ST1328 - Level 3 Polymer Processing Technician: End-Point Assessment

Occupational Profile

Polymer processing technicians work in the process manufacturing sector.

A polymer is a substance or material made of long repeating chains of molecules. There are several types of polymers. They have different properties: light, heavy, strong, tough, and flexible, depending on the type of molecules bonded and how they are bonded. They are used for a wide variety of purposes in both everyday consumer products and highly demanding technical applications. Elastomer and rubber for example, are used for tyres and components such as seals and gaskets. PVC is used for water pipes, window frames, and cable insulation. Nylon and polyester are used in clothing. And plastics are used in mobile phones, computer hardware, automotive, medical devices, aerospace, disability aides, water bottles, and vacuum cleaners.

Polymer processing technicians produce polymer products to a specification. They work in a production facility - often on a large scale, using a range of machinery, control systems and engineering equipment. Products are made using continuous or in batch processes. Polymer processing technicians set up or configure equipment and tooling and prepare materials for processing. They run and monitor the process, adjusting parameters. They use unique technologies and processes such as extrusion, blow moulding, thermoforming, rotational moulding, injection moulding, internal mixing, and calendering. They undertake quality control, complete work records, and participate in improvement. They may also complete preventative maintenance and prepare polymer process equipment for maintenance and overhaul.

They work with other members of the production team. They also have contact with people from other functions such as, process engineers, maintenance engineers, laboratory staff, supply chain staff, and warehouse staff. They may also have contact with external people such as customers, service providers, suppliers, and regulators. They usually report to a production manager.

They must ensure that the process and products meet quality specifications and are produced to schedule. They must comply with health and safety regulations and procedures including wearing personal protection equipment (PPE). They also need to meet environmental and sustainability regulations and procedures – minimising waste and recycling materials. They may work as part of a small or large manufacturing team. They work with minimal supervision and are responsible for the quality of their own work. They may work shifts.

End-Point Assessment

The Polymer Processing Technician is assessed through three End-Point Assessment (EPA) methods as set out in the assessment plan:

- Observation with questions
- Interview underpinned by a Portfolio of Evidence
- Multiple-choice test

Apprentices typically spend 36 months on-programme (before Gateway) working towards the occupational standard with a minimum 20% off-the-job training. All Apprentices must spend a minimum of 12 months on programme.

Once the Employer is satisfied that the Apprentice is consistently working at or above the level set out in the standard, and that all Gateway requirements have been met, the Apprentice can proceed to their End-Point Assessment (EPA). The assessments can be delivered in any order.

Gateway requirements for End-Point Assessment:

- English and Mathematics:
    - Aged 16-18 when enrolling on their apprenticeship – must achieve Level 2 as a minimum (GCSE equivalent grade A-C / 4-9)
    - Aged 19 + when enrolling on their apprenticeship – Providers must confirm that employer and Apprentice have agreed these are not needed or provide proof that the assessments have been attempted. The Apprentice does not need to have passed their Level 2 English and Maths but confirmation of "opting out" or evidence of completing but not achieving will be required at Gateway.
- Portfolio of evidence, mapped to a Portfolio Evidence Log for the Interview.

The EPA period will not begin for any assessment method until all gateway checks have been completed.

The EPA will usually be completed within 3 months of Gateway approval.

Marshall Assessment will provide the following documents which must be used as part of the Gateway process:

- Gateway Declaration – HEI / Training Provider
- Gateway Declaration – Employer
- Gateway Declaration – Apprentice
- Portfolio Evidence Log - Apprentice

A summary of the assessment methods and how Marshall Assessment deliver them has been provided below. Further support can be found in the following documents which will be provided as part of our EPA support and customer / Apprentice engagement pack.

- 1. Observation with Questions – detailed guidance to help the Apprentice prepare for their Observation with Questions. The document includes guidance on the assessment criteria that must be met for this assessment.
- 2. Interview Guidance – detailed guidance to help the Apprentice to prepare for their Interview underpinned by a Portfolio of Evidence . The document includes guidance on the assessment criteria that must be met for this assessment. Marshall Assessment have also provided the following document for this part of the assessment:

    - 2a Portfolio Evidence Log - this must be completed to demonstrate to the Marshall Independent Assessor where you feel you have evidence the assessment within your portfolio.
- 3. Multiple-choice Test – detailed guidance to help the Apprentice prepare for this assessment, including a mock test paper.

