

LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

ISO 8217 — Fuels for Marine Diesel Engines Biofuel Blends

ISO Certification Programme



LAPT — London Academy of Professional Training

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Reference ENG-BFU-8217 • ISO Energy

UKPRN 10067351 • Registered in England and Wales, company 4984798

AT A GLANCE

REFERENCE	ENG-BFU-8217
AWARD	Certificate
ASSESSMENT	430 marks — 258 to pass (60%)
PREREQUISITES	None
VALIDITY	Lifetime
AWARDING BODY	LAPT — London Academy of Professional Training

CURRICULUM

1

Biofuel Properties and Performance

5 chapters · 30 classes 65 marks

• 1 Understanding Biofuels: Types and Sources — 6 classes

› 1.1 Identify Different Types of Biofuels Used in Marine Applications

› 1.2 Explore Renewable Sources for Biofuel Production

› 1.3 Analyze the Chemical Properties of Biofuels

› 1.4 Assess the Environmental Impact of Biofuels

› 1.5 Compare Biofuel Blends with Traditional Marine Fuels

› 1.6 Evaluate the Performance of Biofuels in Marine Diesel Engines

• 2 Chemical Composition and Properties of Biofuels — 6 classes

› 2.1 Analyze the Chemical Composition of Biofuels

› 2.2 Identify Key Properties of Biofuel Blends

› 2.3 Compare Performance Metrics of Marine Diesel Fuels

› 2.4 Evaluate the Impact of Biofuel Composition on Engine Performance

› 2.5 Discuss Environmental Benefits of Using Biofuel Blends

› 2.6 Apply Knowledge of Biofuel Properties in Real-World Scenarios

• 3 Blending Biofuels with Marine Diesel: Standards and Practices — 6 classes

› 3.1 Identify Key Standards for Biofuel Blending in Marine Diesel

› 3.2 Analyze the Impact of Biofuel Properties on Marine Diesel Performance

› 3.3 Explore Common Types of Biofuels Used in Maritime Applications

› 3.4 Assess the Compatibility of Biofuels with Existing Marine Diesel Engines

› 3.5 Evaluate Best Practices for Blending Biofuels with Marine Diesel

› 3.6 Develop a Blending Strategy for Sustainable Marine Fuel Solutions

• 4 Performance Analysis of Biofuel Blends in Marine Engines — 6 classes

› 4.1 Analyze the Properties of Common Biofuel Blends

› 4.2 Compare Performance Metrics for Biofuels and Conventional Fuels

› 4.3 Evaluate the Combustion Characteristics of Marine Diesel Engines Using Biofuels

› 4.4 Investigate Emission Profiles of Biofuel Blends in Marine Applications

› 4.5 Assess the Impact of Biofuel Blend Ratios on Engine Performance

› 4.6 Design an Experiment to Test Biofuel Blend Efficacy in Marine Engines

• 5 Challenges and Innovations in Biofuel Adoption for Marine Use — 6 classes

› 5.1 Explore Current Challenges in Biofuel Adoption for Marine Use

› 5.2 Analyze the Technical Limitations of Biofuels in Marine Engines

› 5.3 Evaluate Sustainability Concerns Surrounding Biofuels for Marine Applications

› 5.4 Identify Innovations Improving Biofuel Performance in Marine Settings

› 5.5 Compare Different Biofuel Types for Marine Diesel Engines

› 5.6 Propose Strategies for Facilitating Biofuel Integration in Marine Operations

• 1 Understanding Marine Diesel Engine Operations and Biofuel Applications — 6 classes

- › 1.1 Analyze Marine Diesel Engine Components and Functions
- › 1.2 Assess the Characteristics of Biofuel Blends
- › 1.3 Evaluate Compatibility of Biofuels with Marine Engines
- › 1.4 Identify Safety Standards for Using Biofuels in Marine Applications
- › 1.5 Examine Operational Performance of Marine Engines with Biofuel Blends
- › 1.6 Develop Best Practices for Implementing Biofuel Solutions in Marine Operations

• 2 Overview of ISO 8217 and Fuel Standards for Marine Diesel Engines — 6 classes

- › 2.1 Understand ISO 8217 Standards for Marine Fuels
- › 2.2 Identify Key Components of Marine Diesel Fuel Specifications
- › 2.3 Analyze the Importance of Fuel Quality in Engine Performance
- › 2.4 Evaluate Compatibility of Biofuel Blends with Marine Diesel Engines
- › 2.5 Assess Safety Considerations for Using Alternative Fuels
- › 2.6 Implement Best Practices for Marine Fuel Management

