7.1. Explain what the legal consequences of breaches of quality procedures could be</p> <p>7.2. Summarise what the standard operating procedures are</p> <p>7.3. Explain the range of facilities and services which can be provided</p> <p>7.4. Explain what resources are needed to deliver support</p> <p>7.5. Explain the other sources of support that can be used</p>
<p>8. Be able to provide technical support</p>	<p>8.1. Implement the strategy for meeting requirements</p> <p>8.2. Modify or repeat the strategy as necessary</p> <p>8.3. Use appropriate sources of support to provide assistance</p> <p>8.4. Provide customers with appropriate information and feedback</p>
<p>9. Know how to evaluate outcomes</p>	<p>9.1. Analyse the evaluation criteria relevant to customer requirements</p> <p>9.2. Evaluate methods used for feedback</p>
<p>10. Be able to evaluate outcomes</p>	<p>10.1. Evaluate the final outcomes against defined success criteria</p>
<p>11. Know how to record and report in accordance with organisational procedures</p>	<p>11.1. Clarify which documentation should be used and explain why it is important to complete it accurately</p> <p>11.2. Evaluate methods used for recording outcomes</p> <p>11.3. Explain the document control and reporting procedures that should be used</p>
<p>12. Be able to record information accurately</p>	<p>12.1. Use the appropriate documentation to record information</p>
<p>13. Know how to work to organisational and operational procedures</p>	<p>13.1. Explain what personal responsibilities with regard to health, safety and the environment in the working area are</p> <p>13.2. Clarify what legal responsibility for personal health and safety is, and the health and safety of others</p>
<p>14. Be able to work to organisational and operational procedures</p>	<p>14.1. Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislations and guidelines</p>

UNIT POLY 38	PLAN POLYMER PROCESS ACTIVITIES WITHIN POLYMER PROCESSING AND RELATED ENVIRONMENTS
LEVEL	3
GUIDED LEARNING HOURS	30

Unit Overview

This unit addresses the skills and knowledge required to plan polymer process activities 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:

- Planning routine and non-routine processing activities

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 experienced operator/technician seeking recognition of their skills and knowledge.

Information on use of Assessment Context

This unit is for those with responsibility for the management of the polymer process resources and equipment. It covers planning, by monitoring process schedules or checking the human resources are available.

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.

Activities can include: meeting productivity targets, providing support to a process, planning and overcoming production blockages.

Operations include: routine and non-routine processing activities.

Resources relate to: materials, equipment, people.

Learning Outcome and Assessment Criteria

Learning outcomes The learner will:	Assessment criteria The learner can:
1. Know the factors that affect the planning of polymer process activities	1.1. Identify the operations to be carried out 1.2. Explain the risk assessments necessary for the operation of the plan 1.3. Explain how to determine the sequence of tasks to carry out the plan 1.4. Describe how to establish the working methods to use 1.5. Summarise how to establish what resources are required and where to get them from 1.6. Identify any special requirements, e.g. prioritisation, sequencing rules, technical issues, safety issues, and state how to incorporate these into plans
2. Be able to take account of the factors that affect the planning of polymer process activities	2.1. Collect the information needed to prepare for the activity 2.2. Identify the operations to be carried out and determine their sequence 2.3. Identify health and safety issues and safe procedures which must be followed
3. Know how to plan polymer process activities	3.1. Identify where to get the information needed to prepare a plan 3.2. Explain how to estimate timescales for the plan, including making allowances for delays 3.3. Identify who to inform when plans are complete 3.4. Explain how to communicate plans to those responsible for their implementation
4. Be able to plan polymer process activities	4.1. Identify any special requirements and incorporate them in the activity 4.2. Estimate timescales required 4.3. Establish which methods are required and what resources are to be used
5. Know how to communicate the plan to others	5.1. Explain the format of presentations for the plan 5.2. Clarify how to formally record plans
6. Be able to communicate the plan to others	6.1. Record the activity in a logical way and using appropriate documentation 6.2. Inform the appropriate people when the activity is completed
7. Know how to deal with problems	7.1. Explain own level of authority to deal with problems which affect planning activities, or may affect the implementation of plans 7.2. Identify who to report issues to which cannot be resolved, and the procedure for doing so
8. Be able to deal with problems	8.1. Deal effectively with problems within own control and report those that cannot be solved

9. Know how to work to organisational and operational requirements	9.1. Identify the health and safety legislation, environmental regulations and safe working practices and procedures that apply 9.2. Describe the specific safe working practices or regulations which apply to the tasks necessary to meet the plan
10. Be able to work to organisational and operational requirements	10.1. Plan the activity to comply with health and safety legislation, environmental, regulations and safe working practices and procedures