Authorised Gas Tester

Standard Title	Code
Authorised Gas Tester Training Standard	9240
Authorised Gas Tester Training Standard Digital Delivery	9242

OPITO STANDARDS

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OPITO is employer led in all aspects of what it does, therefore all standards development activities are at the behest of industry employers. The standards are driven by the needs of employers to help create a safe and competent workforce.

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The contents of this document were developed by an Industry workgroup facilitated and supported by OPITO. The workgroup consisted of representation from a cross section of Oil and Gas Industry employers, discipline experts working within the Industry and members of the OPITO Approved Training network.

This standard has been verified and accepted through the governance and integrity management model for OPITO standards.

Guidance on this standard is available by contacting OPITO

This Standard has been designed to accommodate global variations in national legislation and regulations. In the absence of relevant national legislation and regulations, OPITO-approved centres must use legislative and regulatory criteria specified within this Standard

Amendments					
Amendments and date		**Pages**	**Changes made by**	**Checked by**	**Approved by**
Revision 0 – released 4th February 2019	Complete review of suite of Authorised Gas Tester Standards To combine existing Authorised Gas Tester Level 1,2 and 3 Standards into 2 standards,"Authorised Gas Tester," and " Authorised Gas Monitor and reformat. January 2019	All	Standards Coordinator	Quality Assurance Manager	Director (Standards and QA)

Any amendments made to this standard by OPITO will be recorded above.

Contents

Introduction and Course Description

This Authorised Gas Tester (AGT) Training Standard has been developed by an Industry Work Group comprising representatives from key Oil and Gas Industry stakeholders including Operator/Duty Holder organisations, drilling organisations, contractor organisations, specialist assessment providers and OPITO-approved Training Providers.

The Authorised Gas Tester role is critical in testing for and ensuring safe working atmospheres, in particular: permit controlled confined spaces, and prior to and during hot work.

The tasks Authorised Gas Testers are required to undertake may vary depending on the workplace operation at the time. The tasks also vary in complexity and responsibility. Therefore, the Authorised Gas Tester Standard provides delegates with an understanding of:

a) **What is** required for those involved with performing a test for oxygen, flammable and toxic gases up to and including working in confined spaces.

b) **What** is required for those involved with testing for flammable gas in preparation for hot work.

c) **What** is required for those who provide safety watch duties by the ongoing monitoring of a hot work site.

The specific purpose of this standard is to set out the basic training, knowledge assessment and certification requirements for Authorised Gas Testers, conducted at OPITO-approved training centres.

Appointment of Authorised Gas Testers

Training and competence assessment of formally appointed Authorised gas Testers will comprise both theoretical training and further workplace training and assessment.

The duty holder/employer is responsible for ensuring that personnel **appointed** to the Authorised Gas Tester role have received sufficient training and gained relevant experience to undertake the role(s) competently and safely. The duty holder/employer must ensure that, apart from the provision of theory training, that further workplace training is provided and workplace competence assessment is conducted prior to formal appointment.

Note: In the workplace, persons undertaking Standby/Safety Watch duties at the entrance to a confined space shall be an Authorised Gas Tester or Gas Monitor.

SECTION A Authorised Gas Tester Training Programme

A.1 Target Group

This programme is designed to meet the initial training and knowledge assessment requirements for personnel preparing to work as Authorised Gas Testers*.

*Note: *In the workplace, persons undertaking Standby/Safety Watch duties at the entrance to a confined space shall be an Authorised Gas Tester or an Authorised Gas Monitor.*

A.2 Delegate Pre-requisites

No pre-requisites are required.

A.3 Physical and Stressful Demands of the Course – Not Applicable

This section has been left intentionally blank.

A.4 Aim and Objectives

The aim and objectives of the Authorised Gas Tester training programme is to ensure that personnel preparing for a gas tester role are equipped with the knowledge to conduct gas tests for oxygen levels, flammable and toxic gases safely.

This training programme also equips the delegate with knowledge to conduct gas testing within confined spaces and awareness of associated confined space hazards.

Delegates will also learn about relevant legislative requirements, gas measuring and monitoring equipment and documenting gas test results.

A.5 Learning Outcomes

The delegate's learning outcomes are specified below:

MODULE 1 Authorised Gas Tester

To successfully complete this module delegates must be able to **demonstrate an understanding of:**

(1) Confined space criteria
(2) The type of operations being tested for flammable and toxic gases
(3) The hazards of operations within an oxygen-enriched, oxygen-deficient, toxic or flammable environment
(4) Carrying out a suitable and sufficient risk assessments
(5) Understand the safe systems of work, how to work within the safe system of work and the associated responsibilities
(6) The implications of statutory and organisational requirements
(7) Interpreting operational requirements
(8) How to select, use and care for PPE and RPE
(9) Accessing and interpreting operational instructions
(10) The operating principles of atmosphere monitoring and measuring equipment and failure modes
(11) The strengths and weaknesses of various types of atmospheric flammable and toxic gas detection equipment
(12) Correct selection of aspirating or non-aspirating detectors to obtaining representative atmosphere sample
(13) Equipment required for testing for hydrocarbons in inert atmospheres
(14) Gas detector pre-start checks
(15) Determining the extent of the test boundaries
(16) Calibrating the instruments used in atmospheric testing
(17) Sources of assistance during the event of damaged or defective equipment
(18) Interpreting normal and abnormal results
(19) Documenting the results and advising relevant personnel

MODULE 2 Testing for flammable gas in preparation for hot work

To successfully complete this module delegates must be able to **demonstrate an understanding of:**

