Advanced Dairy Technologist

Apprenticeship Standard Specification

1.1 Occupational profile

Advanced Dairy Technologists play a pivotal role in the dairy industry. From a base of strong dairy science and technology knowledge they ensure that raw materials e.g. milk from cows, sheep, goats, camels etc. are manufactured into a wide range of finished products including liquid milks, cheeses, ice creams, powders and ingredients, yoghurt, butter, sports drinks and baby formulas. Advanced Dairy Technologists are in roles developing, producing and controlling production of dairy products.

There are many varied employment and career opportunities for the Advanced Dairy Technologist in the dairy industry including specialist and broader roles within the areas of technical, product development, process and manufacturing as well as specialist roles in the artisan, craft and niche sectors. Advanced Dairy Technologists have a holistic view of the industry from milk production at the farm to carton.

1.2 Purpose

This apprenticeship has been designed by food and drink manufacturing employers to ensure that both new entrants and those interested in progressing a career in the sector have an opportunity to develop the right skills, knowledge and behaviours. This apprenticeship is a fantastic way of developing these skills whilst learning and gaining experience at work.

At the end of the programme apprentices will:

- know how dairy products are produced
- operate and manage process, filling/packing and cleaning plant and other dairy unit operations
- ensure that plant performance and the final dairy product and volumes are in accordance with specifications and targets
- monitor and adjust process and equipment settings and carry out tests on equipment and product
- monitor waste levels and ensure that the hygiene of the production environment is in accordance with legislation, regulations and product quality requirements.

Continuous improvement, problem solving, project management, tests and trials are activities performed in all areas as part of the daily job.

1.3 Entry requirements

Typically grade C or above in GCSE English language and maths, as well as an A Level or equivalent qualifications or dairy industry experience. Employers and training providers must ensure that learners have the potential and opportunity to achieve the apprenticeship standard successfully.

1.4 Gateway requirements

Gateway requirements are stipulated by the apprenticeship standard's assessment plan and end-point assessment organisations must ensure that all apprentices have completed and achieved the requirements.

1.4.1 Apprenticeship duration

Advanced Dairy Technologist apprentices must have undertaken a structured period of on-programme learning to develop the knowledge, skills and behaviours required of the standard. Typically apprentices will undergo 41 weeks of residential training across their 3-year learning period.

1.4.2 Mandated qualifications

Apprentices are required to achieve the following mandated qualifications for this standard:

- Level 2 English
- Level 2 Mathematics
- Foundation Degree in Dairy Technology

Evidence of these qualifications must be submitted to OAL along with a declaration that the apprentice has met the gateway requirements. Qualification certificates can be submitted at any point once the apprentice has been registered on our Portal. OAL will accept qualification certificates from any awarding organisation.

In the main OAL expects evidence to be in the form of the qualification certificate. Where the certificate is not available then a formal transcript or notification of results will be accepted. Where either a certificate or formal notification of results is not available, but the apprentice has other evidence that may be acceptable, you should contact us directly so we can offer advice on the verification of the evidence.

Apprentices, who have previously achieved their English and/or mathematics as specified above, must submit their qualification certificates to Occupational Awards Limited as evidence of achievement and exemption. Apprentices and their employer/training provider should refer to the OAL English and Mathematics Policy for end-point assessment gateway evidence available at https://www.oawards.co.uk/about-us/ for evidence requirements of English and mathematics achievement.

1.4.3 Programme evidence required for the end-point assessment

Achievement of a Foundation Degree in Dairy Technology is a pre-requisite to taking end-point assessment.

1.4.4 Gateway declaration

The apprentice is required to submit to OAL a signed declaration that they have completed the apprenticeship programme within the timeframe. The employer should counter sign this declaration.

1.5 End-point Assessment (EPA) requirements

End-point assessment will take place at the end of the programme and is designed to test apprentices' skills, knowledge and behaviours independently of learning and qualifications.

End-point assessment for this standard includes a:

- Project report and presentation

The project report and presentation end-point assessment includes a number of significant components:

1. submission of a signed declaration to OAL at gateway stating that the apprentice has completed a work-based project during their programme of learning
2. completion and submission to OAL of a project report summarising the detail of the work-based project carried out during the apprentices programme of learning
3. presentation of the project report to an assessment panel
4. a VIVA following the presentation where the assessment panel will interview the apprentice on the project report.

An independent assessment panel will assess the project report and presentation. The presentation will be 45 minutes under controlled conditions it will then be followed immediately with a VIVA. The interview will be a maximum of 60 minutes under controlled conditions. It will centre around 6 competency-based questions.

- Observation

The apprentice will undertake an observed set of tasks as individuals and as part of a team to produce a range of manufactured products in a dairy environment. It can be carried out in the workplace or in a simulated dairy technology environment. The employer premises will need to be recognised by OAL as a recognised EPA site. This process is simple and typically involves a 60-minute assessment by OAL or the training provider on our behalf.

An independent assessment panel appointed by OAL will observe each apprentice as they undertake the tasks, allocate work activities and monitor their colleagues. They may ask questions to aid their understanding of apprentice's activities and approach

1.6 Planning the EPA

Once the apprentice has successfully passed through gateway a planning session will take place between the employer, training provider and OAL. The outcome of the planning session is to ensure that the EPA runs smoothly on the day.

Apprentices will be given access to the OAL Apprentice End-point Assessment Handbook once they have been enrolled onto the standard. The Apprentice End-point Assessment Handbook sets out the assessment requirements of EPA and the criteria on which the apprentice will be graded.

1.7 Order of end-point assessment

There is no fixed order in which the assessment components need to be taken.

