
Overview

This standard covers the competences you need to carry out scientific or technical evaluations of formulations, in accordance with approved procedures and practices.

You will be required to select, performance check and if necessary, calibrate the appropriate analytical equipment prior to evaluating a formulation.

You must also be able to evaluate the hazards of materials and process to be undertaken in advance of starting work.

You will be required to demonstrate that you can prepare and carry out the required scientific or technical tests in accordance with the relevant workplace procedures.

You will accurately record the results of your evaluations and clearly explain your conclusions for future use.

The activity is likely to be undertaken by someone in a science related work setting in any formulation sector such as pharmaceuticals, personal care, food and drink, paints or lubricants.

In these sectors you will need a knowledge of experimental characterisation techniques. This knowledge is supported by underlying scientific principles that may include the science of: colloids, interfaces, particles, materials, modelling, simulation and data management and analysis.

Performance criteria

You must be able to:

- P1 ensure that your work is carried out in accordance with standard operating procedures complying with health and safety, environmental and other relevant regulations and guidelines
- P2 use safe practices and the appropriate personal protection equipment (PPE) when performing scientific or technical activities
- P3 identify hazards and assess risks against testing requirements
- P4 identify the objective of the investigation and produce a workplan
- P5 select the appropriate test methods and identify the equipment and resources required to complete the testing activity
- P6 identify the testing operations to be carried out and prioritise the tasks within the workplan
- P7 prepare the test samples in accordance with the testing procedures
- P8 ensure that you establish and record clearly the identity of the sample and check its integrity
- P9 carry out the required tests reproducibly on samples in accordance with the correct testing procedures and techniques
- P10 record, in full detail, the results of the tests following workplace reporting procedures to ensure future reproducibility
- P11 monitor the test equipment and ensure that the output readings are to the required specification, recording any equipment faults
- P12 dispose of waste items from the tests following workplace procedures
- P13 deal effectively with problems within your control and report those that cannot be solved
- P14 communicate the required information about the work done, in accordance with departmental and organisational procedure

Knowledge and understanding

You need to know and understand:

- K1 the health and safety regulations and guidelines relating the area in which you are working and of the materials and equipment used in the scientific or technical activities
- K2 the legislation, regulations, standards and guidelines when conducting scientific or technical activities and the implications of not taking account of them when conducting the activities
- K3 the principles of good practice and quality standards in the workplace including as appropriate Good Laboratory Practice (GLP), Good Clinical practice (GCP) and Good Manufacturing Practice (GMP)
- K4 the importance of wearing appropriate personal protection equipment (PPE) for scientific or technical activities
- K5 the risks and hazards associated with the testing activities
- K6 your business objectives relating to the testing programme and how to identify customer requirements
- K7 the purposes of testing, and the specific use to which the test results are to be put in the short and long term
- K8 the principles and procedures for the scientific or technical testing
- K9 the importance of testing both short-term and long-term performance of the formulation
- K10 the essential features of a sampling and testing plan and how to prepare one
- K11 the range of equipment available for testing, and how to choose the most appropriate equipment
- K12 how to set-up and operate the equipment
- K13 when to utilise an automated process
- K14 why it is important to carry out pre-test calibration checks and how to check calibration and performance of equipment
- K15 how to identify defective equipment and the appropriate action to take
- K16 the range of methods used to prepare samples for analysis
- K17 the methods used for labelling samples and the importance of correct sample identification

- K18 how to check the sample identity and integrity for analysis
- K19 the practical procedures for testing solid or liquid formulations
- K20 how to evaluate the test results
- K21 the repeatability and reproducibility of test results and why it's important to follow the specific testing procedure
- K22 problems that can occur during the sampling, testing or equipment operation and the appropriate action to take
- K23 the implications of deviations from set procedures

- K24 how to modify and check a new scientific or technical method, and when this may be required
- K25 the procedures for storing tested samples when archiving is required
- K26 the methods that can be used for the disposal of materials
- K27 the document control and reporting procedures that should be used
- K28 how to record and evaluate the results of the testing activities

K29 the importance of comprehensive recording of the materials, formulations and evaluations to ensure future reproducibility

K30 the importance of maintaining accurate records including any abnormal occurrences with the equipment or the testing process

K31 the lines of communication and responsibilities in your organisation

K32 the reasons why effective communication is important, and the methods used for communicating effectively

K33 the limits of your own authority and to whom you should report if you have problems that you cannot resolve

Developed by	Cogent
Version Number	1
Date Approved	30 Mar 2020
Indicative Review Date	30 Mar 2026
Validity	Current
Status	Original
Originating Organisation	Cogent
Original URN	COGFORM04
Relevant Occupations	Science, Science and Mathematics Science, Science Professionals
Suite	Formulation
Keywords	materials, formulations, evaluations, reproducibility