(1) Hot work (any operation involving naked flames or producing heat and/or sparks or any operation that has spark potential)
(2) Type of operations being tested for flammable and toxic gases
(3) The principles of hot work gas testing
(4) The hazards and properties of flammable gases
(5) Acceptable levels of flammable gases and the correct amount of oxygen
(6) Carrying out a suitable and sufficient risk assessment
(7) Using safe systems of work and understanding the associated responsibilities
(8) The implications of organisational and statutory requirements
(9) Detectors used for the flammable product
(10) How to set up the relevant detectors for each gas testing application and confirm functioning correctly
(11) The range and frequency of tests and monitoring and retesting requirements
(12) Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere

MODULE 3 Confined Space Testing

To successfully complete this module delegates must be able to **demonstrate an understanding of:**

(1) The hazards and properties of flammable and toxic gases
(2) The behaviour of different gases
(3) The range and frequency of tests and monitoring and retesting requirements after initial entry
(4) Acceptable levels of flammable gases and the correct amount of oxygen
(5) The implications of WEL for toxic gases and LEL for flammable gases
(6) How to set up the relevant detectors for each gas testing application and confirm functioning correctly
(7) Performing Gas tests in sequential order
(8) How to obtain representative atmosphere sample
(9) Taking various samples to locate varying concentrations of gases and vapors
(10) Importance of sampling confined spaces at a distance
(11) Testing flammable gases in inert atmospheres
(12) Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere

MODULE 4 Gas Monitoring for Hotwork Sites

To successfully complete this module delegates must be able to **demonstrate an understanding of:**

(1) Hot work (any operation involving naked flames or producing heat and/or sparks or any operation that has spark potential)
(2) Confined space criteria
(3) The type of operations being tested for flammable and toxic gases
(4) Roles and responsibilities of the Fire Watch
(5) Roles and responsibilities of the Stand By person
(6) Responsibilities of the Gas Monitor role
(7) How to select, use and care for PPE
(8) How to work within the safe system of work
(9) The hazards and properties of flammable gases
(10) The behaviour of different flammable and toxic gases
(11) The potential arrival of flammable gas or vapour clouds at the hot work site
(12) Impact of environmental changes on working conditions
(13) Importance of checking controls on the equipment are as specified
(14) Importance of regular communication
(15) Sources of assistance and specialist support
(16) Completion of relevant documentation

A.6 Delegate Knowledge Assessment

Delegates will be required to undertake a knowledge test which covers all learning outcomes stated in Section A.5. The test will be 'open-book' and questions must be clearly referenced against specific learning outcomes. There must be a minimum of two questions per learning outcome. Candidates must achieve a pass mark of 80% or higher in order to successfully achieve the Authorised Gas Tester (AGT) Training Standard.

If time permits, training instructors must identify any gaps in delegate's learning and make reasonable effort to address the gaps to help delegates meet the learning outcomes. However, if any delegate fails to meet the standard, in the opinion of the training provider and after reasonable tuition, the delegate will not be issued with a certificate and will be required to re-attend the Authorised Gas Tester Training Programme a later date.

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

Training providers are required to complete, and delegates to sign, the Authorised Gas Tester Training Record in Appendix 3. A copy of the completed Training Record must be provided to the delegate (and the delegate's employer where relevant).

In addition, records of all knowledge assessments undertaken and completed by the delegate must be retained by the training provider for audit purposes.

A.7 Duration and Timing of the Course

The optimum contact time* for classroom delivery is seen as **16 hours.**

The optimum contact time for digital delivery is seen as **4 hours**.

The contact time is based on the maximum number of delegates/candidates undertaking the programme. Where stated, individual module/unit/element timings that are specified within the standard must be adhered to. The contact time must not exceed 8 hours in any one day and the total programme day** must not exceed 10 hours. Practical and theory sessions must contain adequate breaks for delegate welfare.

***Contact time** includes the delivery of the theoretical and practical training/assessment programme.

****The total programme day** includes the delegate enrolment and certification process, contact time, welfare breaks, meal breaks and where applicable, travel between sites.

A.8 The Initial Training Programme

The training programme provided below is designed to help delegates achieve the stated learning outcomes specified in section A.5. The order in which elements of the training programme are delivered may vary. However, contents in Appendix 1 must be covered prior to course commencement.

Full use must be made of audio/visual aids and course handout material. Training staff must give practical demonstrations where appropriate.

Each module must be introduced by the training staff, and include:

(a) **Aim** – The main purpose of the module
(b) **Learning Outcomes** – What the delegates are expected to learn
(c) **Timetable** – Training module duration and timing
(d) **Assessed** – how delegates will be assessed and what they will be assessed against
(e) **Staff** - who will be delivering the training and roles of training support staff.

The training course consists of the following **modules** and **elements**:

Module 1	**Authorised Gas Tester**
Element 1.1	Relevant legislative controls
Element 1.2	Atmosphere measuring and monitoring equipment
Element 1.3	Interpreting and documenting the results
Module 2	**Testing for flammable gas in preparation for hot work**
Element 2.1	Gas testing for hot work
Module 3	**Confined Space Testing**
Element 3.1	Gas testing in confined spaces
Module 4	**Gas Monitoring for Hotwork Sites**
Element 4.1	Providing Safety Watch Duties for Hot Work Sites

MODULE 1 Authorised Gas Tester
ELEMENT 1.1 Relevant Legislative Controls

Training staff to **explain:**

1.1.1 Confined space criteria, to include:

(a) The definition of a confined space as per National Regulations and Approved Codes of Practice (ACOPs)
(b) Not designed for continuous worker occupancy

1.1.2 The type of operations being tested for flammable and toxic gases
1.1.3 The potential cumulative hazards of operations within an oxygen-enriched, oxygen-deficient, toxic or flammable environment and habitats
1.1.4 Carrying out a suitable and sufficient risk assessment before testing activities and confined space entry
1.1.5 Understanding responsibilities within safe systems of work, to include:

(a) Entry permits
(b) Formal rescue plan
(c) Ventilation
(d) Testing and continuous monitoring of the air
(e) Communications

1.1.6 Nominating stand by person to raise the alarm and initiate emergency response
1.1.7 The implications of statutory requirements with respect to gas testing - to include:

(a) Legislation,
(b) Codes of practice,
(c) Manufacturers' instructions
(d) Company instructions

1.1.8 How to interpret operational requirements - to include:

(a) policies,
(b) procedures,
(c) instructions,
(d) codes of practice and standards

1.1.9 How to select, use and care for PPE for different toxic and flammable gases and other contaminants through risk assessment
1.1.10 Consideration of appropriate levels of respiratory protective equipment
1.1.11 How to work within the Safe System of Work.