1.8 Assessment personnel

An assessment panel will assess and grade both end-point assessment components. The assessment panel will include:

- an independent lead technical assessor, who is a member of the Society of Dairy Technology
- an independent technical assessor
- an independent third assessor, who holds assessment capabilities.

OAL will appoint the assessment panel.

1.9 Apprenticeship grading

The apprenticeship is graded: Fail, Pass, Merit or Distinction. Apprentices must achieve a minimum of a pass in each of the 2 components.

Results are subject to moderation and will be issued within 10 working days to the named training provider. OAL will send results to the Education and Skills Funding Agency in line with guidelines for certification. It is expected that a period of further learning will need to be undertaken if the apprentice has to re-take any part of the end-point assessment. OAL can make exemptions to this ruling should reasons for the fail are deemed to be outside the control of the apprentice.

1.10 EPA fees

The Advanced Dairy Technologist apprenticeship standard attracts a total funding of £27,000. 20% of the total apprenticeship funding is withheld until the EPA has been concluded, this is to encourage completion of the apprenticeship training and mandated qualifications. In respect of this standard this represents the maximum cost of an EPA.

OAL typically charges the full 20% of the total funding for this standard. However fees are worked out on an individual basis to ensure that employers and apprentices get the best value for money. For approved centres our fees can be found in the online Portal. Non-approved centres should contact us directly for a bespoke quote.

At OAL there are no hidden fees. Our fees are inclusive of all support, documentation and materials. This includes access to our team of experts to support the induction of apprentices, preparation for EPA, handbooks and assessment specifications and materials.

1.11 Standard Knowledge, Skills and Behaviours

Key to table

WBP Work based project, presentation and VIVA/Interview

O Observation

Advanced Dairy Technologist Apprenticeship Standard	
Knowledge statements	Assessed by:
The primary production stages of milk and what affects the composition of raw milk and final dairy products	WBP
Fundamental principles of milk chemistry and milk microbiology and the changes, interactions and manipulation during processing that impact on product properties, quality and safety	WBP
Test methods and applications, product quality testing, sensory evaluation, in-line and off-line.	WBP
Dairy process environment, hygiene, design and control	WBP
Microbiology related to dairy products. The principles and practices of sampling, testing and microbiological laboratory investigations and problem solving including the classification of micro-organisms in dairy production	WBP
Principles of dairy process design, engineering and level of automation and its impact on plant performance	WBP
The range of Dairy unit operations, such as filtration, pasteurisation, UHT, fermented products, evaporation, spray drying, cooling, CIP/COP (Cleaning in/out of place) and their impacts on the product quality, functionality and product shelf life	WBP
Good Manufacturing Practice and Good Laboratory Practices as applied within a dairy organisation for manufacture of all common dairy products	WBP
Key steps in new product development of dairy products and manufacturing processes	O
Legislation and guidelines applicable to manufacture of dairy products covering risk, health and food safety, health and safety, enabling development of Level 3 Critical Control Point plans for Hazard Analysis, Threat Assessment and Vulnerability Assessment (HACCP, TACCP and VACCP)	WBP
Lean and agile supply chains in the dairy industry, factors influencing resilience, flexibility, consistency, financial implications and culture. Use of CI (Continuous Improvement) methods	WBP
The principles of process control and automation, including the use of statistical process control across a range of applications. Existing and evolving automation within the dairy industry	WBP

Knowledge statements	Assessed by:
The sustainability, environmental and legislative considerations of the dairy supply chain including management of waste streams and effluent treatment	WBP
The dairy industry and its relationship to world markets, including trading of dairy commodities	WBP
Skills statements	**Assessed by:**
Operate and control both manual and automated dairy unit operations including cleaning and effluent management, from milk reception, manufacture and packing of the product	WBP
Manufacture graded milk and creams, fermented products and starter cultures, butter, cheese hand and in automated processes), tailored milks, milk and whey powders and ice cream	O
Manage the maturation, ripening and texture development in cheese	O
Project manage dairy operational changes, product trials and plant commissioning	WBP
Develop new dairy products and processes in a cost effective and compliant manner	O
Test and analyse products (chemical, microbial, physical). Interpret results and process data to	WBP
Make adjustments to process parameters in order to achieve the desired dairy product	WBP
Demonstrate understanding of microbiological concepts to the manufacture of dairy products ply CI techniques to solve operational problems, to deliver improvement to products, optimise ways of working, improve efficiency and reduce waste	WBP
Take and analyse product samples to support laboratory investigations regarding product quality, standards and legal compliance. Interpret and report data, propose route of action	WBP
Comply with legislation, regulations and organisational requirements for health and safety, food safety and hygiene and develop Critical Control Point plans for Hazard Analysis, Threat Assessment and Vulnerability Assessment (HACCP, TACCP and VACCP)	WBP
Undertake environmental audit and provide recommendations	WBP

Behaviour statements	Assessed by:
Passion and ownership of work. Demonstrates a passion for the dairy industry, takes responsibility, is proactive, demonstrates initiative, plans work, works autonomously within own sphere of responsibility and promotes a culture of safe working practices	WBP
Proactively engages in the delivery of quality standards and continuous improvement	WBP
Pride in work: integrity, setting standards, aims for excellence and good time management	WBP
Self-development, acts in alignment with the business vision and values, applies Company/industry perspective, seeks learning, drives the development of self, acts as an ambassador both internally and externally	WBP
Work effectively in a team, respects and drives good relationships with others, works collaboratively, contributes ideas, challenges appropriately and adapts style	O
Problem solving and innovating - works proactively to identify and ensure root causes of problems are solved, showing a tenacious approach and a curiosity to foster new ways of thinking and working	WBP
Responsiveness to change, flexibility to changing working environment and demands	WBP