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Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations

Specification

For first registration May 2011

Issue 3

Pearson

Edexcel, BTEC and LCCI qualifications

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This specification is Issue 3. Key changes are listed in the summary table on the next page. We will inform centres of any changes to this issue. The latest issue can be found on the Pearson website: qualifications.pearson.com

This qualification was previously known as:

Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations (QCF).

The QN remains the same.

References to third party material made in this specification are made in good faith. Pearson does not endorse, approve or accept responsibility for the content of materials, which may be subject to change, or any opinions expressed therein. (Material may include textbooks, journals, magazines and other publications and websites.)

All information in this specification is correct at time of going to publication.

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Summary of Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations specification Issue 3 changes

Summary of changes made between previous issue and this current issue	Page number
All references to QCF have been removed throughout the specification	
Definition of TQT added	Page 1
Definition of sizes of qualifications aligned to TQT	Page 2
TQT value added	Page 6
Guided learning definition updated	Page 14
QCF references removed from unit titles and unit levels in all units	Page 18-145

Earlier issue(s) show(s) previous changes.

If you need further information on these changes or what they mean, contact us via our website at: qualifications.pearson.com/en/support/contact-us.html.

Contents

Introducing Pearson Edexcel NVQ/Competence-based qualifications

What are NVQ/Competence-based qualifications?

National Vocational Qualifications (NVQs)/Competence-based qualifications are work-based qualifications that give learners the opportunity to develop and demonstrate their competence in the area of work or job role to which the qualification relates.

NVQs/Competence-based qualifications are based on recognised occupational standards for the appropriate sector. Occupational standards define what employees, or potential employees, must be able to do and know, and how well they should undertake work tasks and work roles. These standards are written in broad terms to enable employers and providers to apply them to a wide range of related occupational areas.

NVQs/Competence-based qualifications are outcomes-based with no fixed learning programme, therefore allowing flexible delivery to meet the individual learner's needs. At Level 2 and above, these qualifications are recognised as approved training and development courses for employees that have been in the workplace for some time or as a way of inducting, training and developing new entrants into the workplace. Qualifications at Level 1 can be used in Traineeships, which enables progression to entry level employment or to Apprenticeship programmes.

Learners will work towards their qualification in the workplace or in settings that replicate the working environment as specified in the assessment requirements. Colleges, training centres and/or employers can offer these qualifications as long as they have access to appropriate physical and human resources and have the necessary quality assurance systems in place.

Sizes of NVQ/Competence-based qualifications

For all regulated qualifications, Pearson specify a total number of hours that it is estimated learners will require to complete and show achievement for the qualification – this is the Total Qualification Time (TQT). The TQT value indicates the size of a qualification.

Within the TQT, Pearson identifies the number of Guided Learning Hours (GLH) that we estimate a centre delivering the qualification might provide. Guided learning means activities, such as lessons, tutorials, online instruction, supervised study and giving feedback on performance, that directly involve tutors and assessors in teaching, supervising and invigilating learners. Guided learning includes the time required for learners to complete external assessment under examination or supervised conditions.

In addition to guided learning, other required learning directed by tutors or assessors will include private study, preparation for assessment and undertaking assessment when not under supervision, such as preparatory reading, revision and independent research.

As well as TQT and GLH, qualifications can also have a credit value – equal to one tenth of TQT, rounded to the nearest whole number.

TQT and credit values are assigned after consultation with users of the qualifications.

NVQ/Competence-based qualifications are available in the following sizes:

- Award – a qualification with a TQT value of 120 or less (equivalent to a range of 1–12 credits)
- Certificate – a qualification with a TQT value in the range of 121–369 (equivalent to a range of 13–36 credits)
- Diploma – a qualification with a TQT value of 370 or more (equivalent to 37 credits and above).

Qualification title covered by this specification

This specification gives you the information you need to offer the Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations:

Qualification title	Qualification Number (QN)	Regulation start date	Operational start date
Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations	600/1631/0	01/05/2011	01/05/2011

Qualifications eligible and funded for post-16-year-olds can be found on the Funding Hub. The Skills Funding Agency also publishes a funding catalogue that lists the qualifications available for 19+ funding.

You should use the Qualification Number (QN), when you wish to seek public funding for your learners. Each unit within a qualification will also have a unique unit reference number, which are listed in this specification.

The qualification title and unit reference numbers will appear on the learners' final certification document. Learners need to be made aware of this when they are recruited by the centre and registered with Pearson.

Key features of the Pearson Edexcel Level 2 Certificate In Polymer/Polymer Composite Operations

This qualification:

- is nationally recognised
- is based on the Polymer Processing and Related Operations National Occupational Standards (NOS). The NOS, assessment requirements/strategy and qualification structure(s) are owned by Cogent, the Sector Skills Council for the chemicals, pharmaceuticals, nuclear, oil, gas, petroleum and polymer industries.

The Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations has been approved as a component for the Polymer Processing Operations Intermediate Apprenticeship framework.

What is the purpose of this qualification?

The qualification provides the skills, competence and knowledge required by individuals working in the polymer and polymer composite sectors. The qualification has two pathways: Polymer Machine Operations and Polymer Hand-based Operations. The Polymer Machine Operations Pathway covers starting-up, maintaining and shutting down a machine-based production process. The Polymer Hand-based Operations Pathway covers producing products using hand-based operations, finishing products, and contributing to the provision of ancillary systems.

Who is this qualification for?

This qualification is for all learners aged 16 and above who are capable of reaching the required standards.

Pearson's policy is that the qualification should:

- be free from any barriers that restrict access and progression
- ensure equality of opportunity for all wishing to access the qualification.

What are the benefits of this qualification to the learner and employer?

The polymer processing industry employs approximately 400,000 people in the United Kingdom. The sector manufactures thousands of products that feature as part of our daily lives including, for example, compact discs and tyres. Apprenticeships in polymer processing are an ideal route to employment in the polymer processing industry.

What are the potential job roles for those working towards this qualification?

Within the industry, there are many opportunities to progress to technician, supervisory or management roles. Potential job roles within the polymer processing industry include:

- process operator, process/machine tool setter, toolmaker, process technician, production supervisor, production manager
- product design technician/engineer, polymer technologist, technical manager, research and development engineer
- laboratory assistant, laboratory technician, laboratory manager
- quality control inspector, quality assurance technician, quality manager
- maintenance engineer, plant maintenance technician, plant facilities manager.

What progression opportunities are available to learners who achieve this qualification?

Within the industry there are many opportunities to progress to technician, supervisory or management roles.

There are also opportunities for those wishing to continue their professional development. Learners may progress to further education and training within the sector including the:

- Pearson Edexcel Level 3 Diploma in Polymer/Polymer Composite Operations or vocationally-related qualifications (in other related areas)
- Advanced Apprenticeship in Polymer Processing Operations.

What is the qualification structure for the Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations ?

The Total Qualification Time (TQT) for this qualification is 270.

The Guided Learning Hours (GLH) for this qualification is 184.

For the Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations learners must achieve a minimum of 27 credits by taking *one* of the following pathways:

- Polymer Machine Operations
- Polymer Hand-based Operations.

For the Polymer Machine Operations Pathway, learners must complete **one** Common Mandatory Unit, **three** Pathway-specific Mandatory Units and **11** credits from the Optional Units.

Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations (Polymer Machine Operations)			
Unit	**Common Mandatory Unit – the following unit must be taken:**	**Credit**	**Level**
1	Meet Safety, Health and Environmental Requirements in the Workplace Within Polymer Processing and Related Environments	3	2
Pathway-specific Mandatory Units – the following three units must be taken:			
2	Prepare to Start Up a Machine-Based Production Process Within Polymer Processing and Related Environments	4	2
3	Start Up and Maintain a Machine-Based Production Process Within Polymer Processing and Related Environments	5	2
4	Shutdown a Machine-Based Production Process Within Polymer Processing and Related Environments	4	2
Optional Units – 11 credits must be taken from:			
5	Inspect Products Within Polymer Processing and Related Environments	4	2
6	Finish Products Within Polymer Processing and Related Environments	2	2
7	Contribute to the Provision of Ancillary Systems Within Polymer Processing and Related Environments	5	2
8	Pick Polymer Stock and Make Up Orders Within Polymer Processing and Related Environments	3	2
9	Prepare Materials for Processing According to Instructions Within Polymer Processing and Related Environments	3	2
10	Maintain the Condition of Process Equipment Within Polymer Processing and Related Environments	7	2
11	Carry Out Simple Sampling Operations Within Polymer Processing and Related Environments	3	2
12	Carry Out Simple Testing Operations Within Polymer Processing and Related Environments	3	2
13	Accept, Verify and Store Materials Required for Process Operations Within Polymer Processing and Related Environments	3	2
14	Supply Materials Required for Process Operations Within Polymer Processing and Related Environments	3	2
15	Assemble Products Within Polymer Processing and Related Environments	3	2
16	Contribute to the Maintenance of Product Quality Within Polymer Processing and Related Environments	3	1

Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations (Polymer Machine Operations)			
Optional Units (*continued*) – 11 credits must be taken from:			
17	Establish and Maintain Effective Working Relationships Within Polymer Processing and Related Environments	2	1
18	Contribute to the Handover of Production Activities Within Polymer Processing and Related Environments	3	1

For the Polymer Hand-based Operations Pathway, learners must complete **one** Common Mandatory Unit, **three** Pathway-specific Mandatory Units and **14** credits from Optional Units.

