

LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

ISO 15156 — Materials for H₂S Environments Oil and Gas

ISO Certification Programme



LAPT — London Academy of Professional Training

Address 85 Great Portland Street, W1W 7LT, London, United Kingdom

Email info@lapt.org

Telephone +44 7513 283044

Web lapt.org

Reference ENG-FSL-15156 • ISO Energy

UKPRN 10067351 • Registered in England and Wales, company 4984798

AT A GLANCE

REFERENCE	ENG-FSL-15156
AWARD	Certificate
ASSESSMENT	430 marks — 258 to pass (60%)
PREREQUISITES	None
VALIDITY	Lifetime
AWARDING BODY	LAPT — London Academy of Professional Training

CURRICULUM

1

ISO 15156 Standards and Compliance

5 chapters · 30 classes85 marks

• 1 Introduction to ISO 15156 Standards and H2S Environments — 6 classes

› 1.1 Define ISO 15156 and Its Importance in H2S Environments

› 1.2 Identify Key Components of ISO 15156 Standards

› 1.3 Explore the Impact of Hydrogen Sulfide on Materials

› 1.4 Assess Compliance Requirements for Oil and Gas Operations

› 1.5 Analyze Case Studies on ISO 15156 Implementation

› 1.6 Develop Best Practices for Maintaining Compliance in H2S Environments

• 2 Understanding Hydrogen Sulphide (H2S) and Its Effects on Materials — 6 classes

› 2.1 Define Hydrogen Sulphide (H2S) and Its Chemical Properties

› 2.2 Identify the Sources and Occurrence of H2S in Oil and Gas Environments

› 2.3 Analyze the Impact of H2S on Material Properties and Performance

› 2.4 Examine the Mechanisms of H2S Corrosion in Metal Components

› 2.5 Evaluate ISO 15156 Standards for H2S Safety and Compliance

› 2.6 Implement Best Practices for Material Selection in H2S Environments

• 3 ISO 15156 Parts and Their Applications — 6 classes

› 3.1 Identify the Components of ISO 15156 Parts

› 3.2 Explain the Purpose of Each ISO 15156 Part

› 3.3 Compare and Contrast the Different Parts of ISO 15156

› 3.4 Analyze Real-World Applications of ISO 15156 Standards

› 3.5 Evaluate Compliance Challenges in H2S Environments

› 3.6 Develop Strategies for Implementing ISO 15156 Compliance

• 4 Compliance Requirements and Best Practices for ISO 15156 — 6 classes

› 4.1 Define Key ISO 15156 Compliance Requirements

› 4.2 Identify Risks Associated with H2S Environments

› 4.3 Analyze Best Practices for Material Selection

› 4.4 Evaluate Standards for Inspection and Testing Procedures

› 4.5 Develop a Compliance Checklist for ISO 15156

› 4.6 Implement an Action Plan for Continuous Compliance Improvement

• 5 Case Studies and Future Trends in ISO 15156 Compliance — 6 classes

› 5.1 Analyze Key Case Studies in ISO 15156 Compliance

› 5.2 Identify Common Challenges in Implementing ISO 15156

› 5.3 Discuss Lessons Learned from Real-World Applications

› 5.4 Evaluate the Impact of H2S on Material Selection

› 5.5 Explore Future Trends in ISO 15156 Standards

› 5.6 Develop Action Plans for Enhancing Compliance Strategies

• 1 Understanding H2S Environments and Their Impact on Materials

— 6 classes

- › 1.1 Identify Key Characteristics of H2S Environments
- › 1.2 Analyze the Composition of Materials Affected by H2S
- › 1.3 Evaluate ISO 15156 Standards and Guidelines
- › 1.4 Assess the Impact of H2S on Material Selection
- › 1.5 Develop Strategies for Mitigating Risks in Material Use
- › 1.6 Implement Leadership Practices for Effective Materials Management

