

Asphalt strand – Technician Option

New 41

Explain and complete asphalt sampling in the civil engineering industry

Level: 4 Credits: 5

Entry information: Open.

Special notes

- 1 Applicable Rules, standards, and codes
ISO/IEC 17025:2005 – *General Requirements for the Competence of Testing and Calibration Laboratories* (ISO/IEC 17025);
Available at <http://www.iso.org/iso/store.htm>
ASTM D979 - 01(2006)e1 Standard Practice for Sampling Bituminous Paving Mixtures
Available at <http://www.astm.org/index.shtml>
- 2 Definitions
Samples may include but are not limited to – prepared materials and test samples.
Organisational requirements refers to instructions to staff on policy and procedures (including the application of legislation to work site situations) which are formally documented or generally accepted at the work site. This may include legislation; industry standards and methods; national and international standards and methods; standards and methods published in internationally recognised reputable texts; customer/organisation developed methods, standard operating procedures, specifications, manuals, and manufacturer's information.
- 3 Performance must be demonstrated and assessed in accordance with organisational requirements.

Judgment statement

- Verifier: The trainee has shown ability to meet the standard stated within this unit in accordance with company specifications, procedures and where appropriate manufacturer's instructions.
- Assessor: Based on the evidence of the verifier and demonstrated skills and knowledge the candidate has met the criteria as specified within this unit including all range statements.
- Focus: Throughout this area of assessment the candidate will need to consistently apply knowledge learned relating to: sound businesses practices, organisational business rules and legislative requirements relating to acts, codes and legislation listed above.

Element 1

Explain requirements for asphalt sampling.

Performance Criteria	Candidate	Assessor
1.1 The selection of sampling locations is explained in terms of representative sampling.	<ul style="list-style-type: none"> ▪ 	
1.2 The selection of sample increments is explained in terms of homogeneous and representative sampling.		
1.3 The methods of sampling are described in terms of their use, limits and standards.		
1.4 The documentation requirements are explained in accordance with test and organisational requirements.		

Element 2

Complete asphalt sampling.

Performance Criteria	Candidate	Assessor
2.1 Sampling is planned in accordance with asphalt test and company requirements.	<ul style="list-style-type: none"> ▪ 	
Range: may include but is not limited to – transport, access to sample site, customer communication.		
2.2 Take samples in accordance with test and company requirements.		
2.3 Label samples and document observations in accordance with test and company requirements.		
2.4 Sample is transported to testing location in accordance with test and company requirements.		

New 42

Describe asphalt tests in the civil engineering industry

Level: 4 Credits: 15

Entry information: Open.

Special notes

- 1 Applicable Rules, standards, and codes
ISO/IEC 17025:2005 – *General Requirements for the Competence of Testing and Calibration Laboratories* (ISO/IEC 17025);
Available at <http://www.iso.org/iso/store.htm>
- 2 Definitions
Samples may include but are not limited to – prepared materials and test samples.
Organisational requirements refers to instructions to staff on policy and procedures which are formally documented or generally accepted at the work site. This may include legislation; industry standards and methods; national and international standards and methods; customer/organisation developed methods, standard operating procedures, specifications, manuals, and manufacturer's information.
- 3 Performance must be demonstrated and assessed in accordance with organisational requirements.

include – asphalt specimen specific gravity & density, Maximum theoretical specific gravity, air voids, stability & flow, specimen compaction, binder content, grading

Evidence for 2 of the following tests which may include but not limited to – slab compaction, resilient modulus, fatigue, wheel tracking, gyratory compaction, permeability (open graded porous asphalt), drainage, tensile strength ratio, aggregate specific gravity & absorption.

Judgment statement

Verifier: The trainee has shown ability to meet the standard stated within this unit in accordance with company specifications, procedures and where appropriate manufacturer's instructions.

Assessor: Based on the evidence of the verifier and demonstrated skills and knowledge the candidate has met the criteria as specified within this unit including all range statements.

Focus: Throughout this area of assessment the candidate will need to consistently apply knowledge learned relating to: sound businesses practices, organisational business rules and legislative requirements relating to acts, codes and legislation listed above.

Element 1

Describe an asphalt test method.