Pearson Edexcel Level 2 Certificate in Polymer/Polymer Composite Operations (Polymer Hand-based Operations)			
Unit	**Common Mandatory Unit – the following unit must be taken:**	**Credit**	**Level**
1	Meet Safety, Health and Environmental Requirements in the Workplace Within Polymer Processing and Related Environments	3	2
Pathway-specific Mandatory Units – the following three units must be taken:			
6	Finish Products Within Polymer Processing and Related Environments	2	2
19	Prepare to Produce Products by Hand-Based Operations Within Polymer Processing and Related Environments	4	2
20	Produce Products Using Hand-Based Operations Within Polymer Processing and Related Environments	4	2
Optional Units – 14 credits must be taken from:			
5	Inspect Products Within Polymer Processing and Related Environments	4	2
7	Contribute to the Provision of Ancillary Systems Within Polymer Processing and Related Environments	5	2
8	Pick Polymer Stock and Make Up Orders Within Polymer Processing and Related Environments	3	2
9	Prepare Materials for Processing According to Instructions Within Polymer Processing and Related Environments	3	2
10	Maintain the Condition of Process Equipment Within Polymer Processing and Related Environments	7	2
11	Carry Out Simple Sampling Operations Within Polymer Processing and Related Environments	3	2
12	Carry Out Simple Testing Operations Within Polymer Processing and Related Environments	3	2
13	Accept, Verify and Store Materials Required for Process Operations Within Polymer Processing and Related Environments	3	2
14	Supply Materials Required for Process Operations Within Polymer Processing and Related Environments	3	2
15	Assemble Products Within Polymer Processing and Related Environments	3	2
16	Contribute to the Maintenance of Product Quality Within Polymer Processing and Related Environments	3	1
17	Establish and Maintain Effective Working Relationships Within Polymer Processing and Related Environments	2	1

Unit	Common Mandatory Unit – the following unit must be taken:	Credit	Level
Optional Units (*continued*) – 14 credits must be taken from:			
18	Contribute to the Handover of Production Activities Within Polymer Processing and Related Environments	3	1

How is the qualification graded and assessed?

The overall grade for the qualification is a 'pass'. The learner must achieve all the required units within the specified qualification structure.

To pass a unit the learner must:

- achieve **all** the specified learning outcomes
- satisfy **all** the assessment criteria by providing sufficient and valid evidence for each criterion
- show that the evidence is their own.

The qualifications are designed to be assessed:

- in the workplace or
- in conditions resembling the workplace, as specified in the assessment requirements/strategy for the sector, or
- as part of a training programme.

Assessment requirements/strategy

The assessment requirements/strategy for this qualification have been included in *Annexe C*. They have been developed by Cogent in partnership with employers, training providers, awarding organisations and the regulatory authorities. The assessment strategy includes details on:

- criteria for defining realistic working environments
- roles and occupational competence of assessors, expert witnesses, internal verifiers and standards verifiers
- quality control of assessment
- evidence requirements.

Evidence of competence may come from:

- **current practice** where evidence is generated from a current job role
- a **programme of development** where evidence comes from assessment opportunities built into a learning/training programme whether at or away from the workplace
- the **Recognition of Prior Learning (RPL)** where a learner can demonstrate that they can meet the assessment criteria within a unit through knowledge, understanding or skills they already possess without undertaking a course of learning. They must submit sufficient, reliable and valid evidence for internal and standards verification purposes. RPL is acceptable for accrediting a unit, several units or a whole qualification
- a **combination** of these.

It is important that the evidence is:

Valid	relevant to the standards for which competence is claimed
Authentic	produced by the learner
Current	sufficiently recent to create confidence that the same skill, understanding or knowledge persist at the time of the claim
Reliable	indicates that the learner can consistently perform at this level
Sufficient	fully meets the requirements of the standards.

Types of evidence (to be read in conjunction with the assessment strategy in Annexe C)

To successfully achieve a unit the learner must gather evidence which shows that they have met the required standard in the assessment criteria. Evidence can take a variety of different forms including the examples below. Centres should refer to the assessment strategy for information about which of the following are permissible.

- direct observation of the learner's performance by their assessor (O)
- outcomes from oral or written questioning (Q&A)
- products of the learner's work (P)
- personal statements and/or reflective accounts (RA)
- outcomes from simulation, where permitted by the assessment strategy (S)
- professional discussion (PD)
- assignment, project/case studies (A)
- authentic statements/witness testimony (WT)
- expert witness testimony (EPW)
- evidence of Recognition of Prior Learning (RPL).

The abbreviations may be used for cross-referencing purposes.

Learners can use one piece of evidence to prove their knowledge, skills and understanding across different assessment criteria and/or across different units. It is, therefore, not necessary for learners to have each assessment criterion assessed separately. Learners should be encouraged to reference the assessment criteria to which the evidence relates.

Evidence must be made available to the assessor, internal verifier and Pearson standards verifier. A range of recording documents is available on the Pearson website qualifications.pearson.com. Alternatively, centres may develop their own.

Centre recognition and approval

Centre recognition

Centres that have not previously offered Pearson qualifications need to apply for and be granted centre recognition as part of the process for approval to offer individual qualifications. New centres must complete both a centre recognition approval application and a qualification approval application.

Existing centres will be given 'automatic approval' for a new qualification if they are already approved for a qualification that is being replaced by the new qualification and the conditions for automatic approval are met. Centres already holding Pearson approval are able to gain qualification approval for a different level or different sector via Edexcel online.

Approvals agreement

All centres are required to enter into an approvals agreement which is a formal commitment by the head or principal of a centre to meet all the requirements of the specification and any linked codes or regulations. Pearson will act to protect the integrity of the awarding of qualifications, if centres do not comply with the agreement. This could result in the suspension of certification or withdrawal of approval.

Quality assurance

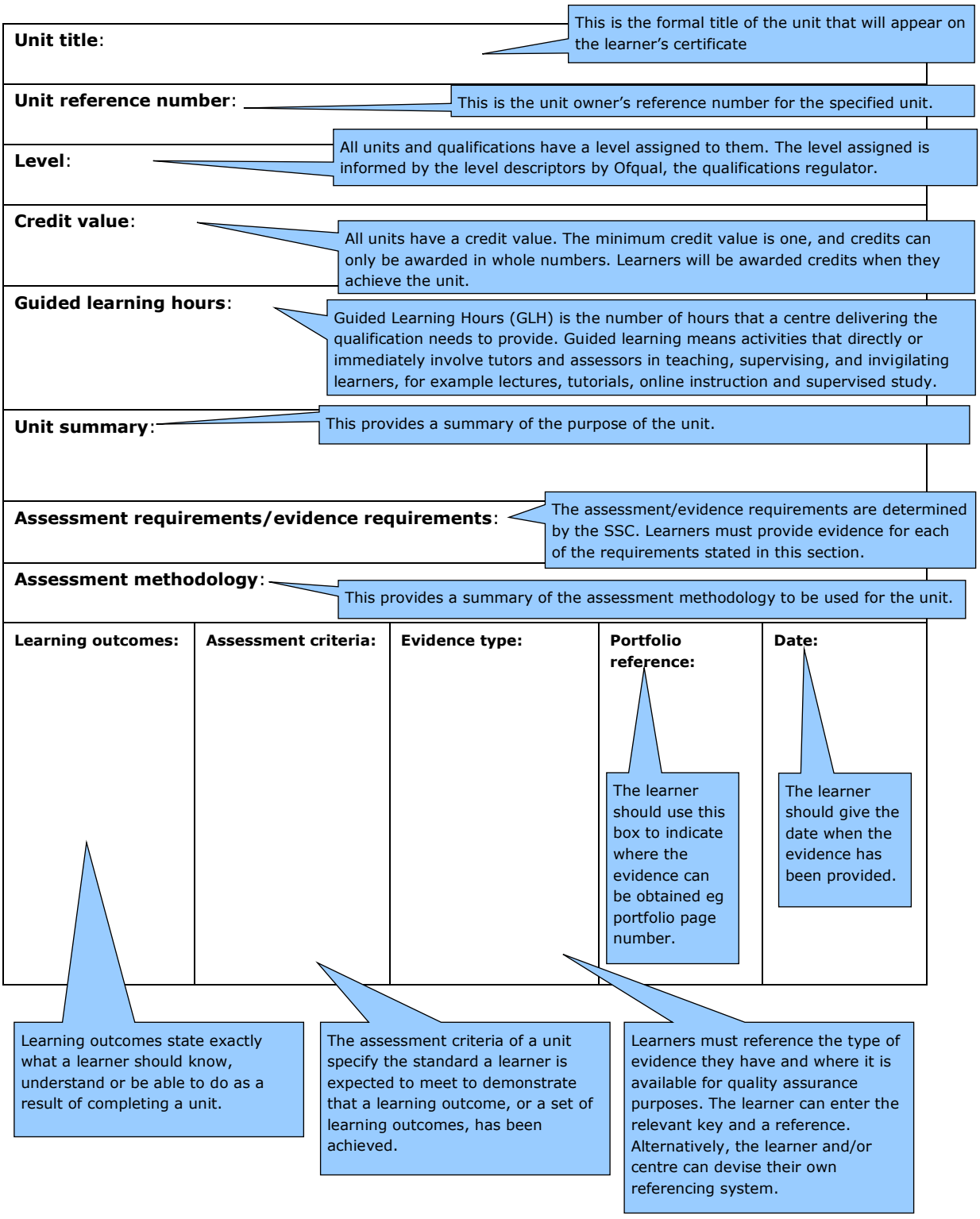
Detailed information on Pearson's quality assurance processes is given in *Annexe A*.

