

Carry out scientific or technical testing operations

Overview

This standard covers the competences you need to carry out complex scientific or technical testing operations in a science related work activity, in accordance with approved procedures and practices.

You will be required to demonstrate that you can select the appropriate testing methods from procedures for the testing requirements prepare and carry out the in accordance with the relevant workplace procedures.

The activity is likely to be undertaken by someone in a science related work setting, including individuals working in hospitals, scientific laboratories, schools and universities.

Performance criteria

You must be able to:

P1 ensure that your work is carried out in accordance with workplace procedures

P2 use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities

P3 identify conditions for scientific or technical tests to be done

P4 establish the requirements for the scientific or technical tests to be done

P5 select the appropriate testing methods from procedures for the testing requirements

P6 prepare the resources needed for the testing operations

P7 prepare the test samples in accordance with the procedures and check their integrity

P8 carry out the required tests in accordance with the procedures

P9 communicate the required information about the work done, in accordance with departmental and organisational procedures

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Knowledge and understanding

You need to know and understand:

K1 the health and safety requirements of the area in which you are carrying out the scientific or technical activities

K2 the implications of not taking account of legislation, regulations, standards and guidelines when conducting scientific or technical activities

K3 the scientific or technical techniques and processes you must use correctly in the workplace

K4 the importance of wearing protective clothing, gloves and eye protection for scientific or technical activities

K5 the importance of correct identification, and any unique workplace coding system

K6 the organisational requirements for maintaining the security of the workplace (e.g. access or aseptic conditions)

K7 the lines of communication and responsibilities in your department, and their links with the rest of the organisation

K8 the limits of your own authority and to whom you should report if you have problems that you cannot resolve

K9 why it is important to follow safe operating procedures when using equipment and / or materials

K10 the principles and procedures for testing

K11 the purposes of testing, and the specific use to which the test results are to be put

K12 the relevant testing methods that can be used to achieve the purpose of testing

K13 why calibration is important and how to check calibration

K14 how to check the sample identity and its integrity

K15 the range of methods used to prepare samples

K16 how to identify defective equipment and the appropriate action to take

K17 the methods can be used for controlling test variables

K18 the concepts of repeatability and reproducibility

K19 the range of equipment available for testing, and how to choose the most appropriate equipment

K20 the potential impact of the test on health, safety and the environment

K21 the methods can be used for dealing with the handling, storage and disposal of materials

K22 the cleaning materials and the methods for their use

K23 the methods of safe storage that can be used

K24 the document control and reporting procedures that should be used

K25 the reasons why effective communication is important and the methods used for

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communicating effectively

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Scope/range

1. identify conditions for scientific or technical test that include two of the following:
 - 1.1 test environment
 - 1.2 time recording system
 - 1.3 test criteria
 - 1.4 cleanliness
 - 1.5 safety factors
 - 1.6 external influence that can variations

2. establish requirements for one of the following types of test:
 - 2.1 plastics/polymers
 - 2.2 petroleum/petrochemical
 - 2.3 product/process quality
 - 2.4 metal/metallurgy
 - 2.5 chemicals/pharmaceuticals
 - 2.6 omissions/leaks/contamination
 - 2.7 material/physical properties
 - 2.8 mechanical properties
 - 2.9 other (please specify)

3. prepare all of the following resources for testing operations:
 - 3.1 consumables
 - 3.2 utilities/facilities
 - 3.3 instruments
 - 3.4 test materials
 - 3.5 equipment

4. carry out two of the following pre-test check on equipment and test instruments:
 - 4.1 calibration
 - 4.2 cleanliness

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- 4.3 serviceability
- 4.4 setup conditions
- 5. carry out integrity checks that include three of the following:
 - 5.1 free from subsequent defects
 - 5.2 damage and decomposition
 - 5.3 homogeneity
- 6. record and communicate details of work done, to the appropriate people, using:
 - 6.1 verbal reportplus one method from the following:
 - 6.2 written or typed report
 - 6.3 computer-based record
 - 6.4 specific workplace documentation
 - 6.5 electronic mail

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