

LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

ISO 178 — Plastics Determination of Flexural Properties

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 MTL-NMM-178 • ISO Materials

UKPRN 10067351 • Registered in England and Wales, company 4984798

AT A GLANCE

REFERENCE	MTL-NMM-178
AWARD	Certificate
ASSESSMENT	430 marks — 258 to pass (60%)
PREREQUISITES	None
VALIDITY	Lifetime
AWARDING BODY	LAPT — London Academy of Professional Training

CURRICULUM

1

Data Analysis and Quality Control

5 chapters · 30 classes65 marks

• 1 Understanding Data Collection Methods in Flexural Testing — 6 classes

› 1.1 Explore Data Collection Methods in Flexural Testing

› 1.2 Identify Key Parameters for Flexural Strength Measurement

› 1.3 Analyze Types of Data Used in Flexural Testing

› 1.4 Compare Manual vs Automated Data Collection Techniques

› 1.5 Evaluate the Impact of Sample Preparation on Data Quality

› 1.6 Apply Data Analysis Techniques to Interpret Flexural Test Results

• 2 Statistical Tools for Data Analysis in Quality Control — 6 classes

› 2.1 Identify Key Statistical Tools for Quality Control

› 2.2 Analyze Data Distribution and Its Importance in Quality Control

› 2.3 Apply Descriptive Statistics to Assess Flexural Properties of Plastics

› 2.4 Utilize Control Charts for Monitoring Quality in Plastic Testing

› 2.5 Interpret Results of Hypothesis Testing in Quality Assurance

› 2.6 Develop a Quality Control Plan Using Statistical Techniques

• 3 Interpreting Flexural Test Data: Key Metrics and Standards — 6 classes

› 3.1 Analyze Standard Flexural Test Setup and Equipment

› 3.2 Identify Key Metrics in Flexural Test Data

› 3.3 Interpret Results: Understanding Flexural Strength and Modulus

› 3.4 Compare Flexural Properties Against ISO 178 Standards

› 3.5 Evaluate Variability and Consistency in Flexural Test Results

› 3.6 Apply Insights: Making Data-Driven Decisions for Quality Control

• 4 Implementing Quality Control Measures Based on Data Insights — 6 classes

› 4.1 Analyze Data Trends for Quality Control Insights

› 4.2 Identify Key Quality Control Measures from Data

› 4.3 Develop Action Plans Based on Data Analysis

› 4.4 Implement Quality Control Measures in Production

› 4.5 Monitor and Evaluate Effectiveness of Quality Control

› 4.6 Adjust Strategies Based on Continuous Data Feedback

• 5 Continuous Improvement: Feedback Loops in Quality Management — 6 classes

› 5.1 Analyze the Importance of Feedback Loops in Quality Management

› 5.2 Identify Key Components of Effective Feedback Loops

› 5.3 Evaluate Examples of Feedback Loops in Quality Control

› 5.4 Design a Feedback Loop for Continuous Improvement

› 5.5 Implement a Feedback Loop in a Quality Management Scenario

› 5.6 Review and Optimize Feedback Loops for Enhanced Performance

• 1 Overview of ISO 178 Standards and Their Relevance — 6 classes

- › 1.1 Explore the Purpose of ISO 178 Standards
- › 1.2 Understand the Key Terminology in ISO 178
- › 1.3 Identify the Components of Flexural Properties
- › 1.4 Analyze the Testing Methods in ISO 178
- › 1.5 Evaluate the Importance of Compliance in Plastics Testing
- › 1.6 Apply ISO 178 Standards to Real-World Scenarios

• 2 Fundamental Concepts of Flexural Properties — 6 classes

- › 2.1 Define Flexural Properties and Their Importance in Material Science
- › 2.2 Explore the Key Terminology and Principles of Flexural Testing
- › 2.3 Compare Different Methods of Assessing Flexural Properties
- › 2.4 Identify the Factors Influencing Flexural Strength and Modulus
- › 2.5 Analyze Real-World Applications of Flexural Properties in Industries
- › 2.6 Develop a Simple Experiment to Measure Flexural Properties in Plastics