ELEMENT 1.2 Atmosphere Measuring and Monitoring Equipment

Training staff to **explain:**

1.2.1 The strengths and weaknesses of the various types of atmospheric flammable and toxic gas detection equipment - to include:

(a) transportable, portable and personal monitors
(b) FLIR (Forward Looking Infra Red) cameras

1.2.2 Determining the extent of the test boundaries
1.2.3 Calibrating the instruments used in atmospheric testing.
1.2.4 Sources of assistance in the event of damaged or defective equipment

Training Staff to **explain** and **demonstrate:**

1.2.5 How to access and interpret the relevant operational instructions
1.2.6 The operating principles of atmosphere monitoring and measuring equipment
1.2.7 Frequently observed failure modes
1.2.8 How to correctly select between aspirating and non-aspirating detectors to obtain a representative sample of the atmosphere being tested
1.2.9 Equipment required for testing for hydrocarbons in inert atmospheres
1.2.10 Gas detector pre-start checks

ELEMENT 1.3 Interpreting and Documenting the Results

Training staff to **explain:**

1.3.1 How to document the results and advise relevant personnel.

Training Staff to **explain** and **demonstrate:**

1.3.2 How to interpret the results, to include both normal and abnormal

MODULE 2 Testing for Flammable Gas in Preparation for Hot Work
Element 2.1 Gas Testing for Hot Work

Training staff to **explain:**

2.1.1 Hot work (any operation involving naked flames or producing heat and/or sparks or any operation that has spark potential)
2.1.2 The type of operations being tested for flammable and toxic gases
2.1.3 The hazards and properties of flammable gases – to include:

(a) Gas
(b) Vapour cloud movement

2.1.4 Carrying out a suitable and sufficient risk assessment before testing activities
2.1.5 Understanding responsibilities within safe systems of work including:

(a) Ensuring safety and security of site
(b) Testing and continuous monitoring of the air
(c) Communications

2.1.6 Nominating fire watcher(s) to raise the alarm and initiate emergency response
2.1.7 The different types of detectors used for the flammable product
2.1.8 The range and frequency of tests
2.1.9 Monitoring and retesting requirements

Training Staff to **explain** and **demonstrate**:

2.1.10 The principles of hot work gas testing as applied to the work area
2.1.11 The acceptable levels of flammable gases
2.1.12 The correct amount of oxygen
2.1.13 How to set up the relevant detector for each gas testing application and confirm its correct functioning
2.1.14 Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere

MODULE 3 Confined Space Testing
ELEMENT 3.1 Gas Testing in Confined Spaces

Training staff to **explain:**

3.1.1 The hazards and properties of flammable and toxic gases including:

(a) Oxygen deficiency and enrichment,
(b) Nitrogen
(c) Specialist materials appropriate to the location

3.1.2 The behaviour of different gases – to include:

(a) Heavier than air behaviour
(b) Lighter than air behaviour
(c) "Neutral buoyancy" effect

3.1.3 The range and frequency of tests and monitoring and retesting after the initial entry

3.1.4 Acceptable levels of flammable and toxic gases and the correct amount of oxygen

3.1.5 The implications of WEL for toxic gases

3.1.6 The implications of LEL for flammable gases

3.1.7 Performing gas tests in sequence:

(a) Oxygen deficient or enriched atmospheres – ensure that proper oxygen levels are present
(b) Flammable atmospheres – ensure that combustible gases are not present
(c) Toxic atmospheres – ensure that toxic gases are below the exposure limit

Training Staff to **explain** and **demonstrate:**

3.1.8 How to set up the relevant detector for each gas testing application, its potential failure modes and confirming its correct functioning

3.1.9 How to obtain a representative atmosphere sample from a range of confined spaces

3.1.10 Taking samples at the top, middle and bottom to locate varying concentrations of gases and vapors

3.1.11 Sampling confined spaces at a distance inside the opening because air intrusion near the entrance can give a false sense of adequate oxygen present

3.1.12 Testing flammable gases in inert atmospheres

3.1.13 Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere.

MODULE 4 Gas Monitoring for Hot Work Sites
ELEMENT 4.1 Providing Safety Watch Duties for Hot Work Sites

Training staff to **explain:**

4.1.1 Hot work (any operation involving naked flames or producing heat and/or sparks or any operation that has spark potential)
4.1.2 Confined space criteria, to include:

(a) The definition of a confined space as per National Regulations and Approved Codes of Practice (ACOPs)

(b) Not designed for continuous worker occupancy

4.1.3 The type of operations being tested for flammable and toxic gases
4.1.4 Responsibilities of the Fire Watch
4.1.5 Responsibilities of the Stand By person
4.1.6 Responsibilities of the Gas Monitor role
4.1.7 How to use and care for PPE for different toxic and flammable gases through risk assessment
4.1.8 How to work within the Safe System of Work
4.1.9 The hazards and properties of flammable and toxic gases
4.1.10 The behaviour of different gases – to include heavier than air & lighter than air behaviour and "neutral buoyancy" effect
4.1.11 How a flammable gas or vapour clouds could arrive at the hot work site
4.1.12 Impact of environmental changes on working conditions
4.1.13 The importance of regular communication
4.1.14 Sources of assistance and specialist support
4.1.15 Completion of relevant documentation

Training Staff to **explain** and **demonstrate**

4.1.16 The importance of checking that the controls on the equipment are as specified

SECTION B Resources for Classroom Based Training*

*Please refer to Appendix 2 for resource requirements for Digital Delivery Training

In order that a training programme may be delivered successfully it is essential that appropriately qualified and experienced people are there to deliver and support the programme and that the appropriate facilities and equipment are in place.

