



Electrical Product Safety Testing and Verdict Decisions Training Course



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Introduction:

Electrical product safety testing and verdict decisions training is a 1-week course for test engineers, laboratory technicians, product conformity engineers and manufacturer quality engineers, ending with an Electrical Safety Test Plan and Verdict Report for one product model. Many laboratories run hipot, leakage and heating tests correctly yet issue verdicts without checking equipment, test conditions or measurement margins, so unsafe products pass and sound ones fail. Nominees already carry out or review product safety tests and practise each procedure on test benches with household appliances and ICT equipment. CoreConcept Training Center delivers this electrical product safety testing course.

Course Objectives:

- Classify an appliance or equipment model by construction class, energy source and applicable IEC product safety standard
- Perform dielectric strength, insulation resistance, protective earth and leakage current tests with correct set-up and limits
- Conduct heating, temperature rise and abnormal operation tests and record thermocouple and fault data
- Verify safety test equipment before use and judge whether its calibration status supports the measurement
- Apply decision rules and measurement margins to reach pass, fail or inconclusive verdicts per clause
- Prepare clause-by-clause test reports that technical reviewers and conformity bodies can trace and accept

Target Audience:

- Test engineers and technicians who run safety tests on electrical appliances and equipment
 - Product conformity engineers who prepare samples and evidence for third-party evaluation
 - Quality engineers at appliance and equipment manufacturers who perform routine and type tests
 - Laboratory technical supervisors who review test data and sign verdicts
 - Calibration and equipment coordinators who maintain hipot, leakage and earth bond testers
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Course Outline:

Day 1: Product Safety Testing Principles and Equipment Classification

- Electrical Product Safety Hazards and Protection Against Electric Shock
- Class I, Class II and Class III Construction Identification
- IEC 60335-1 Scope, Part 2 Standards and Test Order
- IEC 62368-1:2023 Energy Source Classes and Safeguards
- Sample Receipt, Rating Plate Review and Test Plan Drafting

Day 2: Dielectric, Insulation and Earthing Tests

- Dielectric Strength Hipot Test Voltage, Ramp and Duration
- Insulation Resistance Measurement at Operating Temperature
- Protective Earth Continuity and Earthing Resistance Test Method
- Creepage Distance and Clearance Measurement on Live Parts
- Hipot, Earth Bond and Insulation Tester Daily Verification

Day 3: Leakage Current, Heating and Abnormal Operation Tests

- IEC 60990:2016 Touch Current Measuring Network Set-Up
- Leakage Current Test at Operating Temperature and Humidity
- Heating Test Thermocouple Placement and Temperature Rise Limits
- Abnormal Operation and Fault Condition Test Sequences
- Marking, Instructions and Construction Clause Inspection Checklist

Day 4: Measurement Uncertainty, Decision Rules and Problem Results

- Uncertainty Budget for Hipot and Leakage Current Measurements
- ILAC G8 Decision Rules and Guard Band Application
- Calibration Certificate Review and Test Equipment Fitness Decisions
- Borderline Results, Retests and Sample Failure Investigation
- Clause-by-Clause Verdict Recording and Test Report Format

Day 5: Laboratory Bench Practice and the Verdict Report

- Lab Bench Exercise Testing a Class I Kitchen Appliance
 - Lab Bench Exercise Testing a Class II ICT Power Supply
 - Lab Bench Exercise Diagnosing a Failed Leakage Current Result
 - Peer Review of Draft Test Records and Verdict Statements
 - Electrical Safety Test Plan and Verdict Report Completion
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Skills You Will Gain:

- Protection Class Identification
- Hipot Test Configuration
- Touch Current Measurement
- Temperature Rise Evaluation
- Creepage and Clearance Checking
- Test Equipment Fitness Review
- Guard Band Application
- Safety Test Report Writing

Why Attend This Course:

- Hand an Electrical Safety Test Plan and Verdict Report to the laboratory manager or product compliance lead, showing tests, conditions, results and verdicts for one model
- Decide when a result close to its limit supports a pass, a fail or a retest with a better-controlled set-up
- Cut the cost of failed third-party evaluations, product recalls and repeat testing caused by poor set-up or unverified testers
- Show fellow technicians how to verify testers and place thermocouples so results from different benches agree

Conclusion:

Back at work, the participant hands the Electrical Safety Test Plan and Verdict Report to the laboratory manager or the manufacturer's product compliance lead. They use it to release the model for third-party evaluation, to set the decision rule the laboratory applies to borderline results and to schedule equipment verification. After the first full test campaign under the plan, the team should review retest rates, verdicts challenged by clients or evaluators and equipment found out of tolerance, then update the plan for the next product family.

Frequently Asked Questions FAQ:

What should participants know before an electrical product safety testing course?

Participants should already carry out, supervise or review safety tests on electrical products and understand basic electrical quantities and test equipment. Bringing a rating plate, a test record or a recent test report from their own work helps them apply the bench exercises directly.

How does an electrical product safety testing course differ from a low-voltage installation inspection course?

An installation inspection course checks fixed wiring and distribution systems in buildings. This course works on the product itself in a laboratory: dielectric strength, insulation, earthing, leakage current, heating and abnormal operation tests, and the verdicts recorded against product safety standards.

Why does electrical product safety testing need decision rules for pass or fail verdicts?

Every measurement carries uncertainty, so a reading just inside a limit may not prove conformity. A decision rule, such as a guard band set out in ILAC G8 guidance, states in advance how that uncertainty is treated, so verdicts are consistent and defensible.

What do participants take back from an electrical product safety testing course?

Participants take back an Electrical Safety Test Plan and Verdict Report for one model, covering classification, applicable clauses, test set-ups and limits, equipment verification records, uncertainty and decision rule, and the clause-by-clause verdicts in a traceable report format.