



Australian Government

MSL973006 Prepare trial batches for evaluation

Release: 1

MSL973006 Prepare trial batches for evaluation

Modification History

Release 1. Supersedes and is equivalent to MSL973006A Prepare trial batches for evaluation

Application

This unit of competency covers the ability to prepare trial batches of materials for evaluation. Materials can include soil, minerals and manufactured products, such as concrete, asphalt, food, plastics, paint and other industrial chemicals.

This unit of competency is applicable to laboratory assistants working in all industry sectors. It describes work conducted by laboratory assistants, generally working under the guidance of a senior technician or laboratory supervisor/manager.

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

Nil

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.

1	Prepare for trial batch mixing	1.1	Identify the job, materials, appropriate procedures and safety requirements
		1.2	Record description of the job to be undertaken, compare with specification and report any variations
		1.3	Select and prepare tools, equipment and materials in accordance with job requirements
		1.4	Confirm the properties and quantities of materials to be used

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| | | 1.5 | Confirm that the required materials are available and ready for use |
| 2 | Mix trial batch for evaluation | 2.1 | Measure out quantities of materials ready for mixing |
| | | 2.2 | Mix the materials according to established procedures |
| | | 2.3 | Discharge the mixture ready for inspection and testing according to established procedures |
| | | 2.4 | Record details of the mix and any observations according to established procedures |
| 3 | Evaluate properties of the mixture by inspection and standard test methods | 3.1 | Obtain representative samples of the mix for testing |
| | | 3.2 | Use established procedures and metrology concepts to perform specified tests and calculations |
| | | 3.3 | Handle and transport samples in accordance with established procedures |
| | | 3.4 | Label samples and record details in accordance with established procedures |
| 4 | Clean equipment and dispose of materials | 4.1 | Clean mixing, measuring, sampling and testing equipment after use |
| | | 4.2 | Return unused materials to storage |
| | | 4.3 | Dispose of excess materials safely and ethically |
| 5 | Maintain records | 5.1 | Record data in accordance with established procedures |
| | | 5.2 | Maintain equipment records in accordance with established procedures |
| | | 5.3 | Maintain confidentiality of workplace information |
| 6 | Maintain a safe work | 6.1 | Use established safe work practices and personal protective equipment (PPE) to ensure personal safety |

environment

and that of other laboratory personnel

- 6.2 Minimise the generation of wastes and environmental impacts
- 6.3 Ensure safe disposal of laboratory and hazardous wastes
- 6.4 Clean, 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 workplace requirements

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

- Australian and international standards covering the requirements for the competence of testing and calibration laboratories, laboratory safety, quality management 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 and principles of good laboratory practice (GLP)
- workplace documents, such as standard operating procedures (SOPs); quality and equipment manuals; calibration and maintenance schedules; material safety data sheets (MSDS); safety procedures; material, production and product/formulation specifications; production and laboratory schedules; workplace recording and reporting procedures; waste minimisation and safe disposal procedures; and maps and site plans
- sampling procedures for specific samples, sites and clients

(labelling, preparation, storage, transport and disposal) and standard test methods

Safety procedures

Safety procedures include, but are not limited to, one or more of:

- ensuring access to service shut-off points
- recognising hazard warning and safety signs, barriers, service isolation tags, traffic control and flashing lights, and lockout and tag out procedures
- using PPE
- handling, labelling and storing hazardous material and equipment in accordance with labels, MSDS, manufacturer instructions, and workplace procedures and regulations
- following established manual handling procedures
- regular cleaning and/or decontamination of equipment and work area
- use of machinery guards
- identifying and reporting operating problems or equipment malfunctions

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

Release 1. Supersedes and is equivalent to MSL973006A Prepare trial batches for evaluation

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 MSL973006 Prepare trial batches for evaluation

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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:

- preparing and evaluating at least three (3) different trial batches of materials
- performing operations in accordance with laboratory and/or workplace procedures, and appropriate legislative requirements
- accurately measuring, calculating and recording batch quantities, concentrations and other relevant parameters
- performing simple calculations, including:
 - proportion, ratio and percentage for batch quantities
 - concentrations
 - other relevant parameters
- performing representative sampling of trial batches
- evaluating properties of batch mixtures by inspection and standard test methods
- safely setting up, operating and maintaining tools and equipment in accordance with workplace procedures
- safely handling, transporting and storing materials in accordance with workplace procedures
- recognising and reporting problems and atypical situations to relevant personnel.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- concepts of metrology, including:
 - all measurements are estimates
 - measurements belong to a population of measurements of the measured parameters
 - precision, accuracy and significant figures
 - sources of error, uncertainty and repeatability
 - traceability
- international system of units (SI)
- nature of batch materials and products used in job role
- properties of mixing materials and how they affect the properties of the final product
- principles and importance of representative sampling

- principles of the standard test methods and specifications used for evaluating batch materials in job role
- typical problems, including:
 - not following standard operating procedures (SOPs)
 - measurement errors
 - calculation errors
 - materials of unreliable quality
 - insufficient mixing
 - poor sampling procedures
 - equipment breakdown and breakage
- workplace traceability requirements
- relevant hazards, work health and safety (WHS) and environment requirements.

Assessment Conditions

- Judgement 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:
 - MSL952002 Handle and transport samples or equipment
 - MSL954001 Obtain representative samples in accordance with sampling plan
 - MSL973001 Perform basic tests
- Holistic assessment methods include:
 - analysis of trial batches prepared by the candidate over a period of time to ensure accurate and consistent outputs are produced within required timelines
 - inspection of workplace documentation completed by the candidate
 - feedback from peers and supervisors
 - use of suitable simulation and/or a range of case studies/scenarios
 - oral/written questions about workplace procedures covering safe preparation of trial batches and standard methods for sampling and testing mixes.

- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:
 - a standard laboratory equipped with basic test equipment, common measuring instruments, materials, standard methods, workplace procedures, MSDS and equipment manuals
 - samples, such as soils, concrete, asphalt, aggregates, polymers, ceramics, metals, foodstuffs and solvents
 - laboratory equipment, such as ovens; sieves; balances; volumetric measures and mixers; hand tools, shovels, scoops and spatulas; and consumables, including sample bags and labels
 - laboratory documentation, such as batch specifications and worksheets.
- 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.

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