



Australian Government

MSL973003 Prepare culture media

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSL973003A Prepare culture media

Application

This unit of competency covers the ability to prepare culture media which is free of contamination to facilitate optimal growth of organisms and cells. It includes the ability to organise the materials, equipment and work environment and follow standard methods. Media may be prepared from formulated powders obtained from microbiological companies or by first principles under supervision of a technical officer or scientist.

This unit of competency is applicable to laboratory assistants in the biomedical, biological, environmental, food processing and pharmaceutical 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

Testing

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

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

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|----------|------------------------------|-----|---|
| 1 | Prepare culture media | 1.1 | Prepare mixture of media and solvent to ensure solution and even settling of heat soluble materials |
| | | 1.2 | Label media to allow tracking in subsequent processes |
| | | 1.3 | Use a vessel large enough to endure adequate mixing |

- and heating of the media
- 1.4 Dispense media into vessels for sterilisation, leaving room for expansion during heating and cooling
- 2 **Sterilise media**
 - 2.1 Load the steriliser in keeping with maximum permitted loads and appropriate positioning of materials
 - 2.2 Ensure a sterilisation indicator is correctly placed with the load to monitor sterilisation process
 - 2.3 Operate sterilisation cycle in accordance with manufacturer requirements to achieve sterilisation at the required settings
 - 2.4 Cool media to the temperature specified in the media formulation procedures
- 3 **Pour, label and store media**
 - 3.1 Add labile constituents where necessary, under conditions that will not lead to their denaturation or contamination of media
 - 3.2 Ensure even mixing of additives and media before dispensing
 - 3.3 Aseptically dispense media to minimise occurrence of procedural contamination
 - 3.4 Label media to allow for selection, avoiding areas of the culture vessel required for examination of colony growth
 - 3.5 Store media to maximise shelf life and minimise contamination
 - 3.6 Date batch media to ensure correct batch rotation
 - 3.7 Incubate control plates as a sterility check
- 4 **Perform quality control checks**
 - 4.1 Inspect media for any evidence of possible contamination or problems with structure or sterilisation
 - 4.2 Check useability of selective media by growth of expected organism

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|---|--|-----|---|
| | | 4.3 | Check stored stocks at regular intervals for conformance to required standards |
| 5 | Maintain work area and equipment to prevent cross-infection and contamination | 5.1 | Use personal protective equipment (PPE) and safe work practices to ensure personal safety and that of other laboratory personnel |
| | | 5.2 | Place disposable and reusable items into relevant receptacles |
| | | 5.3 | Clean and disinfect work area and equipment after use |
| | | 5.4 | Transport disposable and reusable contaminated materials to relevant areas for disinfection, sterilisation and cleaning or 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 management and environmental management
- Australian standards covering the requirements for cleaning, disinfecting and sterilising reusable medical and surgical instruments and equipment; and maintenance of associated environments in health care facilities
- 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, principles of good laboratory practice (GLP), Australia New Zealand Food Standards (ANZFS) Code, Australian code of good manufacturing practice for medicinal products (GMP) and Australian Dangerous Goods Code
- workplace documents, such as standard operating procedures (SOPs); quality and equipment manuals; calibration and maintenance schedules; material safety data sheets (MSDS); safety procedures; material, client and product specifications; production and laboratory schedules; workplace recording and reporting procedures; and waste minimisation and safe disposal procedures
- workplace procedures and standard methods for preparing culture media, and operation and maintenance manuals for automated media preparation equipment

Cell and tissue culture media

Cell and tissue culture media include, but are not limited to, one or more of:

- agars, broths and solutions
- slopes
- basic balanced salt solutions, such as Hank's or Krebs-Ringer's
- deeps
- enriched media, such as blood sugar, chocolate agar, tetrathionate broth and selenite broth
- control media
- differential media, such as eosin-methylene blue agar and MacConkey's agar
- selective media, such as deoxycholate-citrate agar and Lowenstein-Jensen medium
- tissue culture media
- labile constituents, such as blood, hormones or antibodies

Sterilisation techniques

Sterilisation techniques include, but are not limited to, one or more of:

- boiling, high temperature, high pressure steam and autoclaving
- steam and membrane filtration
- microwave, radiation, gas and/or chemical treatments

Safety procedures

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

- use of PPE, such as safety glasses, gloves and coveralls
- use of biohazard containers and laminar flow cabinets
- correctly labelling reagents and hazardous materials
- handling and storing hazardous material and equipment in accordance with labels, MSDS, manufacturer instructions and workplace procedures and regulations
- closely following safe autoclave operating procedures to avoid accidents and prevent damage to culture media
- regular cleaning, sterilisation and/or disinfecting of equipment
- prompt clean-up of spills in accordance workplace 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

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Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>