What resources are required?

Each qualification is designed to support learners working in the polymer processing and related operations sector. Physical resources need to support the delivery of the qualifications and the assessment of the learning outcomes and must be of industry standard.

Unit format

Each unit in this specification contains the following sections.



Units

Unit 1: Meet Safety, Health and Environmental Requirements in the Workplace Within Polymer Processing and Related Environments

Unit reference number: L/602/1611

Level: 2

Credit value: 3

Guided learning hours: 18

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

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 (eg from leaks, spillages, gas emission), accident and injury to persons.

Assessment methodology

This unit is assessed in the workplace or in conditions resembling the workplace; simulation is permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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, legislation and guidelines 15.2 Use safe manual handling and lifting techniques			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 2: Prepare to Start Up a Machine-Based Production Process Within Polymer Processing and Related Environments

Unit reference number: T/602/1442

Level: 2

Credit value: 4

Guided learning hours: 28

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

This assumed pre-requisite is that the learner will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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 both 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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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, legislation and guidelines			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 3: Start Up and Maintain a Machine-Based Production Process Within Polymer Processing and Related Environments

Unit reference number: T/602/1456

Level: 2

Credit value: 5

Guided learning hours: 28

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 4: Shutdown a Machine-Based Production Process Within Polymer Processing and Related Environments

Unit reference number: T/602/1487

Level: 2

Credit value: 4

Guided learning hours: 20

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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 (eg 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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
		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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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, legislation and guidelines			
		14.2	Select and correctly fit the personal protective equipment required for shutdown operations			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 5: Inspect Products Within Polymer Processing and Related Environments

Unit reference number: K/602/1521

Level: 2

Credit value: 4

Guided learning hours: 20

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	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, legislation and guidelines			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 6: Finish Products Within Polymer Processing and Related Environments

Unit reference number: M/602/1519

Level: 2

Credit value: 2

Guided learning hours: 14

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	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, legislation and guidelines 13.2 Safely and effectively dispose of waste materials in accordance with organisational and legal requirements			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 7: Contribute to the Provision of Ancillary Systems Within Polymer Processing and Related Environments

Unit reference number: D/602/1533

Level: 2

Credit value: 5

Guided learning hours: 26

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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, shut down and control ancillary systems			
2	Be able to provide ancillary systems to meet production requirements	2.1	Start up and shut down 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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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 shut down			
8	Be able to deal with problems	8.1	Shut down 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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 8: Pick Polymer Stock and Make Up Orders Within Polymer Processing and Related Environments

Unit reference number: H/602/1551

Level: 2

Credit value: 3

Guided learning hours: 16

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Assessment Context

This unit is concerned with picking polymer stock and making up orders. The unit relates to making up orders for customers both internal and external. It requires learners to identify the required stock, prepare it for dispatch and place the order in the appropriate dispatch system.

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.

Customers can be: internal or external.

Appropriate person relates to: supervisor, manager, dispatch staff, sales staff.

Orders that cannot be fulfilled relate to: part orders and full orders.

Orders relate to: single orders and mixed orders.

Information relates to: maintaining stock levels, transferring internal costs, charging external customers.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know how to prepare stock for a customer order	1.1	Explain how to identify the customer's requirements			
		1.2	Identify the different types of customer			
		1.3	Explain the importance of speed, accuracy and consistency in the picking process to the business and its customers			
2	Be able to deal with problems	2.1	Deal with problems within work area, within limits of personal responsibility			
		2.2	Report problems to the appropriate person when orders cannot be fulfilled			
		2.3	Segregate and label clearly any damaged items			
		2.4	Report problems affecting location and storage of items to the appropriate person			
3	Know how to work to organisational and operational procedures	3.1	Explain where to get help with Health and Safety issues and statutory regulations			
		3.2	Describe how to work within safe practices and procedures			
4	Be able to work to organisational and operational procedures	4.1	Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
5	Know how to control stock	5.1	Describe the stock control and ordering systems used within the organisation			
		5.2	Describe how stock control information is updated			
		5.3	Explain how to rotate stock			
6	Be able to prepare stock for a customer order	6.1	Receive and interpret instruction from customer's order			
		6.2	Identify the required items from the customer's order			
		6.3	Remove the required items from stock to complete the order			
7	Know how to make up an order	7.1	Describe how to estimate the time necessary to fulfil the order			
		7.2	Explain what to do if there is not enough time to fulfil the order			
		7.3	Describe how to assemble orders to minimise risk of damage to contents			
8	Be able to make up an order	8.1	Check that all the required items are in the assembled order			
		8.2	Assemble the customer's order from the picked items			
		8.3	Label the orders accurately and clearly			
		8.4	Provide product and order information in the customer's order			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
9	Be able to prepare an order for dispatch	9.1	Pack orders securely and promptly placing them in the right location for dispatch			
		9.2	Ensure items for dispatch are stored safely and securely, avoiding damage			
10	Know how to fulfil the documentation requirements	10.1	Explain how to maintain records and documentation			
		10.2	Identify the types of records to be kept and where they are stored			
		10.3	Identify the information to include with the order			
		10.4	Identify the order documentation to use and what its purpose is			
		10.5	Identify the information required by the people who will fulfil the order			
		10.6	Explain what to do if information is not complete to the order			
11	Be able to fulfil the documentation requirements	11.1	Complete relevant documentation to ensure correct stock records are kept			
		11.2	Hand the invoicing information to the people who will issue the invoice			
		11.3	Ensure completed documentation is sent to the appropriate person			
		11.4	Dispatch the completed documentation promptly			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
12 Know how to deal with problems	12.1 Identify limits of personal responsibility when dealing with problems 12.2 Identify the appropriate person to report problems to outside area of responsibility			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 9: Prepare Materials for Processing According to Instructions Within Polymer Processing and Related Environments

Unit reference number: D/602/1242

Level: 2

Credit value: 3

Guided learning hours: 14

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	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			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 10: Maintain the Condition of Process Equipment Within Polymer Processing and Related Environments

Unit reference number: D/602/1547

Level: 2

Credit value: 7

Guided learning hours: 36

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Assessment Context

This unit is for those with responsibility to maintain the condition of process equipment with the learner's responsibility working within a specification and following clearly defined procedures under both operational and non-operational conditions. In some cases, the learner may still be expected to refer to others for final authorisations, even though responsibility for identifying and implementing decisions remains with the learner.

Typical procedures would include:

- cleaning
- replenishment of consumables
- tightening of connections
- checking movements.

Relevant factors which, when present individually or in combination, define the unit and describe relevant applications. The assets to be maintained are single technology and/or most components are robust. The maintenance procedures to be followed are pre-defined, clearly specified and can be readily implemented.