B.1 Staff

Training staff must:

(a) Fully understand the content and requirements of this industry standard.
(b) Have been trained in training delivery and training assessment techniques.
(c) Participate in an ongoing training and development programme which ensures that they are aware and knowledgeable of relevant industry requirements and changes to requirements.

All staff will have the appropriate competencies to conduct or assist (as appropriate) with the element of training being undertaken.

B.2 Trainer/Delegate Ratio

The maximum number of delegates attending this programme is **twelve.**

B.3 Facilities and Location of Training

Administration arrangements appropriate for enrolment and certification of delegates and all aspects of the delivery of training in accordance with this standard

Theory and demonstration training area(s) designed to enable each delegate to view, hear and participate fully in the subject matter being taught.

All facilities must be maintained and where appropriate, inspected and tested in accordance with current standards/legislation and manufacturers' guidelines

Location of Training

It is recognised that the restricted range of resources and facilities required makes this course suitable for on-location training. However, prior to any courses being delivered remotely, training providers must comply with the following requirements:

(a) Prior to initial approval, the training provider will specify a single 'approved site' and advise OPITO of its intention to deliver training remotely

(b) The training provider will advise OPITO of the location of any remote training in advance of each delivery

(c) The training provider shall ensure the suitability of facilities and arrangements prior to delivery

(d) Documented evidence will be retained by the training provider to show that delivery of training at the remote site meets the criteria detailed in this OPITO standard including, but not limited to, facilities, equipment and qualification of instructional staff

(e) Documented management procedures shall be retained which record any measures required to assure the quality and safety of on location training

(f) All records and associated documentation must be retained at a single, specified location, mutually agreed with OPITO, and made available at time of audit

(g) OPITO reserves the right to physically audit any or all of the remote sites operated by the training provider.

B.4 Equipment

Equipment, of a type commonly used in industry, is required to meet the needs of the training programme including:

(1) Examples of relevant permits
(2) Examples of appropriate PPE
(3) Examples of gas detection equipment – portable and personal monitors (aspirated mode and applicable attachments)
(4) Operating instructions for the detection equipment.

In accordance with requirements of OPITO approval, training providers must ensure that first aid equipment and medical assistance would be available immediately should a delegate be in need of it.

All equipment must be maintained, and where appropriate, inspected and tested in accordance with current standards/legislation, guidance and manufacturers recommendations.

SECTION C Administration and Certification

C.1 Joining Instructions

The OPITO-approved Training Provider must provide the delegate with course information prior to course so that delegates are aware of the requirements of the standard.

C.2 Periodicity

The OPITO Authorised Gas Tester (AGT) Certificate is valid for **three years**.

C.3 Certification

Training Centres are responsible for issuing a certificate direct to the delegate completing the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed against and met the learning outcomes and must contain the following:

(a) Training Centre name
(b) Full OPITO course title stating that it is OPITO-approved
(c) OPITO registration code
(d) Delegate's name
(e) Course dates
(f) Expiry date (Three years minus one day following the date that the delegate successfully completes the course)
(g) Unique Certificate Number (UCN) – Refer to OPITO UCN Guidance doc. for details
(h) Training Centre Signatory.

Note 1: If the expiry date on the delegates previous certificate is within 3 months of the course enrolment date then the date of the new certificate must correspond with the expiry date of the existing/previous certificate unless stated otherwise by the Duty Holder or Asset Owner or Operator.

Note 2: The issue of a certificate indicates that the delegate has successfully completed the theory training and is ready to progress to further workplace training and workplace competence assessment prior to formal appointment.

C.4 Course Administration

Each delegate attending any OPITO-approved programme must be registered with the Central Register (CR) operated by OPITO. Registration must be made by the training centre to OPITO within one week following the course.

OPITO confirms that information on the registration form will be contained in a computerised register which will be available to employers, prospective employers and training providers in the Oil and Gas Industry to verify training records. At all times, use of this data will be strictly in accordance with principles laid down in data protection legislation.

SECTION D COMPETENCE UNITS

D.1 Development of Competence Statements

Using a competence-based approach the following were identified and developed for this role:

a) What personnel are expected to do
b) The underpinning knowledge and skills they would require to enable them to do what was expected
c) How they could demonstrate what was expected of them
d) How their performance would be assessed.

Personnel assessing against the Competence Units in Section D

Assessors will be discipline experts trained and qualified in assessment techniques.

D.2 Competence Assessment levels

Authorised Gas Tester: Personnel undertaking this role will be assessed against the Competence Units 1, 2 and 3

Authorised Gas Monitor: Personnel undertaking this role will be assessed against Competence Unit 3.

Note: *In the workplace, persons undertaking Standby/Safety Watch duties at the entrance to a confined space shall be an Authorised Gas Tester or Authorised Gas Monitor.*

D.3 Competence Units and Elements

During this work the candidate must take account of the relevant operational requirements and safe working practices – **As they apply to the candidate.**

The following units and elements apply:

Unit 1	**Perform a Test for Oxygen, Flammable and Toxic Gases in Confined Spaces**
Element 1.1	Prepare to carry out a test for oxygen, toxic and flammable gases in confined spaces
Element 1.2	Complete the gas test for oxygen, toxic and flammable gases in confined spaces
Unit 2	**Perform a Test for Flammable Gases in Preparation for Hot Work**
Element 2.1	Prepare to carry-out a test for flammable gases in preparation for hot work
Element 2.2	Complete the gas test for flammable gases
Unit 3	**Monitor the Work Area for Flammable Gases**
Element 3.1	Monitor the work area for flammable gases.

