



**Australian Government**

# **MSL973021 Conduct field-based acceptance tests for construction materials**

**Release: 1**

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## Modification History

| Release   | Comments                                                                                                                                                                                                                                                                        |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Release 1 | <p>This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>.</p> <p>Supersedes and equivalent to MSL973009 Conduct field-based acceptance tests for construction materials. Range of conditions removed. Assessment requirements amended.</p> |

## Application

This unit of competency describes the skills and knowledge to conduct in situ tests to confirm the acceptability of raw or manufactured, construction materials prior to or after their use. Personnel are expected to be able to work independently and liaise with site personnel to ensure that testing is conducted safely and efficiently. They may transport samples and/or equipment to and from the site, as necessary, and prepare test pieces on-site for later laboratory testing.

This unit applies to laboratory personnel working in the geotechnical and construction material testing industry sectors who conduct relatively quick and straightforward control and compliance tests using established test methods. These tests could involve aggregates, concrete, soils, road pavement or other specialised construction materials.

The unit could also be relevant to laboratory technicians working in the water/wastewater and trade waste industry sectors.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

## Pre-requisite Unit

Nil

## Competency Field

Testing

## Elements and Performance Criteria

Elements describe the essential outcomes.

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

- |                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1 Prepare for field-based acceptance tests</b> | <ul style="list-style-type: none"><li>1.1 Review job request to identify the test method and equipment involved, samples to be collected and/or test pieces to be prepared</li><li>1.2 Identify hazards and workplace safe work procedures associated with the site, samples, test methods and equipment used</li><li>1.3 Confirm site location, access, timing and any special test requirements</li><li>1.4 Assemble all required equipment/materials and check that they are fit for purpose</li><li>1.5 Stow equipment/materials to ensure their safe transport, as necessary</li><li>1.6 Arrange transport to site, as necessary</li><li>1.7 Liaise with appropriate personnel on arrival at site to ensure safety and minimise disruption to other workers during testing/sampling</li></ul> |
| <b>2 Perform field tests</b>                      | <ul style="list-style-type: none"><li>2.1 Identify locations for in situ tests in accordance with test method or client instructions</li><li>2.2 Set up, check and operate test equipment safely and in accordance with workplace procedures and test method</li><li>2.3 Perform tests as specified in test method or workplace procedures</li><li>2.4 Take sufficient test measurements to ensure reliable data</li><li>2.5 Recognise obvious errors or atypical data and take appropriate corrective actions</li><li>2.6 Recognise and record details of site conditions that may impact on data quality</li><li>2.7 Seek advice to deal with any situation beyond own technical competence</li></ul>                                                                                            |

| Elements describe the essential outcomes. |                                                     | Performance criteria describe the performance needed to demonstrate achievement of the element. |                                                                                                                                     |
|-------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 3                                         | <b>Collect site samples and prepare test pieces</b> | 3.1                                                                                             | Identify locations for sample collection in accordance with test method or client instructions                                      |
|                                           |                                                     | 3.2                                                                                             | Seek advice if samples cannot be collected or if sampling procedures require modification                                           |
|                                           |                                                     | 3.3                                                                                             | Obtain required samples and maintain their integrity in accordance with sampling procedures or test method                          |
|                                           |                                                     | 3.4                                                                                             | Label all samples to ensure their traceability                                                                                      |
|                                           |                                                     | 3.5                                                                                             | Recognise and record any information about the sample appearance or site conditions that may impact on sample integrity             |
|                                           |                                                     | 3.6                                                                                             | Prepare required test pieces and organise their safe curing, storage and/or transport in accordance with test method                |
| 4                                         | <b>Finalise field testing</b>                       | 4.1                                                                                             | Re-instate all disturbed surfaces in accordance with workplace procedures                                                           |
|                                           |                                                     | 4.2                                                                                             | Clean all equipment (and vehicle as necessary) to avoid environmental damage, including stormwater run-off and/or transfer of pests |
|                                           |                                                     | 4.3                                                                                             | Check that all equipment/materials are present and undamaged prior to re-stowing them for safe transport, as necessary              |
|                                           |                                                     | 4.4                                                                                             | Notify appropriate site personnel on completion of tests and prior to leaving site                                                  |
|                                           |                                                     | 4.5                                                                                             | Check serviceability of test equipment on return to base, before storage                                                            |
|                                           |                                                     | 4.6                                                                                             | Complete site safety plans, equipment logs and test reports in accordance with workplace procedures                                 |
| 5                                         | <b>Maintain a safe work</b>                         | 5.1                                                                                             | Use safe work procedures and personal protective equipment (PPE) to ensure personal safety and that of                              |

Elements describe the essential outcomes.

**environment**

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

**others**

- 5.2 Minimise environmental impacts of testing/sampling and generation of waste
- 5.3 Collect and/or dispose of all waste in accordance with environmental/quarantine requirements and workplace procedures

## 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.

## Unit Mapping Information

Equivalent to MSL973009 Conduct field-based acceptance tests for construction materials, Release 1.

## Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

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

# Assessment Requirements for MSL973021 Conduct field-based acceptance tests for construction materials

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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:

- conducted at least 3 different in situ tests to confirm the acceptability of raw or manufactured construction materials prior to or after their use
- safely and accurately collected and prepared 2 field samples test pieces within the required timeframe.

## Knowledge Evidence

There must be evidence the candidate has knowledge of:

- the purpose and principles of construction materials tests performed as part of job role and key preparation/measurement steps in the test method
- the properties of construction materials under test
- calculation steps to give results in appropriate units and precision
- expected values for sample type and sources of uncertainty (and methods for control) in construction materials tests routinely used in job role
- typical site samples and test pieces
- types of field-based acceptance tests
- workplace procedures for:
  - waste minimisation and safe disposal procedures; and
  - sampling and testing procedures for specific sites, clients and samples
  - pre-use checks and operating test equipment
  - recording and reporting test results, calculations, site observations, and handling unexpected or atypical results and equipment problems
  - ensuring traceability of samples, test pieces, test data and results

- workplace confidentiality
- standard methods for testing construction materials: soils, aggregates, concrete and asphalt
- appropriate corrective actions for errors:
  - carefully re-reading of procedures and checklists
  - logically checking equipment set-up
  - checking calibration, zero error and drift for the measuring instrument
  - repeating test measurements
  - checking data entry and transcription for errors
  - seeking advice
  - awareness of environmental sustainability issues as they relate to the work task
  - legal, ethical and work health and safety (WHS) requirements specific to the work task.

## Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
  - sampling and test equipment and materials specified in the test method
  - test methods and description of test set-up, data sets and records
  - calculator and/or computer and relevant software or laboratory information system.
  - test specifications.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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