• 3 Compatibility of Biofuel Blends with Marine Diesel Engines — 6 classes

- › 3.1 Explore the Composition of Marine Diesel and Biofuel Blends
- › 3.2 Assess Engine Compatibility with Biofuel Blends
- › 3.3 Identify Potential Risks of Biofuel Blends in Marine Engines
- › 3.4 Evaluate Biofuel Standards and their Impact on Engine Performance
- › 3.5 Implement Best Practices for Handling and Storing Biofuel Blends
- › 3.6 Develop a Risk Mitigation Plan for Biofuel Use in Marine Engines

• 4 Assessing Engine Performance with Biofuel Blends: Testing and Analysis — 6 classes

- › 4.1 Evaluate the Effects of Biofuel Blends on Engine Power Output
- › 4.2 Analyze Combustion Efficiency in Biofuel-Powered Marine Engines
- › 4.3 Investigate the Impact of Biofuel Blends on Emissions Levels
- › 4.4 Conduct Engine Durability Testing with Various Biofuel Ratios
- › 4.5 Assess Lubrication Properties of Biofuel Blends in Marine Diesel Engines
- › 4.6 Develop Recommendations for Safe Handling and Usage of Biofuels

• 5 Safety Protocols and Risk Management in Biofuel Usage — 6 classes

- › 5.1 Identify Key Safety Protocols for Biofuel Management
- › 5.2 Assess Risks Associated with Biofuel Usage in Marine Engines
- › 5.3 Develop Emergency Response Procedures for Biofuel Incidents
- › 5.4 Evaluate Engine Compatibility with Biofuel Blends
- › 5.5 Implement Best Practices for Safe Biofuel Handling
- › 5.6 Review Regulatory Compliance for Biofuel Usage in Marine Operations

• 1 Understanding ISO 8217 Standards and Their Application in Marine Diesel Fuels — 6 classes

- › 1.1 Explore the Fundamentals of ISO 8217 Standards
- › 1.2 Identify Key Components of Marine Diesel Fuels
- › 1.3 Analyze the Role of Biofuel Blends in Marine Fuels
- › 1.4 Assess Environmental Impacts of Traditional and Biofuel Fuels
- › 1.5 Evaluate Compliance with ISO 8217 in Fuel Selection
- › 1.6 Formulate Strategies for Implementing Biofuel Blends in Marine Operations

• 2 The Chemistry of Biofuels: Composition and Properties — 6 classes

- › 2.1 Analyze the Molecular Structure of Common Biofuels
- › 2.2 Identify Key Properties that Influence Fuel Performance
- › 2.3 Evaluate Environmental Impacts of Biofuel Production
- › 2.4 Compare Biofuel Blends with Traditional Marine Fuels
- › 2.5 Conduct a Case Study on Biofuel Efficacy in Marine Engines
- › 2.6 Formulate Recommendations for Sustainable Biofuel Use

• 3 Environmental Impacts of Conventional Fuels vs. Biofuel Blends — 6 classes

- › 3.1 Compare Conventional Fuels and Biofuel Blends in Marine Applications
- › 3.2 Analyze the Environmental Impact of Conventional Marine Fuels
- › 3.3 Assess the Benefits of Biofuel Blends on Emissions Reduction
- › 3.4 Explore the Life Cycle Assessment of Biofuel Blends in Shipping
- › 3.5 Evaluate Regulatory Frameworks Governing Marine Fuels and Biofuels
- › 3.6 Design a Strategy for Implementing Biofuel Blends in Marine Operations

• 4 Life Cycle Assessment of Biofuels: Methodologies and Tools — 6 classes

- › 4.1 Examine the Principles of Life Cycle Assessment for Biofuels
- › 4.2 Identify Key Methodologies Used in Life Cycle Assessment
- › 4.3 Analyze Environmental Impact Factors of Biofuel Production
- › 4.4 Evaluate Tools for Assessing Life Cycle Environmental Impacts
- › 4.5 Compare Biofuel Blends with Traditional Fuels Using LCA
- › 4.6 Apply Life Cycle Assessment Findings to Real-World Biofuel Scenarios

• 5 Regulatory Challenges and Opportunities in Biofuel Implementation — 6 classes