Authorised Gaster Tester Workplace Competence - Assessor Checklist			
Assessment Centre			
Assessment Centre Address			
Candidate Name		Employer	
Assessor Name			

Unit Wide Knowledge and Understanding Criteria

Ref No.		Achieved Y/N	Assessment Method	Comments
(a)	How to select, use and care for PPE for different toxic and flammable gases - to include both sight and hearing protection, gloves, footwear, hard hats and coveralls			
(b)	The strengths and weaknesses of the various types of atmospheric flammable and toxic gas detection equipment - to include transportable, portable and personal monitors			
(c)	The implications of organisational and statutory requirements			
(d)	The implications of Occupational Exposure Limits for flammable and toxic gases			
(e)	The hazards associated with working within a toxic, flammable or Non-Life supporting atmosphere			
(f)	How to work both with and within the Permit to Work system			
(g)	How to interpret operational requirements - to include policies, procedures, instructions, codes of practice and standards			
(h)	The range and frequency of tests and their acceptable limits			

(i)	The hazards and properties of flammable, toxic and inert gases			
(j)	The principles of gas testing as applied to confined space entry			
(k)	The type of production operation being tested for flammable and toxic gases			
Assessor Signature		**Assessment Date**		

Authorised Gas Tester Workplace Competence - Assessor Checklist			
Assessment Centre			
Assessment Centre Address			
Candidate Name		Employer	
Assessor Name			
Unit	**1**	**Perform a Test for Oxygen, Flammable and Toxic Gases in Confined Spaces**	

Ref No.	Performance Criteria	Achieved Y/N	Comments
1.1	**Prepare to carry out a test for oxygen, toxic and flammable gases in confined spaces**		
1.1.1	Undertaken a risk assessment with the relevant personnel to identify and confirm all the types of potential gas hazards and their possible locations		
1.1.2	Selected, inspected and prepared for use the appropriate oxygen or gas detector(s) in accordance with the relevant instructions		
1.1.3	Confirmed the equipment functional and fit for purpose		
1.1.4	Identified equipment defects and taken the appropriate remedial action		
1.1.5	Confirmed the status of the relevant work permits and authorisations with the relevant personnel		
1.1.6	Selected the appropriate documentation for the test and environment		
1.1.7	Worked safely in accordance with operational requirements.		
Ref No.	**Knowledge and Understanding Criteria (see also Unit Wide Knowledge and Guidance)**	Achieved Y/N	Comments

1.1.8	How to access and interpret the relevant operational instructions		
1.1.9	How to produce general risk assessments and how to apply them in the workplace		
1.1.10	The hazards and properties of flammable and toxic gases including oxygen deficiency and enrichment, nitrogen and specialist materials appropriate to the location		
1.1.11	The different types of detectors used for the relevant application		
1.1.12	How to set up the relevant detector for each gas testing application and confirm its correct functioning		
1.1.13	How to correctly select between aspirating and non-aspirating detectors to obtain a representative sample of the atmosphere being tested		
1.1.14	The operating principles of atmosphere monitoring and measuring equipment including their strengths weaknesses and frequently observed failure modes		
1.1.15	The potential cumulative effects of operations within an oxygen deficient, toxic or flammable environment		
1.1.16	How to document the results and advise relevant personnel		
Assessor Signature		**Assessment Date**	

Scope:

In preparing to carry-out a test for oxygen, toxic and flammable gases in confined spaces you must use the following pieces of equipment and /or operations:

(a) Personal protective equipment
(b) Portable atmospheric monitoring equipment relevant to the test in hand
(c) Work permits and authorisation documentation
(d) Recording documentation

(e) Personal monitoring equipment.

Authorised Gas Tester Workplace Competence - Assessor Checklist			
Assessment Centre			
Assessment Centre Address			
Candidate Name		Employer	
Assessor Name			
Unit	**1**	**Perform a Test for Oxygen, Flammable and Toxic Gases in Confined Spaces**	

Ref No.	Performance Criteria	Achieved Y/N	Comments
1.2	**Complete the gas test for oxygen, toxic and flammable gases in confined spaces**		
1.2.1	Completed the gas test to conform to statutory and organisational requirements		
1.2.2	Effectively used equipment in accordance with the relevant instructions		
1.2.3	Confirmed the readings were within the specified limits		
1.2.4	Identified any deviations and took appropriate action in accordance with work place requirements		
1.2.5	Worked safely and in accordance with operational instructions relevant to confined spaces		
1.2.6	Accurately recorded the results of the test on the appropriate documentation.		
Ref No.	**Knowledge and Understanding Criteria (see also Unit Wide Knowledge and Guidance)**	Achieved Y/N	Comments
1.2.7	How to interpret the results, to include both normal and abnormal		
1.2.8	The acceptable levels of flammable and toxic gases and the correct amount of oxygen		

1.2.9	The behaviour of different gases – to include heavier than air and lighter than air behaviour and “neutral buoyancy” effect		
1.2.10	Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere		
1.2.11	How to obtain a representative atmosphere sample from a range of confined spaces.		

Assessor Signature		**Assessment Date**	

Scope:

Whilst completing the test for oxygen, toxic and flammable gases in confined spaces you must use the following:

(a) Portable atmospheric monitoring equipment to include oxygen, flammable and toxic gas detectors, including both electrical and chemical stain types
(b) Personal monitoring equipment
(c) Gas testing techniques to include physical measurements, observation, sampling, records and data assessment
(d) Relevant Instructions to include legislation, codes of practice, manufacturers’ and company instructions.

