

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

Functional Area - Testing Operations

Title	Perform thermal hazard related tests
Code	105825L4
Range	This unit of competency (UoC) covers the abilities to carry out thermal hazard related tests on electrical and electronic products independently, record accurate test data and evaluate the thermal hazards of the products in testing laboratories.
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Possess knowledge of thermal hazards</p> <ul style="list-style-type: none"> • Employ the principles of thermal hazards. • Describe the pre-conditioning of samples. • Describe the temperature of materials in relation to thermal hazard particularly for plastic and comprehend the classification of winding insulation. • Identify the potential thermal hazards of selected electrical and electronic products, e.g.: <ul style="list-style-type: none"> ○ audio, video and similar electronic apparatus, ○ household and similar electrical appliances, ○ information technology equipment, ○ luminaires. • Employ the principles of evaluating thermal hazard of selected electrical and electronic products, particular for temperature rise, softening temperature measurement, ball pressure test, endurance and thermal test. • Identify relevant categories of thermal hazard standards, e.g.: <ul style="list-style-type: none"> ○ basic/generic standards, product family standards, ○ international, national and industrial standards such as IEC, EN, GB, BS, UL, MS, SS, AS/NZS. • Specify the regulatory requirements of thermal hazards of electrical and electronic products in selected countries or regions, e.g. China, EU. • Describe the principles and operation of instruments used for the thermal hazard related tests, e.g. thermocouples, winding resistance method. • Apply the concepts of uncertainty and instrument calibration to the thermal hazard related tests. <p>2. Perform thermal hazards related tests</p> <ul style="list-style-type: none"> • Select appropriate test methods/standards, test conditions and accessories for thermal hazard related tests. • Apply appropriate testing instruments, e.g. thermocouple or voltmeter, to measure temperature or voltage for temperature rise measurements. • Apply appropriate winding resistance method for temperature rise of winding. • Apply appropriate conditions to testing instruments, e.g.: <ul style="list-style-type: none"> ○ conditioning temperature for carrying out the heating process, ○ appropriate force of the ball pressure tests. • Apply appropriate conditions to the sample under test, e.g.: <ul style="list-style-type: none"> ○ number of cycle and operation time, ○ location of thermocouples according to the construction site, ○ definition of thermal stable conditions. • Carry out the tests on the sample independently according to the test methods/standards, e.g.: <ul style="list-style-type: none"> ○ temperature rise test, ○ softening temperature test,

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	<ul style="list-style-type: none"> ○ ball pressure test. • Carry out required validation checks to confirm the system and instrumental requirements (e.g. mass of ball pressure tests) are met. • Record accurate test data and observations and conclude test results to confirm the compliance of the test sample. <p>3. Exhibit professionalism</p> <ul style="list-style-type: none"> • Ensure all measurements are carried out in compliance with good industry practices and relevant categories of standards. • Ensure integrity and confidentiality of laboratory data and information by observing the code of conduct as required by the standards, regulations and the organisation.
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> • carry out thermal hazard tests on selected electrical and electronic product independently by applying appropriate instrument and testing conditions according to the requirements of relevant test methods/standards, • record accurate and reliable test data by data validation and verifying instrument calibration status, • conclude test results to confirm the compliance of thermal hazards of the product against the relevant specifications of test methods/standards.
Remark	