• 2 Principles of ISO 15156 and its Relevance to H2S Management —

6 classes

- › 2.1 Understand the Key Principles of ISO 15156
- › 2.2 Identify Material Selection Criteria for H2S Environments
- › 2.3 Evaluate the Impact of H2S on Material Performance
- › 2.4 Analyze the Role of Corrosion Management in Oil and Gas
- › 2.5 Develop Leadership Strategies for H2S Risk Mitigation
- › 2.6 Implement Best Practices for Materials Management in H2S Environments

• 3 Material Selection Strategies for H2S Applications — 6 classes

- › 3.1 Identify Key H2S Material Challenges and Properties
- › 3.2 Analyze Material Failure Mechanisms in H2S Environments
- › 3.3 Evaluate Material Selection Criteria for H2S Applications
- › 3.4 Compare Corrosion-Resistant Materials for H2S Exposure
- › 3.5 Implement Risk Assessment Techniques in Material Choices
- › 3.6 Develop a Materials Management Plan for H2S Projects

• 4 Leadership in Compliance and Risk Management for Material Integrity — 6 classes

- › 4.1 Understand Compliance Standards for Material Integrity
- › 4.2 Assess Risks Associated with H2S Environments
- › 4.3 Identify Key Leadership Roles in Material Management
- › 4.4 Implement Strategies for Promoting Compliance Culture
- › 4.5 Develop Frameworks for Ongoing Risk Assessment
- › 4.6 Evaluate Leadership Impact on Material Integrity Outcomes

• 5 Case Studies and Best Practices in H2S Material Management — 6

classes

- › 5.1 Analyze Common H2S Material Challenges in Oil and Gas
- › 5.2 Identify Key Standards for H2S Material Management
- › 5.3 Evaluate Successful Case Studies in H2S Environments
- › 5.4 Discuss Best Practices for Material Selection and Usage
- › 5.5 Implement Risk Management Strategies in Material Handling
- › 5.6 Develop an Action Plan for Improved H2S Material Management

• 1 Understanding H2S Environments and Its Impact on Materials Selection — 6 classes

- › 1.1 Define H2S Environments and Their Characteristics
- › 1.2 Identify the Effects of H2S on Common Materials
- › 1.3 Analyze Material Degradation Mechanisms in H2S Environments
- › 1.4 Evaluate Industry Standards for Material Selection
- › 1.5 Compare Material Selection Strategies for H2S Resistance
- › 1.6 Implement a Materials Selection Framework for H2S Applications

• 2 Material Properties and Behavior in H2S Environments — 6 classes

- › 2.1 Identify Key Material Properties for H2S Environments
- › 2.2 Analyze Corrosion Mechanisms Impacting Material Behavior
- › 2.3 Evaluate Material Selection Criteria for H2S Applications
- › 2.4 Compare Performance of Common Materials in H2S Environments
- › 2.5 Implement Testing Methods for Assessing Material Durability
- › 2.6 Develop a Material Selection Strategy for Field Use

• 3 Assessment and Testing Approaches for H2S Resistance — 6

classes

- › 3.1 Understand the Impact of H2S on Material Properties
- › 3.2 Identify Key Testing Standards for H2S Resistance
- › 3.3 Evaluate Laboratory Testing Methods for Material Selection
- › 3.4 Analyze Field Testing Approaches for H2S Environments
- › 3.5 Apply Selection Criteria for H2S-Resistant Materials
- › 3.6 Review Case Studies of Successful Materials Selection in H2S Applications

• 4 Design Considerations and Risk Mitigation Strategies — 6 classes

- › 4.1 Identify Key Design Considerations for H2S Environments
- › 4.2 Analyze Material Properties Relevant to H2S Exposure
- › 4.3 Evaluate Risk Mitigation Techniques in Material Selection
- › 4.4 Implement Best Practices for Component Design in H2S Applications
- › 4.5 Assess the Impact of Environmental Factors on Material Selection
- › 4.6 Develop a Material Selection Strategy Based on Risk Assessment

• 5 Case Studies on Materials Selection and Performance in H2S Applications — 6 classes

- › 5.1 Analyze the Impact of H2S on Material Degradation
- › 5.2 Evaluate Case Studies on Failed Materials in H2S Environments
- › 5.3 Identify Key Properties of Materials Suitable for H2S Applications
- › 5.4 Compare Selection Criteria for Corrosion-Resistant Materials
- › 5.5 Develop a Materials Selection Matrix for H2S Exposure
- › 5.6 Propose Recommendations Based on Case Study Findings