• 3 Testing Methodologies in ISO 178 — 6 classes

- › 3.1 Explore the Fundamentals of ISO 178 Standards
- › 3.2 Identify Key Components of Flexural Testing Methodologies
- › 3.3 Understand the Equipment Used in Flexural Testing
- › 3.4 Analyze Sample Preparation Techniques for Flexural Tests
- › 3.5 Discuss the Importance of Testing Environment and Conditions
- › 3.6 Apply Flexural Testing Results to Real-World Scenarios

• 4 Interpreting and Reporting Flexural Test Data — 6 classes

- › 4.1 Understand ISO 178 Standard Framework for Flexural Testing
- › 4.2 Identify Key Terminology in Flexural Test Data Interpretation
- › 4.3 Analyze Flexural Test Results and Their Impact on Material Properties
- › 4.4 Compare Flexural Properties of Different Plastic Materials
- › 4.5 Create Visual Representations of Flexural Test Data for Reporting
- › 4.6 Develop a Comprehensive Flexural Test Data Report

• 5 Applications of Flexural Properties in Industry — 6 classes

- › 5.1 Explore the Importance of Flexural Properties in Material Selection
- › 5.2 Examine Testing Methods for Flexural Properties in Plastics
- › 5.3 Analyze Key Applications of Flexural Testing in Automotive Industry
- › 5.4 Investigate the Role of Flexural Properties in Consumer Product Design
- › 5.5 Discuss Case Studies Highlighting Flexural Properties in Aerospace
- › 5.6 Evaluate Future Trends in the Use of Flexural Properties Across Industries

• 1 Introduction to ISO 178: Understanding Flexural Properties — 6 classes

- › 1.1 Define Flexural Properties: Key Concepts and Importance
- › 1.2 Explore ISO 178: Historical Context and Relevance in Testing
- › 1.3 Identify Equipment Used in Flexural Testing: Overview and Function
- › 1.4 Analyze Test Procedures: Step-by-Step Breakdown of ISO 178
- › 1.5 Evaluate Test Results: Interpreting Flexural Strength and Modulus
- › 1.6 Apply Flexural Testing in Real-World Scenarios: Case Studies and Practices

• 2 Principles of Materials Testing: Equipment and Standards — 6 classes

- › 2.1 Understand the Fundamentals of Materials Testing Equipment
- › 2.2 Identify Key Standards in Materials Testing Practices
- › 2.3 Explore the ISO 178 Certification Process and Requirements
- › 2.4 Analyze the Flexural Properties of Plastics Using Standard Methods
- › 2.5 Assess the Role of Leadership in Ensuring Compliance with Testing Standards
- › 2.6 Apply Best Practices for Equipment Maintenance in Materials Testing

• 3 Conducting Flexural Tests: Procedures and Protocols — 6 classes

- › 3.1 Understand Flexural Properties and Their Importance in Materials Testing
- › 3.2 Identify and Select Appropriate ISO 178 Testing Equipment
- › 3.3 Prepare Plastic Samples According to ISO 178 Standards
- › 3.4 Execute Flexural Tests Following ISO 178 Procedures
- › 3.5 Analyze Flexural Test Results and Determine Key Metrics
- › 3.6 Implement Best Practices for Reporting Flexural Testing Findings

• 4 Data Analysis in Flexural Testing: Interpreting Results — 6 classes

- › 4.1 Understand the Importance of Flexural Properties in Materials Testing
- › 4.2 Analyze Standard Procedures for Conducting Flexural Tests
- › 4.3 Identify Key Data Points in Flexural Test Results
- › 4.4 Interpret Statistical Results from Flexural Testing
- › 4.5 Compare Flexural Properties Across Different Materials
- › 4.6 Apply Findings to Improve Material Selection for Engineering Projects

• 5 Leadership in Quality Assurance: Best Practices in Materials Testing — 6 classes