Practical Assessment and Questions

Apprentices will be given at least 2 weeks' notice of the date of the Observation and Questions.

Timescale:
3 hours (plus 10% at the IAs discretion)

Should be completed on one working day.

Grading outcomes:

Fail – not all pass criteria met

Pass – all pass criteria met

Distinction – all pass & all distinction criteria met

- The assessment will take place in the Apprentice's normal place of work, with the Apprentice completing their day-to-day duties, under normal working conditions.
- The Marshall Independent Assessor must only observe one Apprentice at a time and will remain as unobtrusive as possible during the observation.
- Simulation is not allowed.
- The Marshall Independent Assessor should observe the following during the observation:
    - prepare polymer equipment and materials for processing
    - maintain the work area including risk assessment
    - set up, run, and monitor polymer processing
    - complete secondary operations
    - conduct quality assurance and control
    - complete preventative maintenance
    - communicate verbally
    - complete process documentation - digital or paper-based
- Equipment and resources needed for the observation must be provided by the employer and be in good and safe working condition.
- Activities may relate to the same or different processes or products and the Apprentice may move locations if required. They will be observed throughout.
- The Marshall Independent Assessor will ask a minimum of 6 questions during the assessment (included in the 3 hours timescale).
- Assessments may be recorded for quality and training purposes in line with GDPR and Marshall Assessment's Data Protection Policy.

Interview underpinned by a Portfolio of Evidence

Portfolio and Portfolio Evidence Log submitted at Gateway

Apprentices will be given at least 2 weeks' notice for the date of the Interview.

Timescales:
60 minutes (plus 10% at the discretion of the IA)

Grading outcomes:

Fail – not all pass criteria met

Pass – all pass criteria met

Distinction – all pass & all distinction criteria met

- The Apprentice will take part in an Interview with a Marshall Independent Assessor (IA) based, wherever possible, on the Portfolio of Evidence submitted at Gateway.
- The Apprentice can have access to their Portfolio and Portfolio Evidence Log during the discussion.
- The Apprentice can refer to and illustrate their answers with evidence from their portfolio of evidence, however, the portfolio of evidence is not directly assessed.
- The Interview will assess the following themes:
    - polymer technician's role
    - establishing a new process
    - sustainability
    - using data
    - problem solving
    - continuous improvement
    - written communication
    - information technology
    - team working
    - presenting information
    - continued professional development
- The Interview must take place in a quiet location, free from distractions, and may be delivered remotely over Teams, where appropriate.
- Assessments will be recorded for quality and training purposes in line with GDPR and Marshall Assessment's Data Protection Policy.

Multiple-choice Test

Assessment will take place at least 2 weeks after Gateway approval.

The test will consist of 40 multiple choice questions.

Delivered online via Rogo assessment platform.

Timescales:

The Apprentice will be allowed 60 minutes to complete the assessment.

- The Apprentice will complete an online multiple-choice assessment
- The Assessment will be delivered in a controlled conditions and invigilated environment, in line with Marshall Assessment's invigilation policy.
- The multiple-choice test will be structured to give the Apprentice the opportunity to demonstrate the knowledge mapped to this assessment method to the highest available grade.
- Each question will be worth 1 mark and will have 4 answer options of which only one will be correct.
- The test is closed book which means that the Apprentice cannot refer to reference books or materials whilst taking the test.
- The Assessment is graded Pass or Fail only.
- Grading outcomes:
    - FAIL: 0 – 27 marks
    - PASS: 28 – 40 marks

Remote Assessments - any breaks in connectivity will be dealt with in the following way:

- A short break of up to 10 minutes will be acceptable, this must be recorded by the IA and they will confirm the test can continue once connectivity has resumed.
- If there is a break in connectivity once a question has been asked, once resumed, the IA will ask a different question.
- If the break is during a response – the Apprentice will be allowed to continue as long as the break is less than 5 minutes. More than this, a new question will be asked.

Grading outcomes:

The Apprentice must, as a minimum, pass each element to achieve their apprenticeship certificate. If any 1 element is graded a fail, the overall grade result will be a FAIL.

To achieve a merit, the Apprentice must be awarded a DISTINCTION in one assessment method (observation with questions or interview underpinned by a portfolio of evidence) and a PASS in the multiple-choice test.

