



Australian Government

Department of Education, Employment and Workplace Relations

MSATMINS302A Inspect a range of simple measuring instruments

Revision Number: 1

MSATMINS302A Inspect a range of simple measuring instruments

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit of competency covers the ability to apply National Test Procedures to determine whether a range of simple measuring instruments are suitable for trade use. The unit also involves auditing the performance of verifiers who have previously tested and marked simple measuring instruments for trade use.
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Application of the Unit

Application of the unit	This unit of competency is applicable to trade measurement inspectors appointed under national measurement legislation who may inspect a wide range of simple measuring instruments as part of their allocated duties. Simple measuring instruments are used in a very wide range of commerce. For example, dip sticks are used to measure bulk petroleum products and beverages, dimensional measuring instruments are used to measure the cubic measurements of packages for freight and length/area instruments are used to accurately measure a wide range of articles sold by reference to those measurements. Industry representatives have provided case studies to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. These are found at the end of this unit of competency under the section 'This competency in practice'.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for inspection	1.1. Identify and evaluate the type of instrument to be inspected 1.2. Access and review any history of previous inspections at trader's premises 1.3. Access and correctly interpret appropriate documentation required for the inspection 1.4. Identify and access test equipment, products and consumables required for the inspection 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 workplace health and safety issues relevant to the inspection
2. Initiate inspection	2.1. Identify the site controller, explain the purpose of the inspection and produce formal identification, if required 2.2. Identify relevant site health and safety issues and implement appropriate control strategies 2.3. Conduct a preliminary evaluation of the site's trading practices and prioritise activities to maximise inspection outcomes 2.4. Identify trade measuring instruments and plan inspection to minimise disruption to the public and trader 2.5. Identify locations for product return or disposal, if applicable
3. Evaluate simple measuring instrument performance	3.1. Evaluate whether the operating environment will impact on the instrument performance 3.2. Modify the operating environment or implement alternative arrangements to ensure reliable test conditions as necessary 3.3. Identify the maximum permissible errors for the instrument from the legislative requirements 3.4. Use test equipment safely in accordance with applicable legislation and organisational procedures 3.5. Check instrument for compliance with the appropriate Certificates of Approval

ELEMENT	PERFORMANCE CRITERIA
	3.6. Inspect the instrument in accordance with relevant National Test Procedure and appropriate National Measurement Institute policy 3.7. Evaluate results against prescribed performance criteria and determine if the instrument is suitable for trade use in accordance with legislative requirements
4. Conduct a verifier performance audit	4.1. Identify the scope of the verifier audit 4.2. Identify the expected outcomes of the verifier audit 4.3. Assess the verifier's performance against the expected outcome 4.4. Analyse any variances from the expected outcomes to identify isolated or systemic problems
5. Analyse and report inspection results	5.1. Analyse inspection data for unacceptable performance trends 5.2. Display the inspection result on the instrument in accordance with legislative requirements 5.3. Use test reports to present inspection results in the required format 5.4. Complete inspection documentation in accordance with legislative requirements and organisational procedures 5.5. Communicate inspection results within the specified time and in accordance with organisational guidelines 5.6. Recommend follow-up actions as appropriate.
6. Act on non-compliance	6.1. Select applicable enforcement action for the non-compliance in accordance with legislative requirements, organisational policy and procedures 6.2. Inform traders of non-compliances and consequences of failing to have them corrected 6.3. Implement enforcement action in accordance with legislative requirements, organisational policy and procedures 6.4. Maintain the rights of the trader at all times