- › 5.1 Analyze Regulatory Frameworks for Biofuels in Marine Applications
- › 5.2 Identify Key Environmental Standards Affecting Biofuel Implementation
- › 5.3 Evaluate Opportunities for Innovation in Biofuel Regulations
- › 5.4 Assess Stakeholder Perspectives on Marine Biofuel Usage
- › 5.5 Develop Strategies for Compliance with ISO 8217 Standards
- › 5.6 Propose Solutions to Overcome Regulatory Barriers in Biofuel Adoption

• 1 Understanding Leadership in the Context of Marine Biofuels — 6

classes

- › 1.1 Define Leadership Principles in Marine Biofuel Innovation
- › 1.2 Analyze the Role of Change Management in Marine Fuel Adoption
- › 1.3 Evaluate Stakeholder Influences in Marine Biofuel Decision-Making
- › 1.4 Identify Challenges and Opportunities in Implementing Biofuel Blends
- › 1.5 Develop Leadership Strategies for Promoting Sustainable Practices
- › 1.6 Create a Change Management Plan for Marine Biofuel Transition

• 2 Navigating Change: The Role of Leaders in Biofuel Transition — 6

classes

- › 2.1 Understanding Biofuels: Defining Sustainable Alternatives for Marine Engines
- › 2.2 Assessing the Current Landscape: Analyzing Marine Fuel Regulations and ISO 8217
- › 2.3 Identifying Stakeholders: Engaging Teams in the Biofuel Transition
- › 2.4 Leading the Charge: Developing a Vision for Biofuel Integration in Marine Operations
- › 2.5 Creating a Change Management Plan: Strategies for Implementing Biofuel Blends
- › 2.6 Measuring Success: Evaluating the Impact of Biofuel Adoption on Marine Diesel Performance

• 3 Engaging Stakeholders: Building Support for Biofuel Initiatives —

6 classes

- › 3.1 Identify Key Stakeholders in Biofuel Initiatives
- › 3.2 Analyze Stakeholder Needs and Concerns
- › 3.3 Develop Effective Communication Strategies for Engagement
- › 3.4 Implement Collaborative Approaches to Foster Support
- › 3.5 Assess Stakeholder Feedback and Adapt Strategies
- › 3.6 Create a Sustainable Engagement Plan for Ongoing Support

• 4 Leading Teams Through Challenges in Biofuel Implementation —

6 classes

- › 4.1 Assessing Team Readiness for Biofuel Transition
- › 4.2 Communicating the Vision for Biofuel Adoption
- › 4.3 Identifying Challenges in Biofuel Implementation
- › 4.4 Developing Strategies to Overcome Challenges
- › 4.5 Empowering Team Members to Innovate Solutions
- › 4.6 Evaluating the Success of Biofuel Implementation Efforts

• 5 Evaluating Leadership Effectiveness in Biofuel Projects — 6

classes

- › 5.1 Assess Leadership Styles in Biofuel Projects
- › 5.2 Identify Key Performance Indicators for Leadership Effectiveness
- › 5.3 Analyze Case Studies of Successful Biofuel Leadership
- › 5.4 Develop Strategies for Enhancing Team Communication in Biofuel Initiatives
- › 5.5 Evaluate the Impact of Leadership Decisions on Biofuel Project Outcomes
- › 5.6 Create an Action Plan for Leadership Development in Biofuel Projects

• 1 Understanding ISO 8217 Standards and Requirements for Marine Diesel Fuels — 6 classes

- › 1.1 Explore the Fundamentals of ISO 8217 Standards
- › 1.2 Analyze the Composition of Marine Diesel Fuels
- › 1.3 Examine the Role of Biofuels in Marine Applications
- › 1.4 Identify Key Requirements for Biofuel Blends in ISO 8217
- › 1.5 Evaluate the Impact of Biofuel Blends on Engine Performance
- › 1.6 Develop Strategies for Implementing Biofuels in Marine Operations

• 2 Biofuels: Types, Properties, and their Compatibility with Marine Diesel Engines — 6 classes

- › 2.1 Identify and Classify Different Types of Biofuels for Marine Applications
- › 2.2 Examine the Chemical Properties of Biofuels Relevant to Marine Diesel Engines
- › 2.3 Assess the Compatibility of Biofuel Blends with Existing Marine Diesel Engines
- › 2.4 Analyze Regulatory Standards Impacting Biofuel Use in Marine Transportation
- › 2.5 Evaluate the Performance Metrics of Biofuels in Marine Diesel Environments
- › 2.6 Develop Strategies for Strategic Implementation of Biofuels in Maritime Operations

• 3 Assessing the Environmental Impact of Biofuel Implementation in Marine Applications — 6 classes