- › 5.1 Identify Key Principles of Quality Assurance in Materials Testing
- › 5.2 Analyze Common Challenges in Flexural Property Testing
- › 5.3 Implement Best Practices for Ensuring Accurate Test Results
- › 5.4 Develop Effective Leadership Skills for Quality Assurance Teams
- › 5.5 Foster a Culture of Continuous Improvement in Materials Testing
- › 5.6 Evaluate Case Studies on Successful Quality Assurance Leadership

• 1 Fundamentals of Material Properties in Plastics — 6 classes

- › 1.1 Define Key Terms in Material Properties of Plastics
- › 1.2 Explain the Importance of Flexural Properties in Plastics
- › 1.3 Describe the Flexural Test Procedure According to ISO 178
- › 1.4 Identify Factors Affecting Flexural Strength in Plastics
- › 1.5 Analyze Flexural Property Data and Interpret Results
- › 1.6 Apply Flexural Properties Understanding to Real-World Scenarios

• 2 Mechanisms of Flexural Deformation in Plastics — 6 classes

- › 2.1 Explore the Fundamentals of Flexural Properties in Plastics
- › 2.2 Investigate the Molecular Structure of Plastics and Its Impact on Flexural Deformation
- › 2.3 Analyze the Role of Temperature in Flexural Behaviour of Various Plastics
- › 2.4 Examine Different Testing Methods for Measuring Flexural Properties
- › 2.5 Assess Real-World Applications of Flexural Properties in Plastic Materials
- › 2.6 Compare the Flexural Deformation Mechanisms among Various Plastic Types

• 3 Testing Standards and Methods for Flexural Properties — 6 classes

- › 3.1 Identify Key Concepts of Flexural Properties in Plastics
- › 3.2 Explore ISO 178 Standards for Flexural Testing Methods
- › 3.3 Analyze the Importance of Calibration in Flexural Testing
- › 3.4 Conduct a Flexural Test on Plastic Samples
- › 3.5 Interpret Flexural Test Data and Report Findings
- › 3.6 Apply Flexural Property Knowledge to Real-World Scenarios

• 4 Analyzing Flexural Test Results — 6 classes

- › 4.1 Understand Flexural Properties in Plastics
- › 4.2 Identify Key Parameters in Flexural Testing
- › 4.3 Interpret Flexural Test Data and Graphs
- › 4.4 Compare Flexural Strength and Modulus Across Materials
- › 4.5 Evaluate Factors Affecting Flexural Test Results
- › 4.6 Apply Flexural Analysis to Real-World Scenarios

• 5 Applications and Implications of Flexural Properties in Industry — 6 classes

- › 5.1 Understand Flexural Properties and Their Importance in Materials
- › 5.2 Explore the Testing Methods for Assessing Flexural Properties
- › 5.3 Analyze the Role of Flexural Properties in Material Selection
- › 5.4 Examine Real-World Applications of Flexural Properties in Industry
- › 5.5 Investigate the Implications of Poor Flexural Performance in Products
- › 5.6 Develop Strategies for Improving Flexural Performance in Manufacturing

• 1 Understanding ISO 178 Standards for Flexural Properties — 6 classes

- › 1.1 Define ISO 178 Standards and Their Importance in Quality Assurance
- › 1.2 Explain Key Terminology Related to Flexural Properties
- › 1.3 Outline the Testing Methods for Measuring Flexural Properties
- › 1.4 Analyze the Factors Affecting Flexural Properties in Plastics
- › 1.5 Evaluate Compliance with ISO 178 Through Case Studies
- › 1.6 Develop a Quality Assurance Plan Incorporating ISO 178 Standards

• 2 Project Management Principles in Quality Assurance — 6 classes

- › 2.1 Define Quality Assurance Principles in Project Management
- › 2.2 Identify Key Components of the ISO 178 Standard
- › 2.3 Develop a Quality Assurance Plan for Project Management
- › 2.4 Analyze Common Quality Assurance Challenges in Projects
- › 2.5 Implement Best Practices for Quality Control in Project Management
- › 2.6 Evaluate the Impact of Quality Assurance on Project Success

