



Australian Government

MEM24002 Perform penetrant testing

Release: 1

MEM24002 Perform penetrant testing

Modification History

Release 1. Supersedes and is equivalent to MEM24002B Perform penetrant testing.

Application

This unit of competency defines the skills and knowledge required to perform penetrant testing techniques in a range of industrial applications including fabrications, structures and components across a wide range of industries to Level 2 (AS 3669 Non-destructive testing — Qualification and approval of personnel — Aerospace and AS ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel) or equivalent. It relates to portable penetrant testing, processing on a dedicated penetrant line, visible dye and fluorescent methods.

Penetrant tests are performed on critical component or structural zones. Re-assessment of competency may be required at regular intervals in accordance with Australian Standards or other relevant standards. Actual and potential defects are to be considered, together with ongoing abnormalities in fabrications, components, structures or aircraft components.

Materials and chemicals which are subject to codes and regulations - including, chemicals, explosives, solvents, dangerous materials, acids, or noxious waste products - are subject to safe work habits and must be stored and used in accordance with safe work practices.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of industrial chemicals is required unit MEM13003 Work safely with industrial chemicals and materials should also be selected.

Where the selection and use of power tools are required Unit MEM18002 Use power tools/hand held operations should also be selected.

No licensing or legislative requirements apply to this unit at the time of publication. Certification against Australian Standards may be achieved where assessment in this unit of competency is carried out in conjunction with an examining authority as described in AS ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel.

Band: B

Unit Weight: 4

Pre-requisite Unit

MEM11011 Undertake manual handling

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

MEM18001 Use hand tools

MEM24012 Apply metallurgical principles

Competency Field

Non-destructive testing

Unit Sector

Elements and Performance Criteria

| Elements | Performance Criteria |
|--|---|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i> |
| 1. Determine job requirements | 1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Use appropriate personal protective equipment (PPE) in accordance with SOPs 1.4 Identify job requirements from specifications |
| 2. Prepare inspection areas for penetrant testing | 2.1 Identify inspection areas, clean and prepare for testing using appropriate procedures and materials 2.2 Carry out preparation processes in accordance with the relevant procedures and statutory requirements 2.3 Assess inspection areas visually and identify obvious discontinuities |
| 3. Perform tests | 3.1 Select the most appropriate penetrant test for the material and/or application 3.2 Select test equipment and prepare in accordance with standards and/or procedures 3.3 Select and apply appropriate test media in accordance with workplace and/or industry practices 3.4 Carry out penetrant test in accordance with relevant standards and specifications 3.5 Check penetrant test equipment for defects, and maintain and store in accordance with procedures and manufacturer instructions |
| 4. Interpret and report the results of penetrant test(s) | 4.1 Assess indications, detect defects and classify in accordance with national and international codes and standards 4.2 Confirm defects in accordance with organisational procedures and |

| Elements | Performance Criteria |
|--|--|
| <i>Elements describe the essential outcomes.</i> | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i> |
| | industry practices 4.3 Report test results including an accurate identification of location and size of discontinuities in accordance with organisational procedures, accepted industry practices and customer service requirements |

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.

| | |
|----------------------------------|---|
| Preparation processes include: | <ul style="list-style-type: none"> • surface cleaning and drying. |
| Obvious discontinuities include: | <ul style="list-style-type: none"> • observed changes in material homogeneity |
| Reporting includes: | <ul style="list-style-type: none"> • accurate identification of location and size of discontinuities |

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM24002B Perform penetrant testing.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>