Authorised Gas Tester Workplace Competence - Assessor Checklist			
Assessment Centre			
Assessment Centre Address			
Candidate Name		Employer	
Assessor Name			
Unit	**2**	**Perform a Test for Flammable Gases in Preparation for Hot Work**	

Ref No.	Performance Criteria	Achieved Y/N	Comments
2.1	**Prepare to carry out a test for flammable gas in preparation for hot work**		
2.1.1	Undertaken a risk assessment with the relevant personnel to identify and confirm all the types of potential gas hazards and their possible locations		
2.1.2	Selected, inspected and prepared for use the appropriate oxygen or gas detector(s) in accordance with the relevant instructions		
2.1.3	Confirmed the equipment functional and fit for purpose		
2.1.4	Identified equipment defects and taken the appropriate remedial action		
2.1.5	Confirmed the status of the relevant work permits and authorisations with the relevant personnel		
2.1.6	Selected the appropriate documentation for the test and environment		
2.1.7	Worked safely in accordance with operational requirements		
Ref No.	**Knowledge and Understanding Criteria (see also Unit Wide Knowledge and Guidance)**	Achieved Y/N	Comments
2.1.8	The hazards and properties of flammable gases including oxygen deficiency and enrichment and specialist materials appropriate to the location.		
2.1.9	How to produce general risk assessments and how to apply them in the workplace.		

2.2.10	The operating principles of the different types of detectors used for the flammable product including their strengths, weaknesses and frequently observed failure modes.		
2.1.11	How to correctly set up the relevant detector for each gas testing application.		
2.1.12	How to correctly select between aspirating and non-aspirating detectors, relevant to the atmosphere being tested.		
2.1.13	How to document the results and advise relevant personnel		
Assessor Signature		**Assessment Date**	

Scope:

In preparing to carry out a test for flammable gases you must use the following pieces of equipment and/or operations:

(a) Personal protective equipment
(b) Portable gas monitoring equipment relevant to the test in hand
(c) Work permits and authorization documentation
(d) Recording documentation
(e) Personal monitoring equipment

Authorised Gas Tester Workplace Competence - Assessor Checklist			
Assessment Centre			
Assessment Centre Address			
Candidate Name		Employer	
Assessor Name			
Unit	**2**	**Perform a Test for Flammable Gases in Preparation for Hot Work**	

Ref No.	Performance Criteria	Achieved Y/N	Comments
2.2	**Complete the gas test for flammable gases**		
2.2.1	Completed the gas test to conform to statutory and organisational requirements		
2.2.2	Effectively used equipment in accordance with the relevant instructions		
2.2.3	Confirmed the readings were within the specified limits		
2.2.4	Identified any deviations and took appropriate action in accordance with work place requirements		
2.2.5	Worked safely and in accordance with operational instructions relevant to the work area		
2.2.6	Accurately recorded the results of the test on the appropriate documentation.		
Ref No.	**Knowledge and Understanding Criteria (see also Unit Wide Knowledge and Guidance)**	Achieved Y/N	Comments
2.2.7	The principles of hot work gas testing as applied to the work area		
2.2.8	How to interpret the results, to include both normal and abnormal		
2.2.9	The acceptable levels of flammable gases and the correct amount of oxygen		
2.2.10	The behaviour of different gases – to include heavier than air and lighter than air behaviour and “neutral buoyancy” effect		
2.2.11	Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere.		

Assessor Signature		Assessment Date	

Scope:

Whilst completing the test for oxygen, toxic and flammable gases in confined spaces you must use the following:

(a) Transportable and portable atmospheric monitoring equipment
(b) Personal monitoring equipment
(c) Gas testing techniques to include physical measurements, observation, sampling, records and data assessment
(d) Relevant Instructions to include legislation, codes of practice, manufacturers' and company instructions.

Authorised Gas Tester Workplace Competence - Assessor Checklist			
Assessment Centre			
Assessment Centre Address			
Candidate Name		Employer	
Assessor Name			
Unit	**3**	**Monitor the Work Area for Flammable Gases**	

Ref No.	Performance Criteria	Achieved Y/N	Comments
3.1	**Monitor the work area for flammable gases**		
3.1.1	Accurately sited the equipment for optimum benefits		
3.1.2	Monitored the level of gas at intervals as required by the work permit		
3.1.3	Effectively and regularly checked the operation of the gas monitor		
3.1.4	Identified and reported any deviations to the relevant personnel		
3.1.5	Confirmed that the detector / monitor is correctly responsive to a flammable gas atmosphere.		
Ref No.	**Knowledge and Understanding Criteria**	Achieved Y/N	Comments
3.1.6	How to select, use and care for PPE for different toxic and flammable gases - to include both sight and hearing protection, gloves, footwear, hard hats and coveralls		
3.1.7	The implications of organisational and statutory requirements - to include Occupational Exposure Limits for flammable gases		
3.1.8	How to work both with and within the Permit to Work system		
3.1.9	How to access and interpret operational requirements - to include policies, procedures, instructions, codes of practice and standards		
3.1.10	The hazards and properties of flammable gases		

3.1.11	The type of production operation being tested for flammable gases		
3.1.12	The importance of checking the controls on the equipment is as specified		
3.1.13	The importance of regular communication		
3.1.14	Who to contact if there is a problem you cannot resolve		
3.1.15	What documentation needs to be completed		
3.1.16	How a flammable gas or vapour clouds could arrive at the hot work site		
3.1.17	The behaviour of different gases – to include heavier than air and lighter than air behaviour and "neutral buoyancy" effect.		

