



Australian Government

MSL954001 Obtain representative samples in accordance with sampling plan

Release: 1

MSL954001 Obtain representative samples in accordance with sampling plan

Modification History

Release 1. Supersedes and is equivalent to MSL954001A Obtain representative samples in accordance with sampling plan

Application

This unit of competency covers the ability to obtain a range of samples that are representative of the source material (e.g. raw ingredients, product in process and final product) and to prepare the samples for testing. All sampling activities are conducted in accordance with a defined sampling plan. This unit does not cover the subsequent testing of the samples.

This unit of competency is applicable to laboratory technicians in all industry sectors.

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

Sampling

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 sampling	1.1	Confirm the sampling location, number and type of samples, and timing and frequency of sampling from workplace or client's sampling plan
		1.2	Liaise with relevant personnel to arrange site access and all necessary clearances and/or permits as required
		1.3	Select sampling equipment and conditions to achieve representative samples and preserve sample integrity during collection, storage and transit

- 1.4 Check that all procedures are in accordance with client or workplace requirements, relevant standards and codes
 - 1.5 Identify site and sampling hazards and review workplace safety procedures
 - 1.6 Assemble and check all sampling equipment, materials, containers and safety equipment
 - 1.7 Arrange suitable transport to, from and around site as required
- 2 **Conduct sampling and log samples**
 - 2.1 Locate sampling sites and, if required, services at the site
 - 2.2 Conduct representative sampling in accordance with sampling plan and defined procedures
 - 2.3 Record all information and label samples in accordance with traceability requirements
 - 2.4 Record environment or production conditions and any atypical observations made during sampling that may impact on sample representativeness or integrity
 - 2.5 Transport all samples back to base according to standard operating procedures (SOPs) and relevant codes
- 3 **Prepare samples for testing**
 - 3.1 Prepare sub-samples and back-up sub-samples that are representative of the source
 - 3.2 Label all sub-samples to ensure traceability and store in accordance with SOPs
 - 3.3 Follow defined preparation and safety procedures to limit hazard or contamination to samples, self, work area and environment
 - 3.4 Distribute sub-samples to defined workstations maintaining sample integrity and traceability requirements
- 4 **Address client issues**
 - 4.1 Enter approved information into laboratory information management system (LIMS)

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| | | 4.2 | Report all relevant aspects of the sampling and preparation phases in accordance with workplace procedures |
| | | 4.3 | Ensure that information provided to client is accurate, relevant and authorised for release |
| | | 4.4 | Maintain security and confidentiality of all client/workplace data and information |
| 5 | Maintain a safe work environment | 5.1 | Clean all equipment, containers, work area and vehicles according to workplace procedures |
| | | 5.2 | Check serviceability of all equipment before storage |
| | | 5.3 | Use defined safe work practices and personal protective equipment (PPE) to ensure personal safety and that of other personnel |
| | | 5.4 | Minimise the generation of wastes and environment impacts |
| | | 5.5 | Ensure the safe collection of all hazardous wastes for appropriate disposal |

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 and environmental management;

sampling of materials; and labelling, storage, handling and transport of hazardous materials

- 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 SOPs; quality and equipment manuals; calibration and maintenance schedules; material safety data sheets (MSDS); safety procedures; material, production and product 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)
- methods and procedures which may be written to meet workplace, client and/or regulatory/certifying body requirements

Materials sampled

Materials sampled include one or more of:

- gas or air samples
- water, groundwater, wastewater, stormwater, sludges and sewage
- soil, sediments, rocks, concrete, quarry and mining material, solid wastes
- raw materials, start, middle, end of production run samples, final products and materials used in production processes, such as flocculants
- plants, animals and microbiological samples

Types of samples

Types of samples include one or more of:

- grab samples
- composite samples
- quality control samples
- research or one-off samples
- environmental or survey samples
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Sampling tools and equipment

Sampling tools and equipment include, but are not limited to, one or more of:

- shovels, augers, chain saws, front-end loader, backhoe, excavator and drill rig

- sampling frames, sampling tubes, dip tubes, spears, flexible bladders and syringes, sample thief, pumps and stainless steel bailers
- sample bottles or containers, plastic containers and disposable buckets
- access valves
- auto samplers
- traps and cages
- sterile containers, pipettes, inoculating loops and disposable spoons

Maintenance of integrity of samples

Maintenance of integrity of samples includes one or more of:

- use of appropriate containers and lids, sealing of sample containers
- purging of sample lines and bores
- decontamination of sampling tools between collection of consecutive samples
- use of appropriate preservatives
- temperature control, which may involve insulation of the container in foil or wet newspaper, cloth, sand or sawdust, and separation of the sample and coolant
- transfer of sterile sample into sterile container
- handling and transport of samples to avoid disturbance or damage
- monitoring of storage conditions
- workplace/legal traceability through appropriate sample labelling and records

Safety procedures

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

- use of biohazard containers and laminar flow cabinets
- correct labelling of reagents and hazardous materials
- use of PPE
- handling, and storing hazardous materials and equipment in accordance with labels, MSDS, manufacturer instructions, and workplace procedures and regulations
- regular cleaning and/or decontamination of equipment and work areas
- machinery guards
- signage, barriers, service isolation tags, traffic control and flashing lights
- lock out and tag-out procedures

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 MSL954001A Obtain representative samples in accordance with sampling plan

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 MSL954001 Obtain representative samples in accordance with sampling plan

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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:

- using a range of site sampling plans, samples and sampling procedures
- sampling from a range of sampling points and locations
- obtaining samples that are representative of the source material in accordance with a sampling plan on at least three (3) occasions
- obtaining at least three (3) different types of samples in accordance with sampling plans
- collecting the specified quantity of sample to enable all processing and testing to occur and back-up samples to be stored
- preparing samples for testing
- labelling samples and sub-samples and maintaining the integrity and security of samples following workplace and/or legal traceability requirements
- identifying atypical materials and samples and taking appropriate action
- maintaining sampling equipment in appropriate condition
- completing sampling records using workplace procedures
- following safety regulations and work health and safety (WHS) procedures during sampling, transport and storage
- following requirements for the disposal of waste and the preservation of the environment.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- principles of representative sampling, including:
- representative samples
- preservation of integrity of samples
- maintaining identification of samples relative to their source, workplace and legal traceability
- cost-effectiveness of sampling
- consistency of sampling procedures
- sampling principles, including random, systematic and stratified sampling
- characteristics of product/materials sampled as part of job role and likely contaminants
- function of key sampling equipment/materials and principles of operation

- sampling procedures covering labelling, preparation, storage, transport and disposal, workplace and/or legal traceability requirements
- links between quality control, quality assurance, quality management systems and sampling procedures
- workplace procedures dealing with legislative requirements for the handling, labelling and transport of hazardous goods
- site and sampling hazards and the links between following WHS procedures and personal and environmental safety, particularly at high risk sites.

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:
 - MSL924001 Process and interpret data
 - MSL943002 Participate in laboratory or field workplace safety
 - relevant MSL974000 series units of competency
 - relevant MSL975000 series units of competency relevant to the sampling
- Holistic assessment methods include:
 - inspection of samples collected by the candidate
 - review of sampling documentation completed by the candidate
 - observation of the candidate taking and preparing a range of samples
 - feedback from peers, customers and supervisors that sampling plans were followed
 - questioning to assess required knowledge of representative sampling procedures.
- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:
 - source material, including raw ingredients, product in process and final products
 - a variety of sample types, sampling plans and procedures, sampling containers and sampling equipment, and sample preparation materials and equipment.
- 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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