

Specification of Competency Standards
for the Testing, Inspection and Certification Industry
Unit of Competency

Functional Area - Testing Operations

Title	Verify and maintain reference materials
Code	105890L4
Range	This unit of competency (UoC) covers the abilities to verify the purity of reference materials against established acceptance criteria and determine the storage conditions for maintaining reference materials in a testing / calibration laboratory.
Level	4
Credit	2 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of verification techniques and storage requirements for reference materials</p> <ul style="list-style-type: none"> • Describe the structure of reference materials and their characteristic properties such as UV absorptivity and volatility. • Identify possible impurities in materials under test. • Select an appropriate technique that the response is stable and sensitivity is large in differentiation of minor difference in concentration. • Select a selective detection system, if applicable, to eliminate possible interferences and impurities in the materials under test. • Select an appropriate control material according to the following priority: <ul style="list-style-type: none"> ○ certified reference material, if available, ○ reference materials of another brand if certified reference material is not available, ○ reference materials of another lot only if no other brand is available. • Employ appropriate statistical technique, e.g. student t-test for the evaluation. • Apply the concepts of uncertainty of the verification procedure and uncertainty of purity of materials under test. <p>2. Verify and maintain in-house reference materials</p> <ul style="list-style-type: none"> • Apply the developed verification method and determine the optimal range of the selected technique. • Prepare the concentration for which verification is performed for both the materials under verification and the control materials. • Perform the verification in accordance with the established procedures. • Compare the response to unit mass / concentration of both materials using statistical technique or evaluate the calculated purity of the materials with the claimed one against pre-established tolerance. • Determine the acceptance and suitability of the materials for use as in-house reference materials for routine operation. • Evaluate the uncertainty of purity of the materials under test. • Label in-house reference materials indicating the verification date, next verification date, verified purity and related uncertainty in purity. • Store in-house reference materials in appropriate locations such as dry cabinet, freezer or refrigerator and take measures to prevent cross-contamination with samples and degradation of reference materials. <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Maintain records of verification of in-house reference materials that meet the requirements of intended application. • Ensure in-house reference materials are verified and stored properly. • Differentiate the degradation of reference materials.

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Assessment Criteria	The integrated outcome requirements of this UoC are the abilities to: <ul style="list-style-type: none">• select appropriate technique and method for verification of in-house reference materials that best differentiate small difference in concentration and possible impurities,• verify in-house reference materials according to the established verification procedures,• evaluate the suitability for use of in-house reference materials.
Remark	