• 1 Understanding H2S and Its Corrosive Properties in Oil and Gas —

6 classes

- › 1.1 Identify the Characteristics of H2S and Its Environmental Impact
- › 1.2 Explain the Mechanisms of Corrosion in H2S Environments
- › 1.3 Assess Risks Associated with H2S Exposure in Oil and Gas Operations
- › 1.4 Analyze Material Selection Impact on Corrosion Resistance
- › 1.5 Implement Best Practices for Asset Integrity Management in H2S Contexts
- › 1.6 Develop a Mitigation Strategy for Corrosion Risks in Oil and Gas Projects

• 2 Fundamentals of Corrosion Mechanisms and Types —

6 classes

- › 2.1 Identify Common Corrosion Mechanisms in Oil and Gas Environments
- › 2.2 Examine the Role of Hydrogen Sulfide (H2S) in Corrosion Processes
- › 2.3 Analyze the Impact of Environmental Factors on Corrosion Rates
- › 2.4 Differentiate Between Types of Corrosion Specific to H2S Environments
- › 2.5 Evaluate Material Selection Criteria for H2S Exposure
- › 2.6 Apply Risk Management Strategies to Mitigate Corrosion Effects

• 3 Risk Assessment Techniques for Corrosive Environments —

6 classes

- › 3.1 Identify Key Corrosion Mechanisms in H2S Environments
- › 3.2 Analyze Risk Factors Associated with H2S Exposure
- › 3.3 Evaluate Materials Performance in Corrosive Conditions
- › 3.4 Implement Risk Matrices for Corrosion Assessments
- › 3.5 Develop Mitigation Strategies for Corrosion Risks
- › 3.6 Apply Risk Management Techniques to Real-World Scenarios

• 4 Mitigation Strategies for Corrosion Risks in Oil and Gas Operations —

6 classes

- › 4.1 Identify Key Corrosion Risks in H2S Environments
- › 4.2 Evaluate Material Selection Criteria for Corrosion Resistance
- › 4.3 Implement Protective Coatings to Mitigate Corrosion
- › 4.4 Apply Cathodic Protection Techniques in Oil and Gas Operations
- › 4.5 Develop Monitoring Strategies for Corrosion Management
- › 4.6 Create a Comprehensive Corrosion Risk Mitigation Plan

• 5 ISO 15156 Compliance and Best Practices for Risk Management

6 classes

- › 5.1 Identify Key Requirements of ISO 15156 for H2S Environments
- › 5.2 Assess Risks Associated with Corrosion in Oil and Gas Operations
- › 5.3 Analyze Material Selection Strategies for H2S Resistance
- › 5.4 Evaluate Best Practices in Monitoring and Inspection Protocols
- › 5.5 Implement Control Measures for Minimizing H2S Corrosion Risks
- › 5.6 Develop a Risk Management Plan Aligned with ISO 15156 Standards

• 1 Understanding H2S Environments and Their Challenges —

6 classes

- › 1.1 Define H2S and Its Sources in Oil and Gas Environments
- › 1.2 Identify the Risks and Hazards Associated with H2S Exposure
- › 1.3 Explore Regulatory Standards Governing H2S Management
- › 1.4 Assess the Impact of H2S on Materials and Equipment
- › 1.5 Discuss Best Practices for H2S Safety Protocols in Teams
- › 1.6 Apply Strategies for Effective Team Communication in H2S Scenarios

• 2 ISO 15156 Standards and Compliance Requirements —

6 classes

- › 2.1 Understand ISO 15156 Standards for H2S Environments
- › 2.2 Identify Key Compliance Requirements in ISO 15156
- › 2.3 Explore Material Selection Criteria under ISO 15156
- › 2.4 Examine Risk Assessment Procedures for H2S Environments
- › 2.5 Assess Training Needs for ISO 15156 Compliance
- › 2.6 Implement Best Practices for Maintaining Compliance with ISO 15156