Assessor Signature		**Assessment Date**	

Scope:

Whilst monitoring the work area for flammable gases you must use:

(a) Transportable and portable atmospheric monitoring equipment
(b) Personal monitoring equipment.

Glossary of Terms and Abbreviations

AGT	Authorised Gas Tester
LEL	Lower Explosive Limit
PPE	Personal Protective Equipment
PTW	Permit to Work
RPE	Respiratory Protective Equipment
UEL	Upper Explosive Limit
WEL	Workplace Exposure Limits

Appendix 1 OPITO Information

The topics listed below are to be delivered as part of the introduction to training courses specified in this standard and included in the lesson plans/instructor guides/exercise plans. Additional introduction topics must include training centre layout and alarms, emergency actions, first aid and domestic arrangements.

Mandatory OPITO Information:

(a) Medical Fitness
(b) Certification Periods
(c) CR/Vantage (provided by OPITO)
(d) OPITO Customer Service Statement (provided by OPITO)
(e) The roles of employers and training providers (provided by OPITO)
(f) What is OPITO's role in industry? (provided by OPITO)
(g) Current Global Network of training providers (provided by OPITO)
(h) Emergency Response Framework (provided by OPITO – applicable to ER training providers)

Appendix 2 – Digital Delivery Training and Assessment Packages

This section sets out the principal criteria for the design and presentation of e-learning packages.

IT Requirements:

The Digital Learning product and the Learning Management System (LMS) it is hosted on must provide easy access to clear and up-to-date minimum technical specifications for accessing the product. These specifications must include the following:

- The minimum hardware requirements e.g. compatible devices, minimum screen sizes, minimum screen resolution / view port, audio devices etc.
- The minimum software requirements e.g. supported operating systems, supported browsers and browser versions
- Requirements for any 3rd party plug-ins or software
- Minimum recommended internet bandwidth for a smooth end-user experience

It is recommended that any digital training course is designed and developed using HTML5 technology.

Technical Support:

The provider of the Digital Learning product must clearly and prominently display their Technical Support contact details (e-mail, telephone or online chat), their opening hours / time zone and specify their Service Level commitment in response to any technical issues experienced by the Candidate.

Learner ID Verification:

If the Digital Learning product and associated assessment are fully integrated, then the provider is required to verify the Candidate's identity against a suitable form of ID before the Candidate accesses the course. This can be achieved by providing the Candidate with the ability to upload a scanned copy of his/her government-issued passport or ID card, showing the personal details page. Access to the course must be locked until the Candidate's registration details have been matched to the uploaded ID information and real time authenticity has been confirmed. Uploaded ID details must be kept secure, must not be kept on file for more than 30 days for audit purposes and must fully comply with the EU General Data Protection Regulation (GDPR).

Where Digital Learning content and assessment are separate, access to the course content does not require Candidate identity verification. However, the online assessment does require Candidate identity verification as per the above clause.

SCORM:

SCORM stands for 'Shareable Content Object Reference Model' and is an industry-standard specification for Digital Learning that defines the communication between the content and the host Learning Management System.

Any Digital Learning product that covers an OPITO Standard must as a minimum conform to the SCORM 1.2 Standard or any later version. For SCORM 1.2 courses, all mandatory SCORM elements must be supported and individual question responses must be recorded.

Course Content:

Each Digital Learning product must as a minimum provide the following overview details. These are to be easily accessible to the candidate:

- Course Title
- Content Duration (estimate based on first-time pass)
- Course Summary
- List of Learning Outcomes (see Section A.5)
- Required Pass Mark
- Maximum number of Attempts
- Language(s) available

The learning outcomes (mentioned above) must be mapped against the Learning Outcomes and Elements of the Standard.

The Digital Learning content may contain formative assessment questions, which are included as part of the training process and as such must not contribute to the final score of the summative assessment.

The content must contain voiceover where relevant and where it assists in the learning process, but the content must also be intelligible without audio. Where voiceover is implemented, the read rate must be tailored to the target audience and factor in the possibility that the language may not be the same as the Candidates' native language.

The complexity of the written and/or spoken language must be appropriate to the subject matter and the target audience.

Where relevant, a glossary of terms must be made available. It must be easily accessible from the course, to allow the Candidate to check the meaning of certain terms, words, acronyms or abbreviations.

Specific acronyms and abbreviations must be written out in full when used for the first time.

It is recommended that supporting visuals do not distract from the spoken / written text but only serve to strengthen the message and the understanding.

It is recommended that sound effects or music are only be used when deemed essential for the learning process and where it supports the key message.

Assessment:

A formal summative assessment must either be integrated as part of the Digital Learning course or be available as a separate product. For some OPITO Standards, the summative assessment may be an invigilated exam and may not be accessible online.

The pass mark for the assessment is specified in Section A.6 of the OPITO Standard.

Where a pass mark of 100% is required, or in the case of certain products with a pass mark lower than 100%, the product must offer as a minimum the following functionality:

1. Upon completing the summative assessment, the Candidate will be shown their achieved score as a percentage (e.g. 75%)
2. If this score is lower than the required pass mark, the Candidate must be shown the learning outcomes that were not achieved in the assessment.
3. The Candidate must then be offered the opportunity to review at least the content associated with the un-achieved learning outcomes. Alternatively, the product may be designed to offer the Candidate the opportunity to review all content.
4. After this content review, a new assessment, featuring a new set of questions, must then be presented to the Candidate.
5. This process (steps 2 to 4) will be repeated for a limited (or unlimited) number of times (Attempts), which will be specified in the relevant OPITO Standard. If a limited number of Attempts is specified, then the final assessment score will be the score after the final assessment Attempt. If this score is lower than the pass mark, the Candidate will be deemed to have not achieved the learning outcomes. The summative assessment must not show either full or partial remediation after each question.

