

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

Functional Area - Testing Operations

Title	Prepare working solutions and reagents
Code	105796L3
Range	This unit of competency (UoC) covers the abilities to follow defined procedures and instructions to prepare working solutions and reagents in testing laboratories.
Level	3
Credit	1 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess basic theoretical and practical knowledge of wet chemistry</p> <ul style="list-style-type: none"> • Apply solution terminology and concepts of metrology, e.g.: <ul style="list-style-type: none"> ○ acid / base solutions, buffers, redox reactions, ○ concepts of mass and volume measurements. • Identify the grades of glassware and chemicals required by the test method and describe their uses. • Describe calculation methods including appropriate units, uncertainties and concentration of the solution. <p>2. Prepare chemical solutions and reagents</p> <ul style="list-style-type: none"> • Apply appropriate laboratory apparatus and chemicals of specified purity for preparation of working solutions and reagents, e.g.: <ul style="list-style-type: none"> ○ volumetric glassware of appropriate grade, ○ balances, ○ pH meters. • Calculate and measure appropriate quantities of chemicals and solvents for solution and reagent preparation and record data. • Apply laboratory skills (e.g. dilution, mixing) to prepare solutions or reagents according to the defined procedures and instructions. • Calculate the concentrations of the solutions and estimate their shelf-life. • Label and store the working solutions and reagents properly in the laboratory according to standard operating procedures. <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Maintain the quality of the prepared solutions by performing usability checking, e.g. pH check, visual examination, date of expiry.
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> • prepare working solutions and reagents by using suitable laboratory apparatus, glassware and chemicals in accordance with the requirements of test method, • calculate the concentrations of solutions accurately, • label and store the working solutions and reagents properly in the laboratory to maintain their quality and integrity within the shelf-life.
Remark	