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:

- working within the extent of responsibility with regard to personal health and safety and that of others
- working under the direction of a supervisor and on your own personal imitative on routine tasks
- being responsible for the quality of own work but referring any difficulties to a supervisor.

Removing process equipment of a typical type relates to: structural, mechanical, electrical, tooling.

Removal techniques or procedures which are determined by the company.

Quality standards and accuracy will be determined by:

- the nature of the equipment being maintained
- company policy
- company national or international standards.

Products or assets will typically be: manufactured products or components or assemblies.

Routine checks, inspection and tests which have characteristics and complexity described within the relevant specification.

Documentation of Inspection relates to: test and record keeping procedures which are determined by quality management systems.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know how to prepare for maintenance	1.1	Identify where to locate engineering drawings and related specifications that are approved by the company for the equipment involved			
		1.2	Describe how to interpret drawings and specifications			
		1.3	Identify where to locate maintenance schedules and related specifications			
		1.4	Explain how to interpret the maintenance schedules and specifications			
		1.5	Identify the resources available for maintenance			
		1.6	Identify how to use tools and equipment for component removal, replacement and compliance checking			
		1.7	Describe what the basic care and operating requirements of maintenance equipment are			
2	Be able to prepare for maintenance	2.1	Follow and make appropriate use of the specifications for the product or asset being checked			
		2.2	Use all the correct tools and inspection equipment and check that they are in useable condition			
		2.3	Carry out the checks in an appropriate sequence using approved methods and procedures			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
3	Know how to care for the components	3.1	Identify where the components are located in the equipment			
		3.2	Explain how to handle components throughout the process			
4	Know how to remove and replace components from process equipment	4.1	Identify the component removal and replacement methods and techniques that should be used			
		4.2	Identify the equipment and materials that are used during component removal and replacement, and compliance checking			
		4.3	Explain what components may have to be removed and replaced, and their functions			
		4.4	Explain the labelling conventions to use when storing components			
		4.5	Identify where to store components for re-use			
5	Be able to remove components from process equipment during maintenance	5.1	Take suitable precautions to prevent damage to components, tools and equipment during removal			
		5.2	Remove the required components using approved tools and techniques			
		5.3	Check the condition of the removed components and record those that will require replacing			
		5.4	Label and store the removed components in an appropriate location			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
6	Be able to replace components from process equipment during maintenance	6.1	Establish, and where appropriate, mark component orientation for re-assembly			
		6.2	Obtain all the required components and ensure that they are in a suitable condition for replacement and fit for purpose			
		6.3	Ensure that any replacement components used meet the required specification			
		6.4	Replace the components in the correct sequence using appropriate tools and techniques			
7	Know how to make adjustments to process equipment	7.1	Identify the methods that should be used during adjustment			
		7.2	Identify the adjustment sequence			
		7.3	Identify the resources available for maintenance and adjustment procedures			
8	Be able to make adjustments to process equipment	8.1	Make any necessary settings or adjustments to the components to ensure they will function correctly			
9	Know how to work safely	9.1	Describe responsibilities for personal safety and that of colleagues			
		9.2	Describe the procedures to follow in the event of emergencies or hazardous occurrences			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
10 Be able to work safely	10.1 Ensure that any stored energy or substances are released safely and correctly 10.2 Take adequate precautions to prevent damage to components, tools and equipment during replacement 10.3 Store or discard the removed components in accordance with approved procedures			
11 Know how to deal with problems	11.1 Describe what types of defects can occur in components and how to recognise them			
12 Be able to deal with problems	12.1 Identify and assess any defects or variations from the specifications and take appropriate action 12.2 Deal promptly and effectively with problems within personal control and report those that cannot be solved			
13 Know how to record and report the required information	13.1 Identify the records that are required 13.2 Explain why it is important to update records 13.3 Identify who to pass records to 13.4 Identify who to report to and what reporting methods to use			
14 Be able to record and report the required information	14.1 Maintain documentation in accordance with organisational requirements 14.2 Report completion of compliance activities in line with organisational procedures			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
15	Know how to work to organisational and operational procedures	15.1	Identify the Health and Safety legislation, statutory regulations and safe working practices and procedures that apply to maintenance			
		15.2	Describe the maintenance authorisation procedures that apply			
		15.3	Identify the limits of own responsibility and authority			
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			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 11: Carry Out Simple Sampling Operations Within Polymer Processing and Related Environments

Unit reference number: R/602/1545

Level: 2

Credit value: 3

Guided learning hours: 14

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 12: Carry Out Simple Testing Operations Within Polymer Processing and Related Environments

Unit reference number: Y/602/1546

Level: 2

Credit value: 3

Guided learning hours: 18

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	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			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 13: Accept, Verify and Store Materials Required for Process Operations Within Polymer Processing and Related Environments

Unit reference number: F/602/1346

Level: 2

Credit value: 3

Guided learning hours: 16

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

Assessment Context

This unit is for those with responsibility for accepting, verifying and storing materials required for process operations.

The materials may be raw materials, product components and/or used products for processing. They may come from external suppliers or be internal deliveries in transit to other parts of the process operation.

This unit is suitable for process industries personnel who work within an organisational context that provides them with procedures to work to and criteria for making decisions and taking actions.

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.

Delivery arrangements relate to: type of materials, quantity of materials, access requirements, handling requirements, date and time of delivery.

Information relates to: records and requisitions, delivery notifications, a person in authority or senior responsibility.

An appropriate person is a: supervisor, charge hand, team leader manager, quality control person, maintenance person, customer.

Checks relate to: visual checks, physical checks for quality.

Actions relate to refusing delivery and reporting discrepancies to at least one of the following: line manager, the person delivering the materials, the supplier.

Relevant people relate to: supervisor, production co-coordinator, line manager, team leader.

Methods relate to: manual handling, handling with machinery or equipment.

Organisational requirements relate to: meeting specified deadlines, ensuring stock rotation, meeting organisational Health and Safety requirements, making best use of available space.

Monitoring relates to: visual checks, physical checks for quality.

Discrepancies and defects relate to: discrepancies in stock levels, deterioration of materials, damage to materials or packaging, out of date stock, lost labels, shortfalls and over-supply, defects in quality, wrong materials, damaged container, incorrect size.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
1 Know how to accept materials needed for process operations	1.1 Explain how to obtain information on supplier history 1.2 Describe the procedures relating to the receipt of materials 1.3 Identify what handling equipment is necessary and how to access it 1.4 Explain why it is important to handle materials safely 1.5 Identify where deliveries should be off-loaded 1.6 Explain what to look for when checking materials for their acceptability 1.7 Identify acceptable reasons for refusing materials entry to storage			
2 Be able to accept materials needed for process operations	2.1 Confirm delivery arrangements from available information 2.2 Ensure the receiving area is clean and tidy ready to receive the delivery making sure that there are no potential hazards 2.3 Confirm the availability of handling equipment required to off-load and move the materials being delivered			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	2.4 Confirm the availability of sufficient storage capacity to accommodate anticipated deliveries 2.5 Complete any preparation and labelling requirements in accordance with organisational procedures 2.6 Inform the relevant people if materials are refused			
3 Know how to examine the materials to ensure the right quality	3.1 Explain how to access and interpret information to determine the quantity and characteristics of deliveries 3.2 Identify methods for checking different types of materials 3.3 Explain why damaged materials cost the company money			
4 Be able to examine the materials to ensure the right quality	4.1 Check materials as they arrive to make sure that they meet the specification in the delivery documentation 4.2 Make sure that the right type of material and the right amount has been received 4.3 Examine materials for any shortfalls or damage 4.4 Note any shortfalls or damage			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
5	Know how to store materials needed for process operations	5.1	Identify the resources that are available for checking materials entering storage			
		5.2	Describe the types of materials held in storage			
		5.3	Describe the storage facilities and locations available, their characteristics and the importance of selecting suitable storage locations			
		5.4	Identify the criteria for assessing the suitability of locations for storage, including its suitability to maintain the quality of materials in storage			
		5.5	Identify where information about the storage requirements of materials can be obtained			
		5.6	Describe the storage requirements for the range and types of materials held in storage			
6	Be able to store materials needed for process operations	6.1	Position materials using the correct methods			
		6.2	Position materials in designated storage locations within specified deadlines			
		6.3	Position materials to meet organisational requirements			
		6.4	Position materials in storage to enable access, stock rotation and monitoring			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
7	Know how to monitor materials in storage	7.1	Identify why it is important to check materials in storage			
		7.2	Identify how and when materials should be checked			
		7.3	Describe the defects that can arise in materials held in storage, and how to deal with them			
		7.4	Identify who to report these defects to			
8	Be able to monitor materials in storage	8.1	Protect materials from the environment to avoid deterioration			
		8.2	Monitor the condition of materials in storage			
		8.3	Take appropriate action to deal with discrepancies and damage to stored materials			
		8.4	Report discrepancies and defects in stored materials			
9	Be able to deal with problems	9.1	Identify defects to equipment, relating to availability or malfunction, and promptly report these to the appropriate person			
		9.2	Take action quickly to deal with any discrepancies, shortfalls or damage			
		9.3	Report actions taken to someone in authority			
10	Know how to use the organisational communication methods	10.1	Describe the communications structures and procedures within the organisation			
		10.2	Explain the importance of effective communication and the implications of not communicating effectively			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
11 Know how to maintain records	11.1 Identify what documentation is required 11.2 Explain why it is important that damaged materials are reported promptly 11.3 State why accurate and complete documentation is important, and the possible consequences of incorrect completion			
12 Be able to maintain records	12.1 Accurately record the reasons for refusing delivery of material 12.2 Maintain records on relevant documentation required to monitor deliveries, stock levels and traceability of materials			
13 Know how to work to organisational and operational procedures	13.1 Describe the good housekeeping practices that should be used and the consequences of not carrying them out 13.2 Describe the differing security, safety (eg COSHH) and environmental conditions required for different materials 13.3 Describe the working procedures that cover processing operations for own work area and why they are important 13.4 Identify the legal and local regulations affecting security, safety and the delivery of materials 13.5 Explain how to apply these regulations 13.6 Describe the use of stock control systems			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
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, legislation and guidelines 14.2 Use working methods that will not damage or contaminate the materials that are received			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 14: Supply Materials Required for Process Operations Within Polymer Processing and Related Environments

