



Australian Government

MSMTMVER402 Verify liquid measuring instruments using volume measures

Release: 2

MSMTMVER402 Verify liquid measuring instruments using volume measures

Modification History

Release 2. Adjustments to the Application and Range of Conditions. Adjustment to the Assessment Conditions. Equivalent.

Release 1. Supersedes and is equivalent to MSATMVER402A Verify liquid measuring instruments using volume measures

Application

This unit of competency covers the ability to apply National Instrument Test Procedures to determine whether liquid measuring instruments of a particular class, tested using volume measures, are suitable for trade use and to mark them accordingly.

This unit of competency is applicable to verifiers operating under a servicing licence to test and mark a specific class of liquid measuring instruments tested using a volume measure only. Liquid measuring instruments are used in a very wide range of commerce. For example, petrol dispensers measure fuel at the point of sale and flowmeters are used to measure bulk commodities, such as milk, chemicals and petroleum products during production and distribution. The verification tests are performed over extended durations in non-routine and hazardous environments.

Depending on the site, verifiers may be required to meet additional local safety requirements such as basic first aid, confined space entry, working with hazardous materials, working at heights, working with heavy machinery, use of appropriate workplace clearance forms and completing site safety induction.

Under the requirements of Regulation 2.43 of the *National Trade Measurement Regulations 2009*, a servicing licensee or an employee must not verify a measuring instrument relevant to this unit unless they hold a statement of attainment for this unit of competency.

Pre-requisite Unit

Nil

Competency Field

Trade measurement

Unit Sector

Elements and Performance Criteria

Elements describe the Performance criteria describe the performance needed to

essential outcomes		demonstrate achievement of the element	
1	Prepare for verification	1.1	Identify and evaluate the type of instrument to be verified
		1.2	Access and correctly interpret documentation required for the verification
		1.3	Identify and access test equipment, products and consumables required for the verification
		1.4	Liaise with the trader to provide the items required on site
		1.5	Ensure specified test equipment is fit for purpose in accordance with applicable legislation and organisational procedures
		1.6	Store and transport test equipment in accordance with organisational procedures and industry best practice
		1.7	Identify relevant local workplace health and safety issues and implement appropriate control strategies
2	Evaluate liquid measuring instrument performance	2.1	Evaluate whether the operating environment will impact on the instrument performance
		2.2	Modify the operating environment or implement alternative arrangements to ensure reliable test conditions as necessary
		2.3	Identify the maximum permissible errors for the instrument from the legislative requirements
		2.4	Use test equipment safely in accordance with applicable legislation and organisational procedures
		2.5	Check instrument for compliance with the appropriate Certificates of Approval
		2.6	Inspect the instrument in accordance with relevant National Instrument Test Procedures and appropriate National Measurement Institute (NMI) guidance
		2.7	Evaluate results against prescribed performance criteria and determine if the instrument is suitable for trade use

in accordance with legislative requirements

- | | | | |
|---|--|-----|--|
| 3 | Report verification results | 3.1 | Display the verification result on the instrument in accordance with legislative requirements |
| | | 3.2 | Use test reports to present verification results in the required format |
| | | 3.3 | Complete verification documentation in accordance with legislative requirements and organisational procedures |
| | | 3.4 | Communicate results within the specified time and in accordance with organisational guidelines |
| 4 | Model and encourage compliance with statutory requirements | 4.1 | Apply organisation's quality procedures and practices to meet servicing licensee's legislative obligations |
| | | 4.2 | Clarify any issues about verifier obligations with their servicing licensee and/or licensing administering authority as they arise |
| | | 4.3 | Review work and seek feedback from others to confirm continuing compliance with legislative requirements |
| | | 4.4 | Identify implications of non-compliance with legislative requirements |
| | | 4.5 | Identify inadequacies in trader's use of instruments which may contribute to non-compliance with national measurement legislation |
| | | 4.6 | Explain inadequacies and possible remedial actions to trader |
| | | 4.7 | Respect the rights of the trader at all times |
| 5 | Maintain statutory records | 5.1 | Keep accurate and complete records in accordance with servicing licensee's legislative requirements |
| | | 5.2 | Ensure authorisation, training and relevant licences are current in accordance with organisational and servicing licensee's legislative requirements |
| | | 5.3 | Inform the licensing administering authority of changes |

to personal information as required by statute

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.

National Instrument Test Procedures include one or more of:

- measuring instrument test procedures
- any other test procedure prescribed by the NMI

Classes of liquid measuring instruments using volume measures include one or more of:

- fuel dispensers other than LPG dispensers
- milk flowmeters tested using a volume measure
- any other liquid measuring instrument prescribed by the NMI

Test equipment includes:

- reference standards of measurement
- equipment, such as a small measure, dummy nozzle, safety equipment and hand tools

Certificates of Approval include:

- any Certificate issued by the Chief Metrologist under Regulation 60 of the *National Measurement Regulations 1999* approving the pattern of a liquid measuring instrument using volume measures as being suitable for trade use

Prescribed performance criteria for liquid measuring instruments include:

- that the instrument is of an approved pattern
- that the instrument operates within the appropriate limits of error permitted by legislation
- that the instrument is used in accordance with any legislative requirements

Verification	Has the same meaning as Section 18GG of the <i>National Measurement Act 1960</i>
Verification marks	Verification marks for different instruments are defined in Regulations 2.28 and 2.29 of the <i>National Trade Measurement Regulations 2009</i>
Trading practices include one or more of:	• methods used for the sale of goods • using measuring instruments • position of measuring instruments • environmental factors • suitability of instrument • incorrect measurement
Legislation includes:	• national measurement legislation • applicable Commonwealth, state and territory work/occupational health and safety (WHS/OHS) legislation
NMI guidance includes:	• NMI sanctioned variances to National Instrument Test Procedures for verification • updates • directives
WHS/OHS and environmental management requirements include:	• complying with WHS/OHS 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 material/product measured • applying any necessary hygiene controls

Unit Mapping Information

Release 2. Adjustments to the Application and Range of Conditions. Adjustment to the Assessment Conditions. Equivalent.