To achieve a distinction, the Apprentice must be awarded a DISTINCTION in the observation with questions and interview underpinned by a portfolio of evidence, and a PASS in the multiple-choice test.

If the Apprentice fails one or more elements of the EPA, a resit/ retake can be arranged for the failed element(s), however the final grade outcome will be capped at a PASS. Apprentices cannot resit an element to improve their grade.

An individual EPA method re-sit is typically taken within 2 months of the receipt of the grading from the EPAO and a re-take typically within 4 months. Failed assessment methods must be re-sat or re-taken within a 6-month period from the EPA outcome notification, otherwise the entire EPA will need to be re-sat or re-taken in full.

All evidence from the assessments is submitted for Internal Quality Assurance (IQA) before confirmation of the final grade outcome, which will be released to the HEI /Training Provider by Marshall Assessment.

Following confirmation of results from Marshall Assessment, the Apprentice or Training Provider have 15 working days to request a review of the grade. Appeals policy also available at https://www.marshall-assessment.com/our-policies If no request is made, the certificate claim will then be submitted to the Apprenticeship Service (this may take up to 4 weeks to arrive following a claim being made) and will be sent directly to the Employer unless otherwise specified.

The Knowledge, Skills and Behaviours required to be met for this Standard are listed in the assessment plan (see link) and also below in this document.

https://www.instituteforapprenticeships.org/apprenticeship-standards/st1328-v1-0

A detailed guidance pack with assessment criteria (grading descriptors), amplifications, exemplifications, mock material where appropriate and support to prepare for EPA will be provided on registration with Marshall Assessment as the EPAO.

KSB mapping table – Assessment method

Knowledge	Assessment methods
K1 Polymer industry awareness: range of polymer products, manufacturing environments, types of customers.	Multiple-choice test
K2 Polymer process technician's role. Limits of responsibility. Escalation procedures.	Interview underpinned by a portfolio of evidence
K3 Health and safety regulations, standards, and guidance. Control of Substances Hazardous to Health (COSHH). Electrical safety and compliance. Emergency procedures. Fire safety. Health and Safety at Work Act – responsibilities. Incident and near miss reporting and investigation. Lifting Operations and Lifting Equipment Regulations (LOLER). Legionella. Lone working. Management of health and safety at work. Manual handling. Noise regulation. Permits to work. Provision and Use of Work Equipment Regulations (PUWER). Safety signage and purpose. Slips trips and falls. The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR). Working at Height.	Multiple-choice test
K4 Health, safety, and environmental practice. Polymer manufacturing safety hazards – risks they pose and their management: temperature, pressure, and fumes. Polymer processing safety guidance. Risk assessment and safe systems of work. Personal Protective Equipment (PPE) requirements. Resource reuse, recycling, and waste handling procedures.	Observation with questions
K5 Environmental and sustainability regulations, standards, and guidance. Environmental hazards that can arise from polymer operations. Environmental management systems standard. Environmental Protection Act. Environmental signage and notices. Carbon footprint of different types of polymers and materials used in production: how that can be mitigated for by selection and whole of lifecycle considerations.	Multiple-choice test
K6 Principles of sustainability and circular economy. Energy efficiency and reuse of polymers. Principles of control and management of emissions and waste.	Interview underpinned by a portfolio of evidence
K7	Multiple-choice test

Knowledge	Assessment methods
Chemical terms associated with polymers: element, atomic mass, molecule, functional group, monomer, oligomer, polymer, polymerisation, molecular weight, molecular weight distribution, bonding, and tacticity.	
K8 Polymerisation processes: addition polymerisation, condensation polymerisation, catalyst, conditions. Sources of chemical materials; crude oil derived and bio-materials.	Multiple-choice test
K9 Thermal characteristics of polymers: glass transition temperature, melting temperature, processing temperature, specific heat, heat capacity, heat distortion temperature, melt density, thermal stability.	Multiple-choice test
K10 Classes of material: thermoplastics, thermosets, elastomers, rubbers, thermoplastic elastomers, commodity, engineering and high-performance materials, molecular structure, blends, and alloys.	Multiple-choice test
K11 Rheology behaviour: viscosity, shear stress, shear rate, newtonian flow, non-newtonian flow, viscosity-temperature relationships, flow measurement methods and indexes.	Multiple-choice test
K12 Key differences in processing different classes of polymers: melt processing, malleable state forming, cooling, and curing processes, importance and influence of controlling cooling and curing aspects of polymer processing.	Multiple-choice test
K13 Influence of morphology on physical and mechanical properties of polymers.	Multiple-choice test
K14 Polymer materials: definition, classifications, properties, applications, products, and terminology.	Multiple-choice test
K15 Factors affecting the glass transition temperature of polymers.	Multiple-choice test
K16	Multiple-choice test