• 3 Development and Implementation of Quality Assurance Projects — 6 classes

- › 3.1 Identify Key Components of Quality Assurance Projects
- › 3.2 Analyze ISO 178 Standards for Flexural Properties
- › 3.3 Develop a Quality Assurance Plan for Plastics Testing
- › 3.4 Implement Quality Control Procedures in Project Management
- › 3.5 Evaluate Project Outcomes Against Quality Assurance Objectives
- › 3.6 Communicate Quality Assurance Findings to Stakeholders

• 4 Monitoring and Evaluating Quality Assurance Processes — 6 classes

- › 4.1 Identify Key Quality Assurance Indicators
- › 4.2 Analyze Current Quality Assurance Processes
- › 4.3 Develop Effective Monitoring Tools for QA
- › 4.4 Implement a Quality Assurance Evaluation Framework
- › 4.5 Conduct Internal Audits for Continuous Improvement
- › 4.6 Report Findings and Recommend Quality Enhancements

• 5 Continuous Improvement and Compliance in ISO Materials Testing — 6 classes

- › 5.1 Understand ISO 178 Standards for Flexural Properties
- › 5.2 Explore the Role of Continuous Improvement in Quality Assurance
- › 5.3 Identify Key Metrics for Measuring Compliance in Materials Testing
- › 5.4 Analyze Case Studies of Successful ISO Compliance
- › 5.5 Develop Action Plans for Continuous Improvement in Testing Processes
- › 5.6 Implement Best Practices for Quality Assurance in ISO Testing

• 1 Fundamentals of Flexural Testing Principles — 6 classes

- › 1.1 Understand Flexural Testing Concepts
- › 1.2 Identify Key Terminology in Flexural Properties
- › 1.3 Explore the Importance of Flexural Testing in Plastics
- › 1.4 Examine the Mechanics of Flexural Stress and Strain
- › 1.5 Analyze Testing Standards and Methodologies for Flexural Properties
- › 1.6 Apply Knowledge to Simulate Flexural Testing Procedures

• 2 Preparation and Conditioning of Test Samples — 6 classes

- › 2.1 Understand Sample Requirements for Flexural Testing
- › 2.2 Prepare Test Samples According to ISO 178 Standards
- › 2.3 Implement Proper Conditioning Techniques for Test Samples
- › 2.4 Monitor Environmental Conditions for Sample Conditioning
- › 2.5 Evaluate Sample Integrity Before Testing
- › 2.6 Document and Report Sample Preparation Procedures

• 3 Methods and Equipment for Flexural Testing — 6 classes

- › 3.1 Identify key flexural testing standards and their significance
- › 3.2 Describe the equipment required for flexural testing
- › 3.3 Explain the setup procedures for flexural testing equipment
- › 3.4 Analyze the different flexural testing methods utilized in the industry
- › 3.5 Demonstrate safe operation and maintenance of flexural testing equipment
- › 3.6 Evaluate flexural test results and their implications for material performance

• 4 Data Interpretation and Analysis of Flexural Properties — 6 classes

- › 4.1 Analyze Flexural Test Data Trends
- › 4.2 Interpret Flexural Strength and Modulus Results
- › 4.3 Compare Flexural Properties Across Material Types
- › 4.4 Evaluate the Impact of Testing Conditions on Data
- › 4.5 Apply Statistical Methods to Flexural Data Sets
- › 4.6 Present Findings on Flexural Properties Effectively

• 5 Advanced Topics in Flexural Testing Applications — 6 classes

- › 5.1 Explore the Fundamentals of Flexural Testing Principles
- › 5.2 Analyze Different Standards in Flexural Testing Methodologies
- › 5.3 Implement Advanced Equipment for Accurately Measuring Flexural Properties
- › 5.4 Evaluate Material Selection Impact on Flexural Strength and Stability
- › 5.5 Investigate Real-World Applications of Flexural Testing in Industry
- › 5.6 Design and Present a Flexural Testing Protocol for a Specific Material