- › 3.1 Evaluate the Benefits of Biofuels in Marine Environments
- › 3.2 Analyze the Environmental Challenges of Biofuel Use
- › 3.3 Investigate Regulatory Frameworks for Biofuels in Maritime Applications
- › 3.4 Assess the Life Cycle Emissions of Biofuel Blends
- › 3.5 Compare Biofuel Blends to Conventional Marine Fuels
- › 3.6 Develop a Strategic Plan for Implementing Biofuels in Shipping

• 4 Strategic Planning for Biofuel Integration in Maritime Operations — 6 classes

- › 4.1 Analyze Current Marine Fuel Standards and Regulations
- › 4.2 Assess the Benefits and Challenges of Biofuel Adoption
- › 4.3 Identify Key Stakeholders in Biofuel Integration
- › 4.4 Develop a Strategic Plan for Implementing Biofuels
- › 4.5 Create Performance Metrics to Evaluate Biofuel Use
- › 4.6 Review Case Studies of Successful Biofuel Integration in Maritime Operations

• 5 Case Studies of Successful Biofuel Implementation in Marine Industries — 6 classes

- › 5.1 Analyze Successful Case Studies of Biofuel Use in Marine Industries
- › 5.2 Identify Key Drivers for Biofuel Adoption in Maritime Operations
- › 5.3 Evaluate Environmental and Economic Impacts of Biofuel Implementation
- › 5.4 Explore Technological Innovations Supporting Biofuel Efficiency
- › 5.5 Discuss Industry Challenges and Solutions in Biofuel Integration
- › 5.6 Develop a Strategic Plan for Biofuel Implementation in a Marine Context

• 1 Fundamentals of Marine Fuels and ISO 8217 Standards — 6 classes

- › 1.1 Explore the History and Development of Marine Fuels
- › 1.2 Identify Key Components and Properties of Marine Fuels
- › 1.3 Analyze the Importance of ISO 8217 Standards in Fuel Quality
- › 1.4 Compare Conventional Fuels and Biofuel Blends in Marine Applications
- › 1.5 Examine the ISO 8217 Fuel Specification Categories
- › 1.6 Apply ISO 8217 Standards to Evaluate Fuel Selection for Marine Engines

• 2 Composition and Properties of Marine Diesel Fuels — 6 classes

- › 2.1 Analyze the Composition of Marine Diesel Fuels
- › 2.2 Examine the Key Properties of Marine Diesel Fuels
- › 2.3 Compare Conventional Fuels with Biofuel Blends
- › 2.4 Investigate the Impact of Fuel Composition on Engine Performance
- › 2.5 Evaluate the Environmental Implications of Marine Diesel Fuels
- › 2.6 Apply ISO 8217 Standards to Fuel Selection and Quality Control

• 3 Classification and Specification of Biofuel Blends under ISO 8217 — 6 classes

- › 3.1 Identify Key Components of ISO 8217 for Biofuel Blends
- › 3.2 Analyze the Classification Criteria for Marine Fuels Under ISO 8217
- › 3.3 Compare Traditional Fuels and Biofuel Blends in Compliance with ISO 8217
- › 3.4 Examine the Specifications for Different Biofuel Blends
- › 3.5 Assess the Impacts of Biofuel Blend Variability on Engine Performance
- › 3.6 Apply ISO 8217 Standards to Evaluate Biofuel Blend Suitability

• 4 Testing Methods and Compliance for Biofuel Blends — 6 classes

- › 4.1 Identify Key Testing Methods for Biofuel Blends
- › 4.2 Analyze Compliance Standards in ISO 8217
- › 4.3 Evaluate the Importance of Fuel Properties in Testing
- › 4.4 Conduct a Comparative Analysis of Biofuel Properties
- › 4.5 Implement ISO 8217 Testing Procedures in Practice
- › 4.6 Assess the Impact of Test Results on Marine Diesel Engine Performance

• 5 Future Trends and Challenges in Marine Biofuels Standards — 6 classes

- › 5.1 Analyze the Impact of ISO 8217 on Marine Biofuels
- › 5.2 Identify Key Challenges in Implementing Biofuel Standards
- › 5.3 Evaluate Future Trends in Marine Biofuel Technology
- › 5.4 Compare Conventional Fuels with Biofuel Blends
- › 5.5 Discuss Regulatory Frameworks Affecting Marine Biofuels
- › 5.6 Propose Solutions to Enhance Biofuel Standardization