Knowledge	Assessment methods
Factors affecting the degree of crystallinity of polymers: molecular and processing.	
K17 Material data sheets, understanding test methods and data reported; physical, mechanical, thermal, optical, electrical, flammability properties of polymers.	Multiple-choice test
K18 Formulating ingredients: reinforcing and non-reinforcing fillers (glass fibre, carbon black), mineral oils, plasticisers, flame retardants, additives (antioxidants, UV absorbers, antiozonants, slip additives, lubricants, anti-static agents, anti-fog), thermal stabilisers, processing aids, curing agents (sulphur, peroxides, phenolics), colourants, flame retardants, impact modifiers, coupling agents, release agents, anti-microbial, fungicides and biocides, scavengers, detectable, anti-counterfeit, and biodegradable. Purpose, benefits, and limitations.	Multiple-choice test
K19 The impact of re-used and re-cycled polymers on the processing conditions and final product properties.	Multiple-choice test
K20 Continuous and batch techniques. Production requirements: product specification, processing specification, rate of production. Material safety data sheet, product labelling and product codes; the importance of identifying non-conforming materials and products. Manufacturing control. Overall Equipment Effectiveness (OEE). Stock control.	Multiple-choice test
K21 The basic parts and functions of polymer processing plant and equipment: pneumatic and hydraulic systems and components, mechanical systems, electrical and electronic systems and components, heating and cooling arrangements, machine controls, material delivery and collection systems, guards and safety devices, cutting and forming, and service supply and connection methods, and support services.	Multiple-choice test
K22 Types of mould tools, formers and dies: purpose, features, construction, materials, damage and non-conformance checking requirements, and mounting methods (bolts, clamps, quick release).	Multiple-choice test
K23 Polymer processes and techniques: extrusion (polymer compounding, profile, film, filament, sheet, wire, and cable) injection moulding, blow moulding, compression	Multiple-choice test

Knowledge	Assessment methods
moulding, rotational moulding, processing of polyurethane, thermoforming, internal mixing of polymer compounds, milling (two roll mill), calendaring, manual and automated layup techniques for elastomers, 3D Printing.	
K24 Polymer processing material preparation requirements: formulations, drying, weighing, conveying, mixing, blending, and colouring of polymers.	Observation with questions
K25 Machine operating parameters: temperature, pressure, speed or timings, and distance. Impact of changes on the quality of the components. Adjustments required to resolve issues.	Interview underpinned by a portfolio of evidence
K26 Polymer post processing techniques: assembling, printing, decorating, cooling operations, packing, and labelling.	Multiple-choice test
K27 Standard operating procedures: their purpose and why they are important, how they are developed and maintained.	Observation with questions
K28 Quality, cost, and delivery (QCD) standards and their importance in the workplace.	Interview underpinned by a portfolio of evidence
K29 Quality assurance, testing, inspection, and sampling methods. Process and control systems.	Observation with questions
K30 Documentation requirements: documentation control, auditable records.	Observation with questions
K31 Purpose of audits and why they are important.	Multiple-choice test
K32 Preventative maintenance strategy and practice.	Observation with questions
K33	Multiple-choice test

Knowledge	Assessment methods
British standards for engineering representations, drawings, and graphical information.	
K34 Application of digital systems to support manufacture: CAD (computer-aided design), CAM (computer-aided manufacturing), CMM (coordinate measuring machine), and 3D printing.	Multiple-choice test
K35 Data analysis methods and techniques.	Interview underpinned by a portfolio of evidence
K36 Problem solving and fault-finding techniques: root cause analysis, 5-Whys.	Interview underpinned by a portfolio of evidence
K37 Continuous improvement (CI) methodologies and tools: lean, KAIZEN, 5S, workplace organisation.	Interview underpinned by a portfolio of evidence
K38 Information and digital technology. Document sharing platforms, email, management information systems, spreadsheet, virtual learning platforms, word processing, process and control systems, presentation software. General data protection regulation (GDPR). Cyber security.	Interview underpinned by a portfolio of evidence
K39 Planning, prioritising, and time management techniques.	Observation with questions
K40 Principles of team working. Equality, diversity and inclusion.	Interview underpinned by a portfolio of evidence
K41 Verbal communication techniques.	Observation with questions
K42 Written communication techniques. Report writing techniques.	Interview underpinned by a portfolio of evidence