Unit reference number: T/602/1408

Level: 2

Credit value: 3

Guided learning hours: 18

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

Assessment Context

This unit is for those with responsibility for supplying materials required for process operations. The materials may be raw or part processed materials, product components and/or used products for processing.

This unit is suitable for process industries' personnel who have responsibility for selecting and supplying materials required for process operations and who work within an organisational context which provides them with specifications to work to and criteria for making decisions and taking actions.

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.

Preparation of materials relates to: used products for processing, raw materials, part processed materials, product components, prepared materials.

Information relates to: requisitions and records, a person in authority or senior responsibility.

Equipment relates to that which is: manual, mechanical, automated conveyor.

Organisational requirements relate to: meeting specified deadlines, materials being safe and secure, materials being able to be accessed for process operations to meet stock rotation requirements, materials requested are not available, requests for materials cannot be fulfilled on time, requirements are not fully specified.

Operational requirements relate to: suitability for the task, required state of cleanliness, production timescales and deadlines.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know how to lift and handle materials safely	1.1	Explain how to lift and handle materials safely			
		1.2	Identify the risks associated with unsafe lifting and handling practices			
2	Be able to comply with production requirements	2.1	Establish the requirements for materials from available information and at which locations and by what deadlines			
		2.2	Seek further information from the relevant person when these requirements can not be met			
		2.3	Check and confirm that the equipment can meet operational requirements			
3	Know how to prepare to move materials	3.1	Assess the types of materials to be moved and their specific handling requirements			
		3.2	Identify the types of handling tasks for which assistance is needed			
		3.3	Explain why it is important to seek assistance and who to ask			
		3.4	Identify the costs associated with not meeting requirements accurately and on time			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Be able to prepare to move materials	4.1	Select the materials that are required for the process operation			
		4.2	Identify handling tasks which require the assistance of others and seek appropriate assistance promptly			
		4.3	Obtain the equipment specified to move the materials			
		4.4	Assess current capacity to ensure deadlines are met			
5	Know how to gather materials for process operations	5.1	Identify methods for collecting materials that will minimise risks of damage			
		5.2	Explain how to use the inventory system to locate items in stock and check availability			
		5.3	Explain the importance of grades and product codes for identifying the correct materials			
		5.4	Identify the timescales required for the assembly of materials			
6	Be able to gather materials for process operations	6.1	Correctly identify and collect materials required for process operations			
		6.2	Assemble materials to meet process requirements and prepare them for delivery			
		6.3	Remove the required materials from stock to the designated location			
		6.4	Keep to the specified time scales and organisational requirements			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
7	Know how to deliver materials needed for process operations	7.1	Explain why it is important to move materials to the correct location by the required time			
		7.2	Identify the locations where materials are required			
		7.3	Identify the characteristics of these locations and storage facilities			
		7.4	Assess how and where materials should be positioned in designated locations			
		7.5	Describe the different types of equipment used in the work area for moving items and their suitability for the different materials to be moved			
8	Be able to deliver materials needed for process operations	8.1	Position materials in the designated location to meet requirements for safety, security, access and stock rotation			
9	Know how to deal with problems	9.1	Identify the defects in equipment that can arise, and who these should be reported to			
		9.2	Outline the sorts of difficulties that might arise in meeting requirements for moving materials			
		9.3	Identify who difficulties should be reported to			
10	Be able to deal with problems	10.1	Notify the relevant person if there are any difficulties in meeting requirements for materials			
		10.2	Report difficulties in moving materials to a person in authority			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
11 Know how to use the organisational communication methods	11.1 Explain the importance of clear and accurate instructions for supplying materials 11.2 Explain how to clarify incomplete or ambiguous information 11.3 Identify the lines of communication and command that should be followed in a given situation			
12 Know how to maintain records	12.1 Explain the methods for updating stock control information 12.2 Explain what sorts of records are kept and how to complete them 12.3 Explain the purpose of different records and the implications of not maintaining them effectively			
13 Be able to maintain records	13.1 Label the materials and complete documentation as instructed 13.2 Maintain records required for stock control, production records, quality control and traceability on the relevant documentation 13.3 Update stock control information to record progress of requisitions and stock levels			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
14 Know how to work to organisational and operational procedures	14.1 Identify the personal protective equipment required when handling different materials 14.2 Explain how to use personal protective equipment correctly and the importance of doing this 14.3 Identify the differing security, safety (eg COSHH) and environmental conditions required for different materials 14.4 Explain why it is important to work within the 'rules' of the organisation			
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, legislation and guidelines 15.2 Using equipment, including personal protective equipment, safely and correctly			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 15: Assemble Products Within Polymer Processing and Related Environments

Unit reference number: Y/602/1627

Level: 2

Credit value: 3

Guided learning hours: 16

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

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 (eg 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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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, 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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
6 Be able to 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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
8 Be able to carry out an 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, legislation and guidelines			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 16: Contribute to the Maintenance of Product Quality Within Polymer Processing and Related Environments

Unit reference number: D/602/1614

Level: 1

Credit value: 3

Guided learning hours: 18

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
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			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	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			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 17: Establish and Maintain Effective Working Relationships Within Polymer Processing and Related Environments

Unit reference number: A/602/1619

Level: 1

Credit value: 2

Guided learning hours: 10

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

Assessment Context

This unit is for those with responsibility for establishing and maintaining effective working relationships with other people within the processing environment.

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.

Information relates to: team briefings, normal work situations, unusual work situations.

Providing help to others includes: when asked and when it is apparent that a colleague would benefit from some help.

Contacts include: staff from other work areas, suppliers or sub-contractors, clients, regulatory or inspection agencies, community, eg school visits, other departments.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know how to establish and maintain effective working relationships	1.1	State the need for good relationships			
		1.2	State how to recognise reasonable requests and how to respond to them			
		1.3	Indicate how to act when dealing with contractors and visitors			
2	Be able to establish and maintain effective working relationships with colleagues	2.1	Treat colleagues in a manner which promotes and maintains goodwill			
		2.2	Promptly and willingly meet reasonable requests from colleagues			
		2.3	Support and offer help to colleagues			
3	Be able to establish and maintain effective working relationships with contacts	3.1	Greet contacts in a manner which supports the reputation of the organisation			
		3.2	Ensure that contacts are not endangered			
4	Be able to establish and maintain effective working relationships with others from outside the immediate work area	4.1	Interact with staff from the immediate work area			
		4.2	Interact with external contacts and others from outside the immediate work area			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
5	Know how to use communication methods to establish and maintain effective working relationships	5.1	State why it is important to communicate clearly			
		5.2	Explain the importance of ensuring that information given has been understood			
		5.3	Identify essential information that should be shared regarding daily work schedules			
		5.4	Identify whom to share information with			
6	Be able to use communication methods to establish and maintain effective working relationships	6.1	Provide clear, accurate and prompt information regarding daily work schedules to colleagues			
		6.2	Provide contacts with clear (oral, written and visual) information to meet their identified need			
		6.3	Promptly pass on requests for information outside of own responsibility to the relevant personnel			
7	Know how to deal with problems to maintain effective working relationships	7.1	State how to deal with difficulties in working relationships in a positive manner			
		7.2	State how to maintain respect whilst dealing with problems			
		7.3	Explain what action to take when matters can not be resolved			
8	Know how to work to organisational and operational procedures	8.1	State where to find company information relating to maintaining working relationships			
		8.2	Identify own responsibilities for maintaining working relationships under Company Personnel Policies			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
9 Be able to work to organisational and operational procedures	9.1 Work safely in accordance with operational requirements			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 18: Contribute to the Handover of Production Activities Within Polymer Processing and Related Environments

Unit reference number: M/602/1617

Level: 1

Credit value: 3

Guided learning hours: 26

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator with a basic understanding of the processes and equipment relating to the industry.