The order in which the summative assessment questions are presented must be randomised and the presentation order of the answer options in each question must also be randomised each time the question appears.

Where a Digital Learning course offers multiple Attempts, at least 2 questions for each learning outcome must be available. If more than 2 questions are required per learning outcome, this will be specified in the relevant OPITO Standard.

Assessment data and results from candidates must be stored securely and treated in accordance with the General Data Protection Regulation.

Certification:

The course or Learning Management System must be capable of issuing the Candidate with a certificate upon successful course completion and reaching the summative assessment pass mark.

Along with the certificate, candidates will receive a record of the learning outcomes that they achieved and did not achieve.

Appendix 3 Authorised Gas Tester Training Record

Authorised Gas Tester Training Record				
Assessment Centre				
Assessment Centre Address				
Candidate Name		Employer		
Assessor Name				
Module	**1**	**Authorised Gas Tester**		

Learning Outcome No.	Underpinning Knowledge and Understanding Criteria	Achieved Y/N	Comments
1	Confined space criteria		
2	The type of operations being tested for flammable and toxic gases		
3	The hazards of operations within an oxygen-enriched, oxygen-deficient, toxic or flammable environment		
4	Carrying out a suitable and sufficient risk assessments		
5	Understand the safe systems of work, how to work within the safe system of work and the associated responsibilities		
6	The implications of statutory and organisational requirements		
7	Interpreting operational requirements		
8	How to select, use and care for PPE and RPE		
9	Accessing and interpreting operational instructions		
10	The operating principles of atmosphere monitoring and measuring equipment and failure modes		
11	The strengths and weaknesses of various types of atmospheric flammable and toxic gas detection equipment		
12	Correct selection of aspirating or non-aspirating detectors to obtaining representative atmosphere sample		
13	Equipment required for testing for hydrocarbons in inert atmospheres		
14	Gas detector pre-start checks		
15	Determining the extent of the test boundaries		
16	Calibrating the instruments used in atmospheric testing		
17	Sources of assistance during the event of damaged or defective equipment		

18	Interpreting normal and abnormal results		
19	Documenting the results and advising relevant personnel		
Delegate Signature		**Assessment Date**	
Assessor Signature		**Assessment Date**	

Authorised Gas Tester Training Record					
Assessment Centre					
Assessment Centre Address					
Candidate Name			Employer		
Assessor Name					
Module	**2**	**Testing for flammable gas in preparation for hot work**			
Learning Outcome No.	**Underpinning Knowledge and Understanding Criteria**		**Achieved Y/N**	**Assessment Method**	**Comments**
1	Hot work (any operation involving naked flames or producing heat and/or sparks or any operation that has spark potential)				
2	Type of operations being tested for flammable and toxic gases				
3	The principles of hot work gas testing				
4	The hazards and properties of flammable gases				
5	Acceptable levels of flammable gases and the correct amount of oxygen				
6	Carrying out a suitable and sufficient risk assessment				
7	Using safe systems of work and understanding the associated responsibilities				
8	The implications of organisational and statutory requirements				
9	Detectors used for the flammable product				
10	How to set up the relevant detectors for each gas testing application and confirm functioning correctly				
11	The range and frequency of tests and monitoring and retesting requirements				
12	Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere				
Delegate Signature			**Assessment Date**		
Assessor Signature			**Assessment Date**		

Authorised Gas Tester Training Record					
Assessment Centre					
Assessment Centre Address					
Candidate Name		Employer			
Assessor Name					
Module	**3**	**Confined Space Testing**			
Learning Outcome No.	**Underpinning Knowledge and Understanding Criteria**		**Achieved Y/N**	**Assessment Method**	**Comments**
1	The hazards and properties of flammable and toxic gases				
2	The behaviour of different gases				
3	The range and frequency of tests and monitoring and retesting requirements after initial entry				
4	Acceptable levels of flammable gases and the correct amount of oxygen				
5	The implications of WEL for toxic gases and LEL for flammable gases				
6	How to set up the relevant detectors for each gas testing application and confirm functioning correctly				
7	Performing Gas tests in sequential order				
8	How to obtain representative atmosphere sample				
9	Taking various samples to locate varying concentrations of gases and vapors				
10	Importance of sampling confined spaces at a distance				
11	Testing flammable gases in inert atmospheres				
12	Where to site portable or transportable equipment that will be used to continuously monitor the atmosphere				
Delegate Signature			**Assessment Date**		
Assessor Signature			**Assessment Date**		

Authorised Gas Tester Training Record					
Assessment Centre					
Assessment Centre Address					
Candidate Name			Employer		
Assessor Name					
Module	**4**	**Gas Monitoring for Hotwork Sites**			
Learning Outcome No.	**Underpinning Knowledge and Understanding Criteria**		**Achieved Y/N**	**Assessment Method**	**Comments**
1	Hot work (any operation involving naked flames or producing heat and/or sparks or any operation that has spark potential)				
2	Confined space criteria				
3	The type of operations being tested for flammable and toxic gases				
4	Roles and responsibilities of the Fire Watch				
5	Roles and responsibilities of the Stand By person				
6	Responsibilities of the Gas Monitor role				
7	How to select, use and care for PPE				
8	How to work within the safe system of work				
9	The hazards and properties of flammable gases				
10	The behaviour of different flammable and toxic gases				
11	The potential arrival of flammable gas or vapour clouds at the hot work site				
12	Impact of environmental changes on working conditions				
13	Importance of checking controls on the equipment are as specified				
14	Importance of regular communication				
15	Sources of assistance and specialist support				
16	Completion of relevant documentation				
Delegate Signature			**Assessment Date**		
Assessor Signature			**Assessment Date**		

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