Release 1. Supersedes and is equivalent to MSATMVER402A Verify liquid measuring instruments using volume measures

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMTMVER402 Verify liquid measuring instruments using volume measures

Modification History

Release 2. Adjustments to the Application and Range of Conditions. Adjustment to the Assessment Conditions. Equivalent.

Release 1. Supersedes and is equivalent to MSATMVER402A Verify liquid measuring instruments using volume measures

Performance Evidence

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

- testing and marking at least three (3) instruments from one (1) or more of the following classes of liquid measuring instruments using volume measures:
 - fuel dispensers other than liquid petroleum gas (LPG) dispensers
 - milk flowmeters
 - flowmeters used for non petroleum products
- accessing and correctly interpreting documentation required for verification of liquid measuring instruments
- planning, scheduling, preparing for and safely conducting a verification to optimise use of resources and minimise disruption to the public and trader
- ensuring test equipment and reference standards are fit for purpose in accordance with applicable legislation and organisational procedures
- checking compliance and evaluating the performance of liquid measuring instruments using volume measures using appropriate Certificates of Approval, National Measurement Institute (NMI) policy and National Instrument Test Procedures, and adjusting for any impact of the operating environment and operational factors
- reliably determining if liquid measuring instruments are suitable for trade use in accordance with legislative requirements
- displaying the verification result on the instrument and completing all verification documentation in accordance with legislative requirements and organisational procedures
- identifying and communicating any inadequacies in servicing licensee's organisational procedures and practices that may contribute to non-compliance with legislative requirements
- maintaining the accuracy, completeness and currency of statutory records required of servicing licensees such as authorisation, training and relevant licences
- identifying and communicating any inadequacies in trader's use of liquid measuring instruments which may contribute to non-compliance with national measurement legislation
- demonstrating professionalism and respecting the rights of the trader at all times
- using communication and negotiation skills to:

- explain the verification purpose, procedures and outcomes to traders, verifiers and managers
- inform traders of non-compliances and consequences of failing to rectify them
- access external equipment and resources to complete the verification
- using numeric skills to perform calculations involving:
 - fractions, decimals, ratios, proportions and percentages
 - scientific notation, correct units and the correct number of significant figures, calculation of uncertainties
 - evaluation of formulae containing powers, exponents and logarithms functions
 - preparation and interpretation of linear graphs
- maintaining the security and confidentiality of data in accordance with organisational and regulatory requirements
- reporting results in the required formats and expected timeframe
- working safely.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- general science principles and concepts, including:
 - physical states (solid, liquid and gas), weight, mass, gravity and density
 - pressure, pressure differential, backpressure and head pressure, fluid flow and viscosity
 - temperature effects and coefficients of expansion, flashpoint, boiling point and ice point
- metrological terms and terminology specific to liquid measuring instruments, including maximum permissible errors, maximum permissible difference and maximum permissible variation, traceability, repeatability, uncertainty, error of measurement and error of indication, meter creep, hose dilation, temperature correction, linearization and gas elimination
- basic details of the design, application and function of components used in one class of liquid measuring instruments
- servicing licensee requirements, including:
 - quality management system
 - licence conditions
 - maintenance of statutory records
- national measurement legislation applicable to liquid measuring instruments
- safe work method statements (SWMS) for trading environments relevant to job role
- NMI policy, National Instrument Test Procedures and operating procedures for equipment, and reference standards used in job role, including:
 - test conditions and possible environmental impacts on performance of the instrument
 - key preparation/measurement steps in test method
 - calculation steps to give results in appropriate units and precision

- maximum permissible errors for liquid measuring instruments under test
- safety principles and procedures relevant to liquid measuring instruments
- organisational policy and procedures for verifying liquid measuring instruments, including completion of test results, verification documents and statutory records
- organisational safety procedures and requirements of applicable Commonwealth, state and territory work/occupational health and safety (WHS/OHS) legislation
- basic first aid and site safety induction, if required.

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 should 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:
 - *MSMTMREF301 Use and maintain reference standards*
- Holistic assessment methods include:
 - review of test results, verification documentation and verifier statutory records completed by the candidate
 - feedback from supervisors and peers regarding the candidate's ability to verify the performance of liquid measuring instruments using volume measures in accordance with legislative and organisational procedures
 - questions to assess understanding of relevant verification procedures, servicing licensee requirements, trader obligations and remedial actions
 - review of candidate's responses to verification scenarios, such as potential/actual non-compliances of traders and verifiers, appropriate actions, common issues and problems
 - observation of the candidate verifying liquid measuring instruments using volume measures.
- Access is required to liquid measuring instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:

- latest versions of appropriate documentation, such as Certificates of Verification and Approval, NMI policy, National Instrument Test Procedures for verifying liquid measuring instruments and relevant legislation
- workplace clearance forms, and correction tables for volume, density and pressure for a range of liquids
- equipment manuals, safety data sheets (SDS), safety procedures and safety equipment
- records, such as test reports, audit reports, instrument history and test results
- liquid measuring instruments using volume measures; test equipment, such as pumps, funnels and hoses; and reference standards
- computer and relevant software and/or organisation information management system.
- 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 competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience in trade measurement at least to the level being assessed and broad industry knowledge (such as a relevant industry qualification)
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment in trade measurement OR
 - having consulted with trade measurement inspectors and/or verifiers performing the competency being assessed within the last twelve months.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>