Assessment Context

This unit is for those with involvement in the handover of operational responsibilities, materials and or information to maintain the continuity and quality of production. It is suitable for personnel in the polymer industries who work within an organisation that provides them with clear procedures to work to. They will be required to communicate effectively with others to achieve specific work objectives. The production activities involved may relate to process operations or the supply of materials required for processing operations. Handover may occur at the end of, or during, a shift or working day. In some situations the handover may be from and to the same operator, ie at the end and beginning of the working day where no shift system exists.

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.

Handing over can be: to the next operation, to a customer, to the next shift, to relief staff or to other departments.

Hazards relate to: hazardous materials, spillages, dangerous tools and equipment.

Procedures can be for handing over and/or taking over.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Understand effective communication techniques	1.1	State why it is important to understand process specific terminology			
2	Know how to prepare for handover	2.1	Identify the importance of good housekeeping routines and what these are in relation to handover procedures			
		2.2	State how the workplace should be left in preparation for handover			
3	Be able to prepare for handover	3.1	Obtain and use correct cleaning equipment and materials			
		3.2	Complete all preparations by the specified handover time			
		3.3	Store equipment and materials according to organisational procedures			
4	Know how to carry out the handover safely	4.1	State why it is a good idea to make appropriate notes if there is no formal handover and the same operator is returning to the process			
		4.2	Identify the safe working practices that apply to own job role during handover			
		4.3	Identify when and where handovers take place			
		4.4	State the responsibilities of the individuals involved during a handover			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	4.5 State why it is important to support each other effectively 4.6 Identify the hazards associated with the handover and own responsibility for taking corrective actions 4.7 Identify the specific organisational Health and Safety procedures that cover handover			
5 Be able to carry out the handover safely	5.1 Handover and take over responsibilities for production activities 5.2 Handover in accordance with procedures and safe working practices			
6 Know how to communicate for a successful handover	6.1 State why effective communication is important at handover and who to communicate with during normal handovers 6.2 State who to inform of any problems in the handover process			
7 Be able to complete the necessary documentation	7.1 Complete the required handover documentation in accordance with organisational procedures			
8 Know how to work to organisational and operational procedures	8.1 Identify the personal protective equipment that is required and the correct procedures for use 8.2 State how to store and inspect personal protective equipment and the actions to take with defective equipment 8.3 Identify the relevant regulations and safe working procedures required for own work area and why it is important to follow them			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
9 Be able to work to organisational and operational procedures	9.1 Work safely at all times, complying with health and safety, environmental and other regulations, legislation and guidelines 9.2 Take appropriate actions against potential hazards in line with organisational procedures			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 19: Prepare to Produce Products by Hand-Based Operations Within Polymer Processing and Related Environments

Unit reference number: T/602/1490

Level: 2

Credit value: 4

Guided learning hours: 20

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Assessment Context

This unit is for those with responsibility for preparing to produce products by hand-based operations 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.

Examples of production operations that might be involved include:

- laminating
- assembly
- welding/bonding
- fabrication
- re-treading tyres.

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: process specification, product specification, production schedule.

Information relates to: specifications, procedures, schedules for production records, for traceability, for quality checks.

Preparations relate to: cleaning, setting up.

Equipment and tools include: hand tools, power tools, measuring equipment.

Defects relate to: damage, wear, malfunction, service defects, breakage.

Actions relate to: reporting faults, isolating defective equipment, requesting specialist assistance.

Materials relate to: raw materials, part processed materials, product components, products.

Non-conforming materials relate to: incorrect quality or grade, contaminated, inadequately prepared.

Prompt action relates to: move to the designated isolation area, report to the appropriate person, label appropriately.

Variance in material supply relates to: over supply, under supply.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know how to meet production requirements	1.1	Explain where to find production specifications 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 meet production requirements	2.1	Identify production requirements from available information			
		2.2	Check and confirm that production information is accurate and complete			
		2.3	Share information with colleagues to ensure that production requirements are achieved			
		2.4	Organise the work area to be free from potential hazards, to meet production requirements			
3	Know how to prepare equipment and tools for producing products	3.1	Explain the importance of preparing equipment to meet production requirements			
		3.2	Explain how to prepare equipment to meet production requirements			
		3.3	Identify what equipment and tools are needed for the process operation			
		3.4	Explain the importance of checking equipment and tools before use			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Be able to prepare equipment and tools for producing products	4.1	Select and prepare equipment and tools to meet production requirements effectively and safely			
5	Know how to prepare materials for producing products	5.1	Identify what materials are required and how to obtain them			
		5.2	Identify what preparations are required to meet the material specification			
		5.3	Explain how to recognise when the correct material preparations have not been carried out			
		5.4	Explain the significance of product labelling and product codes for material identification			
6	Be able to prepare materials for the production process	6.1	Select materials to conform to specification			
		6.2	Collect materials in the correct sequence for processing			
		6.3	Process materials efficiently and safely			
		6.4	Handle materials safely in accordance with organisational guidelines, legal requirements and codes of practice			
7	Know how to control the use of materials to ensure quality and safety	7.1	Explain why it is important to check material supply			
		7.2	Describe the consequences of different sorts of variances			
		7.3	Identify the potential effects of using materials out of sequence and how to prevent this from happening			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
	7.4 Explain the importance of meeting the required material specification and the implications of not doing so 7.5 Explain the importance of handling materials safely and the risks associated with unsafe handling procedures 7.6 Explain how to identify non-conforming materials and the implications of not doing this 7.7 Identify where non-conforming materials should be placed and who they should be reported to			
8 Know how to deal with problems when producing products	8.1 Identify the actions to take to deal with faulty equipment and tools and the importance of taking prompt action			
9 Be able to deal with problems when producing products	9.1 Identify defective equipment and tools and take appropriate action to deal with these 9.2 Identify non-conforming materials and take prompt action 9.3 Identify and respond to problems and difficulties when preparing for a processing operation 9.4 Identify variances in material supply and promptly report these to the appropriate person			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
10	Know how to deal with hazards	10.1	Explain what the potential work area hazards are and how they can be minimised			
		10.2	Explain the workplace procedures for reporting potential hazards that are unable to be dealt with by self			
		10.3	Identify the potential hazards associated with the materials used in the process operation and what actions to take against them			
		10.4	Identify own scope and responsibility for dealing with potential hazards in the work area			
		10.5	Identify what action to take in the event of a work area hazard			
11	Be able to identify and take appropriate action to deal with hazards	11.1	Carry out safety checks to ensure that equipment and the work area are safe and free from potential hazards			
		11.2	Deal with hazards effectively			
12	Know how to maintain records	12.1	Explain what sorts of records are kept and how to complete them			
		12.2	Explain the purpose of different records and the implications of not maintaining them effectively			
13	Be able to maintain records	13.1	Maintain the records required for monitoring production, quality and product identification			
		13.2	Maintain records in accordance with organisational requirements			
		13.3	Use the relevant documentation			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
14	Know how to work to organisational and operational procedures	14.1	Identify the current organisational quality standards that have to be met and how these relate to any relevant and current standards			
		14.2	Explain the safe working practices that apply to own job role for hand-based processing operations			
		14.3	Identify what personal protective equipment is required and how and when should this be used			
		14.4	Explain what lines of communication and command should be followed in a given situation			
		14.5	Explain why it is important to work within the 'rules' of the organisation			
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, legislation and guidelines			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Unit 20: Produce Products Using Hand-Based Operations Within Polymer Processing and Related Environments

Unit reference number: R/602/1514

Level: 2

Credit value: 4

Guided learning hours: 24

Assessment requirements/evidence requirements

This unit is subject to the requirements set out in the Cogent Assessment Strategy.

The assumed pre-requisite is that the learner undertaking this unit will be an operator, developing their role and seeking accreditation for their skills and knowledge.