• 3 Risk Assessment and Management in H2S Operations —

6 classes

- › 3.1 Identify H2S Risks in Operational Environments
- › 3.2 Analyze Consequences of H2S Exposure
- › 3.3 Evaluate Existing Risk Management Practices
- › 3.4 Develop Effective H2S Risk Mitigation Strategies
- › 3.5 Implement Monitoring Procedures for H2S Risks
- › 3.6 Review and Improve H2S Risk Assessment Protocols

• 4 Training Frameworks for Team Competency in H2S Environments

6 classes

- › 4.1 Identify Key Hazards in H2S Environments
- › 4.2 Understand the ISO 15156 Standards
- › 4.3 Assess Material Compatibility in H2S Applications
- › 4.4 Develop Team Roles and Responsibilities for Safety
- › 4.5 Implement Effective Training Methods for H2S Awareness
- › 4.6 Evaluate Competency and Performance in H2S Situations

• 5 Leadership Strategies for Promoting a Safety Culture —

6 classes

- › 5.1 Define and Identify Key Elements of Safety Culture in Leadership
- › 5.2 Analyze Leadership Styles That Foster a Safety Culture
- › 5.3 Develop Communication Strategies to Promote Safety Awareness
- › 5.4 Create Action Plans for Implementing Safety Initiatives
- › 5.5 Evaluate Team Engagement Techniques to Enhance Safety Practices
- › 5.6 Implement Continuous Improvement Methods for Sustaining Safety Culture

• 1 Introduction to H2S and Its Environmental Impact on Materials —

6 classes

- › 1.1 Define H2S and Identify Its Sources in Oil and Gas Environments
- › 1.2 Explore the Chemical Properties of H2S and Their Implications
- › 1.3 Analyze the Impact of H2S on Different Material Types
- › 1.4 Examine Corrosion Mechanisms Induced by H2S Exposure
- › 1.5 Assess Material Selection Strategies for H2S Environments
- › 1.6 Develop Best Practices for Mitigating H2S Effects on Materials

• 2 Mechanisms of H2S Corrosion and Material Degradation —

6 classes

- › 2.1 Identify the Key Corrosive Properties of H2S
- › 2.2 Explain the Electrochemical Mechanisms of H2S Corrosion
- › 2.3 Analyze the Factors Influencing H2S-Induced Material Degradation
- › 2.4 Assess the Impact of Environmental Conditions on Corrosion Rates
- › 2.5 Compare the Performance of Different Materials in H2S Environments
- › 2.6 Implement Strategies for Mitigating H2S Corrosion in Oil and Gas Infrastructure

• 3 Material Selection for H2S Environments: Standards and Best Practices —

6 classes

- › 3.1 Identify Key Materials Suitable for H2S Environments
- › 3.2 Assess the Impact of H2S on Material Properties
- › 3.3 Explore ISO 15156 Standards for Material Selection
- › 3.4 Evaluate Corrosion Resistance in H2S Environments
- › 3.5 Implement Best Practices for Material Testing and Maintenance
- › 3.6 Apply Material Selection Guidelines to Real-World Scenarios

• 4 Assessment and Testing Techniques for H2S Resistance —

6 classes

- › 4.1 Identify H2S Resistance Testing Standards
- › 4.2 Analyze Material Properties Impacted by H2S
- › 4.3 Explore Non-Destructive Testing Methods for H2S Environments
- › 4.4 Implement Corrosion Testing Techniques for H2S
- › 4.5 Evaluate Field Testing Procedures for Material Resistance
- › 4.6 Integrate Test Results for Material Selection in H2S Applications

• 5 Risk Management and Mitigation Strategies in H2S Environments

— 6 classes

- › 5.1 Identify Key Risks Associated with H2S Environments
- › 5.2 Analyze Material Vulnerabilities to H2S Exposure
- › 5.3 Evaluate the Impact of H2S on Pipeline Integrity
- › 5.4 Implement Preventative Maintenance Strategies for H2S Systems
- › 5.5 Develop Emergency Response Plans for H2S Incidents
- › 5.6 Review Case Studies on Successful Risk Mitigation in H2S Environments