Performance Criteria	Candidate	Verifier/Assessor
1.1 The principle of the test is explained in terms of sample requirements, equipment, processes involved and results.	■	
1.2 Critical factors of the test are described in accordance with organisational requirements.		
Range: may include but is not limited to – temperature, humidity, environment.		
1.3 Variables of the test are described and the options to minimise variability is described in accordance with organisational requirements.		
Range: may include but is not limited to – equipment, apparatus, material, technique, calibration, environment.		
1.4 Quality assurance of the test is described in accordance with organisational requirements.		
Range: may include but is not limited to – test method, recording requirements.		

Element 2

Describe the application of test results.

Performance Criteria	Candidate	Verifier/Assessor
<p>2.1 The application of test results is described in terms of material properties.</p> <p>Range: may include but is not limited to – out of specification results, in specification results, reporting.</p> <p>2.2 Critical limits of test results are described in accordance with organisational requirements.</p> <p>Range: may include but is not limited to – uncertainty of measurement, suitability, limitations.</p> <p>2.3 Reporting requirements for test results are described in accordance with organisational requirements.</p> <p>Range: may include but is not limited to – equipment, apparatus, material, technique, calibration, environment.</p>	<ul style="list-style-type: none">▪	

New 43

Perform asphalt tests in the civil engineering industry

Level: 4 Credits: 15

Entry information: Open.

Special notes

- 1 Applicable Rules, standards, and codes
ISO/IEC 17025:2005 – *General Requirements for the Competence of Testing and Calibration Laboratories* (ISO/IEC 17025); Available at <http://www.iso.org/iso/store.htm>
NZS 4402.1:1986, *Preliminary and General Methods of testing soils for civil engineering purposes* (NZS 4402), available at <http://www.standards.co.nz>.
- 2 Definitions
Samples may include but are not limited to – prepared materials and test materials such as standards and reagents.
Organisational requirements refers to instructions to staff on policy and procedures (including the application of legislation to work site situations) which are formally documented or generally accepted at the work site. This may include legislation; industry standards and methods; national and international standards and methods; standards and methods published in internationally recognised reputable texts; customer/organisation developed methods, standard operating procedures, specifications, manuals, and manufacturer's information.
- 3 Performance must be demonstrated and assessed in accordance with organisational requirements.

Tests include – asphalt specimen specific gravity & density, Maximum theoretical specific gravity, air voids, stability & flow, specimen compaction, binder content, grading. And
Evidence for 2 of the following tests which may include but not limited to – slab compaction, resilient modulus, fatigue, wheel tracking, gyratory compaction, permeability (open graded porous asphalt), drainage, tensile strength ratio, aggregate specific gravity & absorption.

Judgment statement

- Verifier: The trainee has shown ability to meet the standard stated within this unit in accordance with company specifications, procedures and where appropriate manufacturer's instructions.
- Assessor: Based on the evidence of the verifier and demonstrated skills and knowledge the candidate has met the criteria as specified within this unit including all range statements.
- Focus: Throughout this area of assessment the candidate will need to consistently apply knowledge learned relating to: sound businesses practices, organisational business rules and legislative requirements relating to acts, codes and legislation listed above.

Element 1

Perform asphalt tests on civil engineering materials

Performance Criteria		Candidate	Assessor
1.1	Materials and equipment are prepared in accordance with organisational requirements.	▪	
1.2	Tests are performed according to organisational requirements.		
1.3	Test results are within precision requirements.		
1.4	Test equipment is maintained and stored.		

Element 2

Calculate and report results of asphalt tests on civil engineering materials.

Performance Criteria		Candidate	Assessor
2.1	Results are recorded accurately and calculations performed according to organisational requirements.	▪	
Range:	may include but is not limited to – sample site, sample description.		
2.2	Calculations are reported in accordance with organisational requirements.		

Asphalt strand – Senior Technician Option

New 44

Explain asphalt tests in the civil engineering industry

Level: 5 Credits: 20

Entry information: tech unit.

Special notes

- 1 Applicable Rules, standards, and codes
ISO/IEC 17025:2005 – *General Requirements for the Competence of Testing and Calibration Laboratories* (ISO/IEC 17025);
Available at <http://www.iso.org/iso/store.htm>
- 2 Definitions
Samples may include but are not limited to – prepared materials and test samples.
Organisational requirements refers to instructions to staff on policy and procedures which are formally documented or generally accepted at the work site. This may include legislation; industry standards and methods; national and international standards and methods; customer/organisation developed methods, standard operating procedures, specifications, manuals, and manufacturer's information.
- 3 Performance must be demonstrated and assessed in accordance with organisational requirements.

include – asphalt specimen specific gravity & density, Maximum theoretical specific gravity, air voids, stability & flow, specimen compaction, binder content, grading. And
Evidence for 4 of the following tests which may include but not limited to – slab compaction, resilient modulus, fatigue, wheel tracking, gyratory compaction, permeability (open graded porous asphalt), drainage, tensile strength ratio, aggregate specific gravity & absorption.