Knowledge	Assessment methods
K43 Presentation techniques.	Interview underpinned by a portfolio of evidence

Skill	Assessment methods
S1 Review instructions or information. For example, work instructions, sampling requirements, drawings dimensioning, labelling, formulations, machine settings.	Observation with questions
S2 Plan task and identify and organise resources with consideration for safety, environmental impact, security, quality and cost.	Observation with questions
S3 Identify and document hazards and risks in the workplace.	Observation with questions
S4 Apply health, safety, and environmental procedures in compliance with regulations and standards. For example, daily machine checks, wearing personal protective equipment.	Observation with questions
S5 Apply sustainability principles for example, in choice of materials, minimising waste.	Interview underpinned by a portfolio of evidence
S6 Segregate resources for reuse, recycling, and handling.	Observation with questions
S7 Select, check, and prepare materials for polymer processing for example, weighing, control and blending, and conditioning.	Observation with questions
S8 Select, configure (for example, replace or change inserts) and check mould tools, formers, dies or other process equipment.	Observation with questions
S9 Check installation and function of processing equipment for the process.	Observation with questions

Skill	Assessment methods
S10 Connect service connections such as water, electrical, pneumatic, hydraulic.	Observation with questions
S11 Check hand tools, equipment and machinery including calibration record where applicable.	Observation with questions
S12 Set or check machine settings using instructions such as temperature, pressure, speed or time, distance.	Observation with questions
S13 Adjust machine setting for the speeds, positions, pressures and safety of the mould tool, former or die movement to meet product specification.	Observation with questions
S14 Start up manufacturing processes.	Observation with questions
S15 Monitor process feedback and adjust process parameters.	Observation with questions
S16 Shut down manufacturing processes.	Observation with questions
S17 Devise machine settings such as temperature, pressure, speed or time, distance for new or modified equipment, tooling or material.	Interview underpinned by a portfolio of evidence
S18 Test and evaluate machine settings for new or modified equipment, tooling or material.	Interview underpinned by a portfolio of evidence
S19 Select and apply optimal machine settings for new or modified equipment, tooling or material (for example, capability study).	Interview underpinned by a portfolio of evidence
S20	Interview underpinned by a portfolio of evidence

Skill	Assessment methods
Interpret data for example, process data, quality control and test procedure data. Use data to inform action.	
S21 Identify process faults and resolve.	Interview underpinned by a portfolio of evidence
S22 Apply post processing techniques for example, assembly, printing, decorating, cooling operations, packing, and labelling.	Observation with questions
S23 Follow quality assurance processes during manufacture.	Observation with questions
S24 Perform quality control checks. For example, conduct parameter checks (size, colour, weight), and take samples.	Observation with questions
S25 Identify quality issues and resolve for example, defects, maintenance requirements.	Observation with questions
S26 Escalate issues outside limits of responsibility.	Interview underpinned by a portfolio of evidence
S27 Apply preventative maintenance practices. For example, checking guarding, lubrication, cleaning of tooling, safety checks, and inspection for wear and tear.	Observation with questions
S28 Apply continuous improvement techniques. Devise suggestions for improvement. For example, improving the effectiveness of existing production, improving the energy consumption or waste profile of processes and procedures to improve the sustainability or carbon footprint of a product, process or task.	Interview underpinned by a portfolio of evidence
S29 Apply team working principles.	Interview underpinned by a portfolio of evidence
S30	Observation with questions