Assessment Context

This unit is about producing products using hand-based operations 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:

- laminating
- assembly
- welding/bonding
- fabrication
- re-treading tyres.

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 (eg 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.

Assessment methodology

This unit is assessed in the workplace, simulation is not permitted. Learners can enter the types of evidence they are presenting for assessment and the submission date against each assessment criterion. Alternatively, centre documentation should be used to record this information.

Learning outcomes and assessment criteria

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
1	Know how to meet production requirements	1.1	Describe how to interpret and use product specifications			
		1.2	Identify which work methods to use to achieve the product specification			
		1.3	Explain 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 next stage of the production process			
		2.2	Explain how products should be prepared for the next stage of the production process			
		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 the specified tolerances and the appropriate action to take in response to deviations within and outside specified tolerances			
3	Be able to keep the equipment in good working order	3.1	Ensure equipment and tools are serviced and cleaned in accordance with operational requirements			
		3.2	Arrange for servicing of equipment if required			
		3.3	Store the equipment safely and securely in accordance with organisational requirements			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
4	Know how to use the materials in the production process	4.1	Explain the importance of identifying non-conforming materials and products			
		4.2	Explain the actions to take in response to these			
5	Know how to produce products by hand-based operations	5.1	Identify the organisational requirements for maintaining the condition, safety and security of products			
		5.2	Identify what organisational quality standards apply to the product and how these relate to any current and relevant quality standards			
6	Be able to produce products by hand-based operations	6.1	Carry out the necessary preparations to maintain the condition, safety and security of products			
		6.2	Prepare products and forward to the next stage of the production process to meet production requirements			
		6.3	Store products according to requirements			
		6.4	Estimate completion time and adjust the preparation and feed systems accordingly			
		6.5	Work effectively to achieve production requirements and output which minimise downtime and wastage			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
7	Know how to shutdown a hand-based production process	7.1	Explain how to identify shutdown requirements from specifications, schedules, procedures and instructions			
		7.2	Explain the importance of stopping processes in the correct sequence and the consequences of not following the prescribed sequence to shutdown			
		7.3	Identify what actions can be taken to minimise risk to people, property and the environment when shutting down			
8	Be able to shutdown a hand-based production process	8.1	Demonstrate the correct shutdown procedure			
9	Know how to deal with problems	9.1	Describe the sorts of processing problems that might occur			
		9.2	Describe the appropriate remedial actions to take in response to processing problems			
10	Be able to deal with problems	10.1	Correctly identify and deal with processing problems			
		10.2	Take remedial action when a problem is found			
11	Know how to maintain quality	11.1	Identify the purpose and importance of quality assurance checks, and when and how these should be carried out			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
12 Be able to maintain quality	12.1 Achieve the product specification by following organisational work methods and techniques 12.2 Take appropriate action to isolate and report non-conforming products 12.3 Identify product deviances that are within and outside acceptable tolerances 12.4 Carrying out quality assurance checks against relevant quality standards			
13 Know how to deal with hazards	13.1 Identify what potential hazards are associated with the production processes 13.2 Identify the appropriate actions required to minimise risk to people, property and the environment 13.3 Identify what the potential shutdown hazards are 13.4 Identify own scope and responsibility for dealing with potential hazards in the work area 13.5 Explain the workplace procedures for reporting potential hazards that are unable to be dealt with by self			
14 Be able to deal with hazards	14.1 Identify and take prompt and effective action against potential hazards to minimise risks to people, property and the environment			

Learning outcomes		Assessment criteria		Evidence type	Portfolio reference	Date
15	Know how to maintain records	15.1	Explain what sorts of records are kept and how to complete them			
		15.2	Explain the purpose of different records and the implications of not maintaining them effectively			
16	Be able to maintain records	16.1	Keep the relevant documentation up to date in accordance with organisational procedures			
17	Know how to work to organisational and operational procedures	17.1	Identify what agreed workplace health and safety procedures relate to controlling risks to Health and Safety in the process environment			
		17.2	Describe working practices that apply to producing products by hand-based operations			
		17.3	Describe the organisational requirements for the safe and secure storage of materials and equipment			
		17.4	Identify what personal protective equipment should be used, how to fit and use it correctly and how to deal with defective equipment			
		17.5	Explain what safe working practices apply to own job role in carrying out a hand-based production process			
		17.6	Explain the lines of communication and command that should be followed in a given situation			
		17.7	Explain why it is important to work within the 'rules' of the organisation			

Learning outcomes	Assessment criteria	Evidence type	Portfolio reference	Date
18 Be able to work to organisational and operational procedures	18.1 Work safely at all times, complying with health and safety, environmental and other relevant regulations, legislation and guidelines 18.2 Safely and effectively dispose of waste materials in accordance with organisational and legal requirements			

Learner name: _____ Date: _____

Learner signature: _____ Date: _____

Assessor signature: _____ Date: _____

Internal verifier signature: _____ Date: _____
(*if sampled*)

Further information and useful publications

To get in touch with us visit our 'Contact us' pages:

- Edexcel, BTEC and Pearson Work Based Learning contact details: qualifications.pearson.com/en/support/contact-us.html
- books, software and online resources for UK schools and colleges: www.pearsonschoolsandfecolleges.co.uk

Key publications

- *Adjustments for candidates with disabilities and learning difficulties, Access and Arrangements and Reasonable Adjustments, General and Vocational qualifications* (Joint Council for Qualifications (JCQ))
- *Supplementary guidance for reasonable adjustments and special consideration in vocational internally assessed units* (Pearson)
- *General and Vocational qualifications, Suspected Malpractice in Examination and Assessments: Policies and Procedures* (JCQ)
- *Equality Policy* (Pearson)
- *Recognition of Prior Learning Policy and Process* (Pearson)
- *UK Information Manual* (Pearson)
- *Pearson Edexcel NVQs, SVQs and competence-based qualifications – Delivery Requirements and Quality Assurance Guidance* (Pearson)

All of these publications are available on our website: qualifications.pearson.com

Further information and publications on the delivery and quality assurance of NVQ/Competence-based qualifications are available at our website on the Delivering BTEC pages. Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please go to the resources page of our website.

How to obtain National Occupational Standards

To obtain the National Occupational Standards go to www.ukstandards.org.uk.

Professional development and training

Pearson supports UK and international customers with training related to NVQ and BTEC qualifications. This support is available through a choice of training options offered in our published training directory or through customised training at your centre.

The support we offer focuses on a range of issues including:

- planning for the delivery of a new programme
- planning for assessment and grading
- developing effective assignments
- building your team and teamwork skills
- developing student-centred learning and teaching approaches
- building functional skills into your programme
- building effective and efficient quality assurance systems.

The national programme of training we offer can be viewed on our website (qualifications.pearson.com). You can request customised training through the website or by contacting one of our advisers in the Training from the Pearson team via Customer Services to discuss your training needs.

The training we provide:

- is active
- is designed to be supportive and thought provoking
- builds on best practice
- may be suitable for those seeking evidence for their continuing professional development.

Annexe A: Quality assurance

Key principles of quality assurance

- A centre delivering Pearson qualifications must be a Pearson recognised centre and must have approval for qualifications that it is offering.
- The centre agrees, as part of gaining recognition, to abide by specific terms and conditions relating to the effective delivery and quality assurance of assessment. The centre must abide by these conditions throughout the period of delivery.
- Pearson makes available to approved centres a range of materials and opportunities to exemplify the processes required for effective assessment and provide examples of effective standards. Approved centres must use the guidance on assessment to ensure that staff who are delivering Pearson qualifications are applying consistent standards.
- An approved centre must follow agreed protocols for: standardisation of assessors; planning, monitoring and recording of assessment processes; internal verification and recording of internal verification processes and dealing with special circumstances, appeals and malpractice.

Quality assurance processes

The approach to quality assured assessment is made through a partnership between a recognised centre and Pearson. Pearson is committed to ensuring that it follows best practice and employs appropriate technology to support quality assurance processes where practicable. The specific arrangements for working with centres will vary. Pearson seeks to ensure that the quality-assurance processes it uses do not inflict undue bureaucratic processes on centres, and works to support them in providing robust quality-assurance processes.

The learning outcomes and assessment criteria in each unit within this specification set out the standard to be achieved by each learner in order to gain each qualification. Pearson operates a quality-assurance process, designed to ensure that these standards are maintained by all assessors and verifiers.

For the purposes of quality assurance, all individual qualifications and units are considered as a whole. Centres offering these qualifications must be committed to ensuring the quality of the units and qualifications they offer, through effective standardisation of assessors and internal verification of assessor decisions. Centre quality assurance and assessment processes are monitored by Pearson.