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- accessing, interpreting and applying a range of documents for the inspection of simple measuring instruments including:
 - national measurement legislation
 - routine National Test Procedures
 - Certificates of Approval
 - National Measurement Institute inspection policy
 - Australian Standards
- accessing and interpreting Certificates of Verification for a limited range of reference standards
- use routine communication and negotiation skills to:
 - explain the purpose of inspection
 - inform traders of non-compliances and consequences of failing to rectify them
 - explain procedures and inspection outcomes to traders, verifiers and managers
- accessing, transporting, setting up, validating, using and maintaining a limited range of test equipment and reference standards
- identifying and evaluating environmental impacts on performance of a range of simple measuring instruments
- conducting tests and recording results with close attention to detail and accuracy
- performing calculations involving fractions, decimals, ratios, proportions and percentages
- using correct units and the correct number of significant figures
- analysing performance results over a single or limited range of operating conditions
- identifying non-compliances with national measurement legislation relating to instrument or verifier performance and initiate appropriate enforcement action including warning, infringement notice, undertaking, injunction and prosecution
- identifying potential trading practice non-compliance with national measurement legislation and initiating an appropriate inspection strategy
- planning routine tasks
- developing/implementing an efficient inspection strategy that has a limited impact on others
- demonstrating professionalism and maintaining the rights of the trader at all times
- solving routine/expected problems
- working safely

Required knowledge

REQUIRED SKILLS AND KNOWLEDGE

- general chemical and physical principles and concepts including:
 - weight, mass, gravity and density
 - temperature effects and coefficients of expansion
- basic knowledge of the operating procedures across a limited range of environments including laboratories, retail, industrial and farming
- knowledge of metrological terms and terminology specific to simple measuring instruments such as maximum permissible errors and traceability
- national measurement legislation applicable to simple measuring instruments
- detailed knowledge of National Test Procedures and operating procedures for equipment and reference standards used in job role including:
 - purpose of test
 - 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 simple measuring instruments under inspection
- procedures for completing inspection documentation
- organisational policy and procedures for inspecting simple measuring instruments

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Competency must be demonstrated in the ability to perform consistently at the required standard for any class of simple measuring instruments listed in the Range Statement.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors should ensure that candidates can:

- identify, access and apply test procedures
- identify and use suitable reference standards
- evaluate and adjust the impact of the operating environment on the performance of the instrument
- analyse test results to determine the instrument's suitability for verification (trade use)
- identify the scope of a verifier performance audit and assess results with expected outcomes
- audit the performance of verifiers of simple measuring instruments
- identify and implement additional inspection strategies for non-instrument related breaches of national measurement legislation
- recognise and act on non-compliance
- maintain the security and confidentiality of data in accordance with organisational and regulatory requirements
- report results in the required formats and expected timeframe.

Context of and specific resources for assessment

This unit of competency is to be assessed in the workplace or simulated workplace environment.

This unit of competency may be assessed with:

- MSATMREF301A Use and maintain reference standards.

Resources may include:

- simple measuring instruments, test equipment and reference standards
- computer and relevant software and/or organisation information management system
- Certificates of Approval for instruments

EVIDENCE GUIDE	
	• relevant legislative and organisational procedures.
Method of assessment	The following assessment methods are suggested: • questions to assess understanding of relevant procedures, licensing requirements, trader obligations and remedial actions • review of inspection reports and verifier performance audit reports prepared by the candidate • feedback from supervisors and peers regarding the candidate's ability to verify the performance of instruments in accordance with legislative and organisational procedures • observation of the candidate conducting an inspection. In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly. Questioning techniques should suit the language and literacy levels of the candidate.
This competency in practice	Industry representatives have provided the case studies below to illustrate the practical application of this unit of competency and to show its relevance in a workplace setting. An inspector has been allocated the task of verifying an area measuring instrument at a tannery. In preparation for his/her visit, the inspector accesses the organisation's database to establish the instrument type, site contact details and any previous history for the instrument or trader. The inspector assembles the test equipment required for the inspection. All reference standards are inspected for damage and validity against their certificate prior to them being stowed with the other equipment safely in the vehicle. On arrival at the tannery, the inspector introduces him/herself to the manager and explains the purpose of the visit and the process involved. During this discussion, the inspector explains that he/she will inspect the area measuring instrument for compliance with its Certificate of Approval, assess the operating environment for factors that may impact on its performance and conduct visual and performance tests in accordance with the National Test Procedure. If the instrument complies with these requirements it will be