Skill	Assessment methods
Communicate with others verbally for example, colleagues and stakeholders.	
S31 Record or enter information - paper based or electronic. For example, process and production records, traceability records, and quality assurance records.	Observation with questions
S32 Present information.	Interview underpinned by a portfolio of evidence
S33 Communicate in written form in the workplace for example, handover notes or emails, non-conformances, design change requests, technical reports.	Interview underpinned by a portfolio of evidence
S34 Use information and digital technology. Comply with GDPR and cyber security regulations and policies.	Interview underpinned by a portfolio of evidence
S35 Plan how to meet personal development needs. Carry out and record planned and unplanned continued professional development (CPD) activities. Evaluate CPD against plans made.	Interview underpinned by a portfolio of evidence

Behaviour	Assessment methods
B1 Prioritise health, safety, and the environment.	Observation with questions
B2 Consider the environment and sustainability when using resources and carrying out processes.	Interview underpinned by a portfolio of evidence
B3 Take responsibility for the quality of their own work.	Observation with questions
B4 Team-focus to meet work goals including a commitment to equality and diversity.	Interview underpinned by a portfolio of evidence

Behaviour	Assessment methods
B5 Respond and adapt to work demands.	Interview underpinned by a portfolio of evidence
B6 Committed to continued professional development.	Interview underpinned by a portfolio of evidence

Assessment Criteria

Observation with questions

THEME KSBS	PASS THE APPRENTICE MUST DEMONSTRATE ALL PASS CRITERIA	DISTINCTION APPRENTICE MUST DEMONSTRATE ALL PASS AND ALL DISTINCTION CRITERIA
Work preparation K39 S1 S2	Reviews instructions or information to understand the task's requirements. (S1) Plans the task and identifies and organises resources required to complete it using planning, prioritising, and time management techniques with consideration for safety, environmental impact, security, quality and cost. (K39, S2)	Justifies the balance of cost, quality, safety, security, and environmental factors in planning decisions. (K39, S2)
Maintain the work area: health, safety, and environment K4 S3 S4 S6 B1	Identifies and documents hazards and risks in the workplace. (S3) Prioritises and applies health, safety, and environmental procedures in compliance with regulations and standards mitigating against risks including segregating resources for reuse, recycling, and waste handling in line with company procedure. (K4, S4, S6, B1)	Justifies complying with and prioritising health, safety, and environmental procedures in their work. (K4, S4, B1)
Tools and equipment S8 S9 S10 S11	Selects, configures, and checks mould tools, formers, dies, or other process equipment in line with procedures ensuring suitability for the task. (S8) Checks the installation and function of processing equipment for the process ensuring suitability for the task. (S9)	Completes procedures efficiently for example, performs activities simultaneously to save time, avoids issues with no need to back-track. (S8, S9, S10, S11)

THEME KSBS	PASS THE APPRENTICE MUST DEMONSTRATE ALL PASS CRITERIA	DISTINCTION APPRENTICE MUST DEMONSTRATE ALL PASS AND ALL DISTINCTION CRITERIA
	Connects service connections in line with procedures ensuring suitability for the task. (S10) Checks hand tools, equipment, and machinery in line with procedures ensuring suitability for the task including checking calibration record if applicable. (S11)	
Materials K24 S7	Selects, checks, and prepares materials considering formulations, drying, weighing, conveying, mixing, blending and colouring of polymers in line with specification. (K24, S7)	Minimises waste in the preparation process for example, ensures bag is empty, only mixes what they need. Explains why it is important to follow the material preparation procedures. (K24, S7)
Polymer processing and secondary operations K27 S12 S13 S 14 S15 S16 S22	Sets or checks machine settings using instructions. Adjusts machine settings for the speeds, positions, pressure, speed or time, distance to meet product specification. Starts up manufacturing processes in line with SOP. Monitors process feedback and adjusts process parameters to maintain specification. Shuts down manufacturing processes in line with SOP. Applies post processing techniques in line with SOP. (S12, S13, S14, S15, S16, S22) Outlines how SOPs support the tasks and why they are important, and how they are developed and maintained in their workplace. (K27)	Applies techniques in the manufacturing process to achieve production efficiencies for example, minimises defects, operates above standard cycle speed parameters, quickly establishes correct operating conditions from test runs. (S12, S13, S14, S15, S16, S22)
Quality assurance K29 S23 S24 S 25 B3	Takes responsibility for the quality of their own work by applying quality assurance processes and control checks, identifying	Justifies the use of quality assurance and quality control methods for polymer