The Pearson quality-assurance processes will involve:

- gaining centre recognition and qualification approval if a centre is not currently approved to offer Pearson qualifications
- annual visits to centres by Pearson for quality review and development of overarching processes and quality standards. Quality review and development visits will be conducted by a Pearson quality development reviewer
- annual visits by occupationally competent and qualified Pearson Standards Verifiers for sampling of internal verification and assessor decisions for the occupational sector
- the provision of support, advice and guidance towards the achievement of National Occupational Standards.

Centres are required to declare their commitment to ensuring quality and appropriate opportunities for learners that lead to valid and accurate assessment outcomes. In addition, centres will commit to undertaking defined training and online standardisation activities.

Annexe B: Centre certification and registration

Pearson Standards Verifiers will provide support, advice and guidance to centres to achieve Direct Claims Status (DCS). Pearson will maintain the integrity of Pearson NVQs through ensuring that the awarding of these qualifications is secure. Where there are quality issues identified in the delivery of programmes, Pearson will exercise the right to:

- direct centres to take action
- limit or suspend certification
- suspend registration.

The approach of Pearson in such circumstances is to work with the centre to overcome the problems identified. If additional training is required, Pearson will aim to secure the appropriate expertise to provide this.

What are the access arrangements and special considerations for the qualifications in this specification?

Centres are required to recruit learners to Pearson qualifications with integrity.

Appropriate steps should be taken to assess each applicant's potential and a professional judgement should be made about their ability to successfully complete the programme of study and achieve the qualification. This assessment will need to take account of the support available to the learner within the centre during their programme of study and any specific support that might be necessary to allow the learner to access the assessment for the qualification. Centres should consult Pearson's policy on learners with particular requirements.

Pearson's policy on access arrangements and special considerations for Pearson qualifications aims to enhance access to the qualifications for learners with disabilities and other difficulties (as defined by the 2010 Equality Act) without compromising the assessment of skills, knowledge, understanding or competence. Please refer to *Access Arrangements and Special Considerations for BTEC and Pearson Edexcel NVQ Qualifications* for further details. qualifications.pearson.com.

Annexe C: Assessment requirements/strategy

1) Introduction

This Assessment Strategy presents a single overarching strategy for competence based qualifications within the Cogent sector.

a The UKCG guidance on assessment strategies requires SSCs to develop strategic guidance on the principles which Awarding Bodies shall follow when designing and implementing N/SVQs in their sectors.

b With the introduction of the new 'Qualifications and Credit Framework' in England, Wales and Northern Ireland the scope of the Cogent Assessment Strategy has also been extended to include any competence related qualifications, approved within the QCF, with the following purpose:

- to demonstrate that an individual has the necessary skills and/or knowledge to perform a given job role competently
- to demonstrate that an individual has the necessary skills and/or knowledge to perform a specific function(s) or task(s) competently.

c The requirements have been brought together in this single document in order to avoid repetition and they represent a key part of the assessment process.

d This strategy is supplemented by award-specific assessment requirements which identify appropriate forms of evidence for the particular competence being assessed.

e This assessment strategy shall apply to all new qualification frameworks and awards submitted after approval by UKCG.

f Awarding Bodies representing the four nations have all been involved with the development of this assessment strategy and provided supporting letters.

g Awarding Bodies will ensure that all practices related to assessment of Cogent S/NVQs will be conducted in accordance with the codes of practice and guidelines as set out in QCA's 'NVQ Criteria and Codes of Practice' and SQA Accreditation's 'Approved Awarding Body Criteria (2007)'

h This strategy is set out in terms of four components, each of which is given below. They are:

- requirements for mandatory use of evidence from workplace performance;
- aspects of the standards for which the use of simulation is to be permitted and design characteristics which those simulations must address;
- definitions of the occupational competence requirements of assessors and verifiers; and
- the recommended approach to external quality control.

2) Mandatory use of evidence from workplace performance

i Unless the use of simulation is expressly permitted within the qualification or unit specific evidence requirements, evidence must demonstrate the candidate's competence in a real or realistic environment.

j 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 candidate must be recorded.

k In England and Wales, where the candidate is undertaking an NVQ within the context of an Apprenticeship/Foundation Modern Apprenticeship for which there is no Technical Certificate component the knowledge and understanding requirements must be separately assessed, recorded and evidenced. This must be done through the use of written question and answer evidence which is externally verified by the relevant Awarding Body. Alternative arrangements can be made for those candidates with special needs where appropriate. Examples of these Apprenticeships are L2 Apprenticeships/Foundation Modern Apprenticeship in Radiation Protection, Signmaking and Polymer Processing.

3) Use of Simulation

l The qualification or unit specific assessment requirements will define where evidence from simulation is acceptable, and in which contexts. A full summary of these requirements for existing N/SVQs can be found in Appendix A of Cogent's Assessment Strategy for the Chemical, Pharmaceutical, Nuclear, Oil and Gas, Petroleum and Polymer Industries (www.cogent-ssc.com).

m The requirements for any new qualifications accredited to the QCF from August 2008 onwards will be added on an incremental basis to Appendix B of Cogent's Assessment Strategy for the Chemical, Pharmaceutical, Nuclear, Oil and Gas, Petroleum and Polymer Industries (www.cogent-ssc.com).

n Simulation, where permissible, may be used to provide evidence in two different scenarios:

Scenario 1 – (applicable to any competence related qualifications, including N/SVQs) in order to demonstrate particular competences/units that would be difficult or dangerous to demonstrate directly

Scenario 2 – (only applicable to NVQs) in order to demonstrate the acquisition of knowledge and skills where the achievement of a competence based qualification is not possible (eg as the basis for year 1 of an Advanced/Modern Apprenticeship – England and Wales only). This qualification would be Process Engineering Maintenance L2.

o Scenario 1 – Where simulation is used to demonstrate particular competences/units that would be difficult or dangerous to demonstrate directly (eg in dealing with emergencies).

N.B This scenario is applicable to any competence related qualifications, including N/SVQs.

Simulation should be used only where direct evidence of candidate 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 candidate'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 candidate's claim to competence.

p 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 QA 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 candidate performance.

q 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 candidate'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.

r Scenario 2 – Where simulation is used to demonstrate the acquisition of knowledge and skills where the achievement of a competence based qualification is not possible. In England and Wales, an apprentice who is registered on a Cogent Advanced Apprenticeship/Modern Apprenticeship may use simulation on the NVQ L2 Process Engineering Maintenance as part of the basic apprenticeship training. For any person completing this qualification that fails to complete the Advanced Apprenticeship/Modern Apprenticeship it will state on their completion certificate that this qualification was assessed in a simulated environment.

The development of the Cogent 'Community Apprenticeship' model has highlighted the need to make NVQ L2 Process Engineering Maintenance available for completion through a college or other training provider 'off-site'. This is to enable the candidate to begin acquiring the skills and knowledge required to work in the Cogent industries prior to undertaking the NVQ level 3 with an employer in the normal way. Under these circumstances simulation may be used, with the prior agreement of the External Verifier, for summative assessment across the whole qualification.

s 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.

t Circumstances outside of scenarios 1 and 2 above may also be considered suitable for the use of simulation with the agreement of the External Verifier, Awarding Body and Sector Skills Council. Under these circumstances simulation may be used for formative assessment only.

4) Occupational competence of assessor and verifiers

u 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 candidates. 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 the Qualification Regulator(s). Organisations should consult with the relevant awarding organisation regarding approval for exemptions.

v 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 an approved 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 the Qualification Regulator(s). Organisations should consult with the relevant awarding organisation regarding approval for exemptions.

w External Verifiers:

- must be familiar with the industry, and have an understanding of the technical processes and terminology used. The Awarding Body, through examination of relevant CVs and references, will confirm this.
- should hold or be working towards suitable qualifications for verification, as defined by the Qualification Regulator(s).

5) External Quality Control

x The external quality control of assessment is to be ensured, in this highly regulated and safety-critical sector, through the use of competent external verifiers.

y External quality control will be undertaken by one of two methods to be selected at the choice of the Awarding Body. These are:

- Statistical Monitoring in which the risk rating of centres is determined through the collection of a range data types. Awarding Bodies delivering the awards should provide arrangements for fulfilling these requirements.

OR

- Enhanced External Verification in which one critical unit (identified by the standards-setting body) is to be sampled at all external verification events. Where there have been no candidates assessed in a centre for this unit, the external verifier will duly record this fact. This enhanced external verification model will cover the evidence assessed by each assessor involved in the assessment of the safety-critical unit over a twelve month period.

November 2017

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