EVIDENCE GUIDE

marked as being acceptable for trade use. During the subsequent inspection, the area instrument is found to have a capacity greater than what is stated in the Certificate of Approval and the instrument's performance exceeds the maximum permissible error stated in the national measurement regulations. Consequently, the inspector removes the previous verification mark from the instrument and issues the trader with a warning that the instrument cannot be used for trade until it has been corrected and verified again. Before leaving the premises, the inspector provides the trader with some options for rectifying the non-compliances and gives the manager an opportunity to ask any questions about trade measurement activities.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Prescribed performance criteria for instruments

Prescribed performance criteria for instruments may include:

- design is in accordance with the appropriate Certificates of Approval
- performance meets the criteria described in the Certificates of Approval, National Test Procedure, legislation and National Measurement Institute policy

Appropriate documentation

Where reference is made to documentation, it is expected the latest version will be used.

Appropriate documentation may include:

- Certificates of Verification
- Certificates of Approval for simple measuring instruments
- test procedures for verifying simple measuring instruments
- organisational test reports
- organisational procedures
- National Measurement Act
- occupational health and safety (OHS) regulations, guidelines and procedures and material safety data sheets (MSDS)
- equipment manuals and warranty, supplier catalogues and handbooks
- National Measurement Institute policy
- Australian Standards

Certificates of Approval

Certificates of Approval may include:

- the Certificate issued under national measurement legislation approving the pattern of a simple measuring instrument as being suitable for trade

Enforcement action

Enforcement action may include:

RANGE STATEMENT	
	• formal warnings • infringement notice • formal undertaking • injunction • prosecution
Test equipment	Test equipment may include: • reference standards of measurement • equipment other than reference standards of measurement e.g. weighing instrument, funnels, manifolds, hoses, water meters, roman levels, tramells and beakers
Legislation	Legislation may include: • national measurement legislation • applicable Commonwealth, state and territory OHS legislation
National Measurement Institute policy	National Measurement Institute policy may include: • test procedure variations between a verification, in-service or audit inspection • bulletin • instruction • determination
National Test Procedures for simple measuring instruments	National Test Procedures for simple measuring instruments may include those for: • beverage measuring instruments • protein measuring instruments • length measuring instruments • area measuring instruments • dimensional measuring instruments • vehicle tanks • milk tanks • any other test procedure prescribed by the National Measurement Institute
OHS and environmental management requirements	OHS and environmental management requirements refer to: • all operations must comply with enterprise occupational health safety and environmental management requirements, which may be

RANGE STATEMENT	
	imposed through state/territory or Federal legislation. These requirements must not be compromised at any time • all operations assume the potentially hazardous nature of samples and require standard precautions to be applied • where relevant, users should access and apply current industry understanding of infection control issued by the National Health and Medical Research Council and State and Territory Departments of Health
Operating environmental impacts	Operating environmental impacts may include: • vibration • humidity • temperature • dust • electromagnetic interference • out of level
Records	Records may include: • test reports • audit reports • safety procedures • a history of equipment calibration and test results
Simple measuring instruments	Inspectors may be required to test and mark any of the classes of instruments from the following list. Simple measuring instruments may include: • beverage measuring instruments • protein measuring instruments • length measuring instruments • area measuring instruments • dimensional measuring instruments • vehicle tanks • milk tanks • any other instrument prescribed by the National Measurement Institute
Trading practices	Trading practices may include: • methods used for the sale of goods • advertising

RANGE STATEMENT	
	• using measuring instruments • position of measuring instruments • environmental factors • suitability of instrument • over-pricing • incorrect measurement
Verification	Verification refers to: • the inspection of an instrument for the purpose of determining if the instrument meets the legislative requirements for trade use

Unit Sector(s)

Unit sector	Trade Measurement
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		