THEME KSBS	PASS THE APPRENTICE MUST DEMONSTRATE ALL PASS CRITERIA	DISTINCTION APPRENTICE MUST DEMONSTRATE ALL PASS AND ALL DISTINCTION CRITERIA
	and resolving issues in line with procedures. (K29, S23, S24, S25, B3)	manufacturing. (K29, S23, S24, S25, B3)
Preventative maintenance K32 S27	Applies preventative maintenance practices in line with strategy and company practice. (K32, S27)	Explains the benefits of preventative maintenance practices. (K32, S27)
Verbal communication K41 S30	Uses verbal communication techniques suitable for the context. (K41, S30)	None
Documentation K30 S31	Records or enters data for work tasks - paper based or electronic - in line with company procedures for documentation control and auditable records. (K30, S31)	None

Interview underpinned by a portfolio of evidence

Fail - does not meet pass criteria

THEME KSBS	PASS THE APPRENTICE MUST DEMONSTRATE ALL PASS CRITERIA	DISTINCTION APPRENTICE MUST DEMONSTRATE ALL PASS AND ALL DISTINCTION CRITERIA
Polymer technician's role K2 K28 S26 B5	Outlines their role as a polymer technician including their limits of responsibility, how they escalate issues, and how they respond and adapt to work demands in line with organisational requirements including quality, cost and delivery (QCD) standards. (K2, K28, S26, B5)	None
Sustainability K6 S5 B2	Describes how they consider and apply the principles of sustainability and the circular economy including energy efficiency, reuse of polymers, and control of emissions and waste. (K6, S5, B2)	Supports the development of environmental and sustainability practice in the workplace for example, through promoting good practice to others, identifying improvement to practice. (K6, S5, B2)
Establishing a new process K25 S17 S18 S19	Describes how they devise, test and evaluate, and select machine settings including temperature, pressure, speed or timings, and distance for new or modified equipment, tooling or material to meet	Explains how they make adjustments to determine the optimum settings for the process. Explains how adjustments influence

THEME KSBS	PASS THE APPRENTICE MUST DEMONSTRATE ALL PASS CRITERIA	DISTINCTION APPRENTICE MUST DEMONSTRATE ALL PASS AND ALL DISTINCTION CRITERIA
	specification, resolving issues. (K25, S17, S18, S19)	the final product. (K25, S17, S18, S19)
Using data K35 S20	Describes how they interpret data and use it to inform actions using data analysis methods and techniques. (K35, S20)	Explains the impact data collection and interpretation has on quality control. (K35, S20)
Problem solving K36 S21	Describes how they identify and resolve process faults using a simple root cause analysis technique for example, 5 Whys. (K36, S21)	Explains their use of a more advanced technique to verify solution for example, six-sigma tools or design of experiments. (K36, S21)
Continuous improvement K37 S28	Describes how they have applied continuous improvement techniques including lean, KAIZEN, 5S, and workplace organisation, to devise a viable suggestion for improvement to a polymer related issue or process. (K37, S28)	Evaluates the potential impact of the improvement suggestion. (K37, S28)
Written communication K42 S33	Describes how they apply written communication and report writing techniques to produce communications in their work suitable for context. (K42, S33)	None
Information technology K38 S34	Describes how they use information technology in work tasks in compliance with GDPR and organisational cyber security regulations and policies. (K38, S34)	None
Team working K40 S29 B4	Describes how they apply team working principles to meet work goals in line with their company's policy on equality, diversity, and inclusion. (K40, S29, B4)	Explains how their team focus and commitment to inclusivity extends to wider teams or stakeholders. (K40, S29, B4)
Presenting information K43 S32	Describes how they present information using presentation techniques suitable for the context. (K43, S32)	None
Continued professional development S35 B6	Describes the planned and unplanned continued professional development (CPD) activities they have carried out and recorded to meet personal development needs, showing a commitment to future CPD. Evaluates what the impact of their	None

THEME KSBS	PASS THE APPRENTICE MUST DEMONSTRATE ALL PASS CRITERIA	DISTINCTION APPRENTICE MUST DEMONSTRATE ALL PASS AND ALL DISTINCTION CRITERIA
	CPD has been and how it has benefited the business. (S35, B6)	

Multiple-choice test

GRADE	MINIMUM MARKS REQUIRED	MAXIMUM MARKS REQUIRED
Fail	0	27
Pass	28	40

Version 1.0 – earliest start date 09/08/2023