

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

Functional Area - Testing Operations

Title	Perform physical and mechanical tests on bituminous materials
Code	105838L4
Range	This unit of competency (UoC) covers the abilities to carry out physical and mechanical tests on bituminous paving materials and other constituent materials, aggregate and binder, and analyse test data in testing laboratories.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of physical and mechanical tests applicable to asphaltic concrete, bitumen, polymer modified bitumen and aggregate</p> <ul style="list-style-type: none"> • Command the principles and concepts underpinning physical and mechanical tests of bituminous materials. • Employ the principles of test methods for determining physical and mechanical properties of bituminous materials. • Identify the specification requirements of testing bituminous materials. • Explain the principles and operation of equipment used for physical and mechanical tests on bituminous materials. • Specify the calibration requirement of equipment. <p>2. Perform physical and mechanical tests on bituminous materials</p> <ul style="list-style-type: none"> • Identify required sample conditions and check against test requirements. • Apply appropriate test methods/standards and testing equipment for physical and mechanical tests on bituminous material. • Carry out appropriate tests on selected bituminous material according to the requirements of relevant test methods/standards, e.g.: <ul style="list-style-type: none"> ○ aggregate grading, ○ bulk specific gravity and theoretical maximum specific gravity, ○ air void content, ○ binder content, ○ penetration resistance, ○ softening point. • Carry out required calibration checks on testing equipment and conduct validation checks on test data. • Record and analyse test data for reporting. <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Ensure integrity and confidentiality of test data by observing the code of conduct of the laboratory. • Follow established safe work practices and use appropriate personal protective equipment.
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> • carry out physical and mechanical tests on selected bituminous material by applying appropriate testing equipment according to the requirements of test methods/standards and test specifications, • record and analyse test data by verifying equipment calibration status and checking the validity of test data within the acceptable range specified in test methods/standards.
Remark	