Judgment statement

- Verifier: The trainee has shown ability to meet the standard stated within this unit in accordance with company specifications, procedures and where appropriate manufacturer's instructions.
- Assessor: Based on the evidence of the verifier and demonstrated skills and knowledge the candidate has met the criteria as specified within this unit including all range statements.
- Focus: Throughout this area of assessment the candidate will need to consistently apply knowledge learned relating to: sound businesses practices, organisational business rules and legislative requirements relating to acts, codes and legislation listed above.

Element 1

Explain an asphalt test method.

Performance Criteria	Candidate	Verifier/Assessor
1.1 The test is explained in terms of principle, application, and limitations. Range: may include but is not limited to – sample requirements, equipment, processes involved, results.	▪	
1.2 Critical factors of the test are explained in accordance with organisational requirements. Range: may include but is not limited to – temperature, equipment, environment.		
1.3 Variables of the test are explained and the options to minimise variability is described in accordance with organisational requirements. Range: may include but is not limited to – equipment, apparatus, material, technique, calibration, environment.		
1.4 Quality assurance of the test is explained in accordance with organisational requirements. Range: may include but is not limited to – sampling plan, test method, recording requirements.		

Element 2

Explain the application of asphalt test results.

Performance Criteria	Candidate	Verifier/Assessor
<p>2.1 The application of test results is explained in terms of material properties.</p> <p>Range: may include but is not limited to – out of specification results, in specification results, reporting.</p> <p>2.2 Critical limits of test results are explained in accordance with organisational requirements.</p> <p>Range: may include but is not limited to – uncertainty of measurement, suitability, limitations.</p> <p>2.3 Reporting requirements for test results are explained in accordance with organisational requirements.</p> <p>Range: may include but is not limited to – equipment, apparatus, material, technique, calibration, environment.</p>	<ul style="list-style-type: none">▪	

New 45

Evaluate and troubleshoot asphalt tests in the civil engineering industry

Level: 5 Credits: 12

Entry information: Tech unit.

Special notes

- 1 Applicable Rules, standards, and codes
ISO/IEC 17025:2005 – *General Requirements for the Competence of Testing and Calibration Laboratories* (ISO/IEC 17025); Available at <http://www.iso.org/iso/store.htm>
- 2 Definitions
Samples may include but are not limited to – prepared materials and test samples.
Organisational requirements refers to instructions to staff on policy and procedures (including the application of legislation to work site situations) which are formally documented or generally accepted at the work site. This may include legislation; industry standards and methods; national and international standards and methods; standards and methods published in internationally recognised reputable texts; customer/organisation developed methods, standard operating procedures, specifications, manuals, and manufacturer's information.
- 3 Performance must be demonstrated and assessed in accordance with organisational requirements.
include – asphalt specimen specific gravity & density, Maximum theoretical specific gravity, air voids, stability & flow, specimen compaction, binder content, grading. And

Evidence for 4 of the following tests which may include but not limited to – slab compaction, resilient modulus, fatigue, wheel tracking, gyratory compaction, permeability (open graded porous asphalt), drainage, tensile strength ratio, aggregate specific gravity & absorption.

Judgment statement

- Verifier: The trainee has shown ability to meet the standard stated within this unit in accordance with company specifications, procedures and where appropriate manufacturer's instructions.
- Assessor: Based on the evidence of the verifier and demonstrated skills and knowledge the candidate has met the criteria as specified within this unit including all range statements.
- Focus: Throughout this area of assessment the candidate will need to consistently apply knowledge learned relating to: sound businesses practices, organisational business rules and legislative requirements relating to acts, codes and legislation listed above.

Element 1

Evaluate results of asphalt tests.

Performance Criteria

1.1 Results are interpreted in accordance with organisational requirements.

Range: may include but is not limited to – non-conformance, corrective action taken.

Element 2

Troubleshoot abnormal asphalt test results.

Performance Criteria

2.1 Troubleshooting abnormal asphalt test results identifies the nature of the problem, uses effective problem solving techniques and reaches a valid solution in accordance with organisational requirements.

Candidate

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Assessor