



Australian Government

MSL975012 Provide input to production trials

Release: 1

MSL975012 Provide input to production trials

Modification History

Release 1. Supersedes and is equivalent to MSL975012A Provide input to production trials

Application

This unit of competency covers the ability to work closely with production personnel to conduct a routine trial to adjust formulations or develop products and processes following preliminary laboratory work. The unit covers monitoring critical process parameters, collecting and testing of samples, and analysing results. The unit does not cover the planning and management of the trial, development of product briefs or the troubleshooting of equipment and production processes.

This unit of competency is applicable to laboratory technicians and technical officers working in the manufacturing, biotechnology, construction materials, pharmaceutical and food processing industry sectors. All operations must comply with relevant standards, appropriate procedures and/or workplace requirements.

While no specific licensing or certification requirements apply to this unit at the time of publication, laboratory operations are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

MSL974003 Perform chemical tests and procedures

OR

MSL974004 Perform food tests

OR

MSL974005 Perform physical tests

OR

MSL974010 Perform mechanical tests

Competency Field

Testing

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|---------------------------------|---|
| 1 | Prepare for the trial | <p>1.1 Clarify trial objectives, specifications, documentation and reporting requirements</p> <p>1.2 Identify the environmental, health, safety, and/or food safety hazards associated with the trial and the recommended control procedures</p> <p>1.3 Determine the availability of resources and the need for any clearances, special safety and storage requirements</p> <p>1.4 Review the recommended trial schedule to identify potential barriers/constraints and develop alternatives, as necessary</p> <p>1.5 Communicate and confirm all laboratory requirements with plant operators and personnel in related work areas and functions</p> |
| 2 | Participate in the trial | <p>2.1 Reconfirm trial details with all relevant personnel</p> <p>2.2 Identify any last minute changes and delays and make appropriate adjustments</p> <p>2.3 Liaise closely with production personnel to conduct the trial safely and efficiently</p> <p>2.4 Collect required product samples for laboratory analysis and/or reference</p> <p>2.5 Monitor critical process parameters and record required data</p> <p>2.6 Monitor data to identify problems, significant process variations and/or unacceptable product</p> <p>2.7 Recommend changes to production processes as required</p> <p>2.8 Leave plant in condition suitable for routine production to recommence</p> |

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|---|---|-----|---|
| 3 | Assess and report trial outcomes | 3.1 | Arrange for, or conduct, testing of product samples to check specifications |
| | | 3.2 | Analyse test results and relate properties of product samples to formulation details and processing methods |
| | | 3.3 | Identify and investigate out-of-specification or unacceptable outcomes, as required |
| | | 3.4 | Recommend possible modifications and/or opportunities for improvements within limits of role and responsibility |
| | | 3.5 | Document and report trial outcomes in accordance with workplace procedures |
| | | | |
| 4 | Maintain a safe work environment | 4.1 | Use established safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other personnel |
| | | 4.2 | Minimise the generation of waste and environmental impacts |
| | | 4.3 | Ensure the safe collection of laboratory and hazardous waste for subsequent disposal |
| | | 4.4 | Care for and store equipment and reagents, as required |

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Standards, codes, procedures and/or

Standards, codes, procedures and/or workplace requirements include the latest version of one or more of:

workplace requirements

- Australian and international standards covering the requirements for the competence of testing and calibration laboratories, laboratory safety, quality and environmental management; sampling of materials and international system of units (SI)
- national work health and safety (WHS) standards and codes of practice, national environmental protection measures, and national measurement regulations and guidelines
- specific codes, guidelines and procedures, such as National Association of Testing Authorities (NATA) accreditation requirements, principles of good laboratory practice (GLP), Food Standards Australia New Zealand (FSANZ) Code and User Guides, Australian code of good manufacturing practice for medicinal products (GMP), and Therapeutic Goods Regulations 1009
- workplace documents, such as standard operating procedures (SOPs); quality and equipment manuals; calibration and maintenance schedules; material safety data sheets (MSDS) and safety procedures; material, production and product/formulation specifications; production and laboratory schedules; workplace recording and reporting procedures; waste minimisation and safe disposal procedures; maps and site plans
- workplace procedures for production trials

Product properties, process stages and unit operations involved in the trial

Product properties, process stages and unit operations involved in trials include, but are not limited to, one or more of:

- classification of samples (screening and sieving)
- milling
- mixing
- separation (distillation, sieves, filtration, solvent extraction and chromatography)
- drying
- concentrating
- diluting
- depositing (injecting, forming and extrusion)
- retorting
- cooling, freezing, refrigeration and heat transfer
- closure (vacuum sealing)
- weighing and packaging
- materials handling and transport, and warehousing

Trial specifications

Trial specifications include, but are not limited to, one or more of:

- product specifications
- recipe/formulations
- processing parameters
- trial size, production target and timeline
- trial schedule and resources required
- required product samples and tests
- analysis of relevant WHS, food safety and environmental hazards and controls
- storage requirements

Safe work practices

Safe work practices include, but are not limited to, one or more of:

- following all safety requirements on the production floor
- ensuring access to service shut-off points
- recognising and observing hazard warnings and safety signs
- labelling of samples, reagents, aliquoted samples and hazardous materials
- handling and storage of hazardous materials and equipment in accordance with labelling, MSDS and manufacturer instructions
- identifying and reporting operating problems or equipment malfunctions
- cleaning and decontaminating equipment and work areas regularly using workplace procedures
- using PPE, such as hard hats, hearing protection, gloves, safety glasses, coveralls, gowns, body suits, respirators and safety boots
- machinery guards
- signage, barriers, flashing lights and traffic control
- reporting abnormal emissions, discharges and airborne contaminants, such as noise, light, solids, liquids, water/wastewater, gases, smoke, vapour, fumes, odour and particulates, to appropriate personnel

WHS and environmental management requirements

WHS and environmental management requirements include:

- complying with WHS and environmental management requirements at all times, which may be imposed through state/territory or federal legislation. These requirements must not be compromised at any time
- applying standard precautions relating to the potentially hazardous nature of samples
- accessing and applying current industry understanding of infection control issued by the National Health and Medical

Research Council (NHMRC) and State and Territory
Departments of Health, where relevant

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL975012 Provide input to production trials

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Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- safely conducting routine production trials to adjust formulations or develop products and processes on at least two (2) occasions
- analysing trial objectives and specifications and accurately determining resource requirements
- liaising and communicating with production and laboratory personnel to ensure trials are organised and conducted efficiently
- working efficiently within production constraints, priorities and pressures
- monitoring critical process parameters and collecting reliable data and samples
- testing product samples and analysing results
- recognising, interpreting and reporting problems, atypical situations or unacceptable products
- recommending product modifications and improvements
- reporting trial outcomes in accordance with workplace procedures
- safely operating, maintaining and storing equipment and materials in accordance with workplace procedures
- minimising environmental impacts and safely collecting and disposing of waste
- following workplace safety procedures and hazard control measures.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- terminology, principles and concepts relevant to the trial, such as the relationships between:
 - temperature and viscosity
 - friction, pressure and fluid flow
- trial objectives, laboratory trial requirements, documentation and reporting requirements
- recipes and formulations, technical specifications and quality parameters for trial products
- effect on product properties of variations in recipes and formulations
- product properties, process stages and unit operations involved in the trial
- expected nature and condition of materials at each process stage
- causes and remedies for common processing problems associated with trial products
- sampling and test methods for trial products

- hazards, work health and safety (WHS), food safety and environmental management procedures relevant to the trial.

Assessment Conditions

- Judgment of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to be assessed in the workplace or a simulated workplace environment. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept in each case).
- This unit of competency may be assessed with:
 - MSL924001 Process and interpret data
 - relevant MSL974000 series units of competency
 - relevant MSL975000 series units of competency
- Holistic assessment methods include:
 - review of trial documentation completed by candidate to ensure quality and timeliness
 - feedback from supervisors and/or personnel involved in trials about the quality of the candidate's inputs
 - observation of candidate participating in production trials
 - oral or written questioning to check required knowledge of production trial procedures, sampling and test methods, and common causes and remedies for product/processing problems.
- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:
 - access to operating plant or pilot plant for the duration of trials; raw materials/ingredients, packaging components and consumables
 - workplace procedures for conducting production trials, sampling and testing
 - trial documentation, such as technical specifications, plant or production line layout, material safety data sheets (MSDS), trial request and result forms
 - sample containers and sampling equipment
 - test equipment, laboratory instruments and reagents.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competence and currency.

- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience.
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with a laboratory about performing the competency being assessed within the last twelve months.

Links

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