

ISO 9080 and ASTM D2837 Hydrostatic Testing Course

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Overview

ISO 9080 and ASTM D2837 Hydrostatic Testing Course is a one-week foundation course for plastics-pipe laboratory, materials, quality, supervision, and qualification functions, and participants leave with a Hydrostatic Test Analysis Dossier. The course connects thermoplastic pipe stress-rupture data, ISO 9080 statistical extrapolation, ASTM D2837 HDB and PDB analysis, regression validation, and long-term hydrostatic strength reporting without treating the standards as interchangeable. Agile Leaders Training Center presents hydrostatic testing under ISO 9080 and ASTM D2837.

Who Should Attend

- Laboratory functions responsible for sustained internal-pressure tests and raw-data integrity
- Materials engineering functions responsible for thermoplastic pipe behavior and qualification evidence
- Quality functions responsible for test traceability, review controls, and defensible records
- Test supervision functions responsible for specimen, medium, temperature, stress, and pressure controls
- Product qualification functions responsible for evaluating regression outputs and supporting dossiers

The course assumes participants work with pipe-test records or engineering data, and it leaves laboratory authorization, product approval, pressure-vessel testing, safety-valve testing, and detailed equipment operation outside its scope.

Departments and Industries

The course supports departments and industries that generate, review, or use long-term hydrostatic evidence for thermoplastic pipe materials and products.

- Plastics-pipe manufacturing and material compounding
- Water, gas, industrial-fluid, and infrastructure piping
- Materials laboratories and product-testing services
- Quality assurance, engineering, and product qualification
- Research, development, and technical services

Learning Objectives

By the end of this course, participants will be able to:

- Apply scope and terminology controls to a hydrostatic test-data set.
- Analyze specimen, medium, temperature, stress, pressure, and failure records.
- Use screening rules to diagnose scatter, outliers, knees, and data suitability.
- Compare ISO 9080 and ASTM D2837 regression and extrapolation routes.
- Evaluate LTHS, LTHSP, HDB, PDB, validation, and confidence evidence.
- Build a traceable Hydrostatic Test Analysis Dossier.

Course Agenda

Day 1: Define the Hydrostatic Evidence Chain

- ISO 9080 and ASTM D2837 Scope Comparison Matrix
- Long-Term Hydrostatic Strength Terminology Map
- Material, Product, and Test-Condition Classification Sheet
- Sustained Internal-Pressure Data Provenance Register
- Hydrostatic Analysis Responsibility and Review Map

Day 2: Prepare and Screen Test Data

- Specimen Geometry and Test-Condition Record
- Temperature, Medium, Stress, and Pressure Control Log
- Time-to-Failure and Failure-Mode Data Table
- Scatter, Outlier, and Data-Gap Screening Checklist
- Stress-Rupture and Pressure-Rupture Plot Review

Day 3: Apply ISO 9080 Extrapolation

- ISO 9080 Multi-Temperature Data Structure
- ISO 9080 Regression-Model Selection Worksheet
- Lower Confidence Limit Interpretation Guide
- Reference-Line and Branch-Behavior Review
- ISO 9080 Extrapolation Validity Record

Day 4: Apply ASTM D2837 Analysis

- ASTM D2837 Stress and Pressure Regression Routes
- LTHS and LTHSP Determination Worksheet
- HDB and PDB Category Assignment Table
- Regression Linearity and Downturn Validation Checklist
- ISO 9080 and ASTM D2837 Result Reconciliation Record

Day 5: Practice Hydrostatic Analysis

- Suggested Exercise: Audit a Test-Data Provenance Register
- Suggested Exercise: Screen Rupture Data and Failure Modes
- Suggested Exercise: Review an ISO 9080 Extrapolation Record
- Suggested Exercise: Evaluate an ASTM D2837 HDB or PDB Result
- Capstone Exercise: Complete a Hydrostatic Test Analysis Dossier

Practical Exercises

The course uses suggested activities based on pipe-material, manufactured-product, water-service, gas-distribution, and industrial-fluid test cases.

- Suggested activity: reconcile specimen identifiers, dimensions, temperatures, media, applied loads, failure times, and failure descriptions against source records.
- Suggested activity: flag scatter, data gaps, outliers, branch behavior, and possible downturn evidence before regression.
- Suggested activity: compare the inputs, outputs, limits, and review decisions of ISO 9080 and ASTM D2837 without combining their result categories.
- Suggested activity: assemble analysis evidence, reviewer decisions, uncertainty notes, and traceability links into a controlled dossier.

FAQs

Who suits ISO 9080 and ASTM D2837 hydrostatic testing, and what does it assume?

ISO 9080 and ASTM D2837 hydrostatic testing suits laboratory, materials, quality, test-supervision, and product-qualification functions. It assumes familiarity with pipe-test records or engineering data, not prior mastery of regression analysis.

How does ISO 9080 and ASTM D2837 hydrostatic testing differ from pressure-vessel testing?

ISO 9080 and ASTM D2837 hydrostatic testing evaluates long-term strength evidence for thermoplastic pipe materials or products through rupture data and extrapolation. Pressure-vessel testing addresses a different equipment scope and is not part of this course.

Why are ISO 9080 and ASTM D2837 not interchangeable?

ISO 9080 and ASTM D2837 use related long-term hydrostatic evidence but define different data structures, statistical routes, terminology, outputs, and validity decisions. Each result must therefore remain traceable to its governing method.

What do HDB and PDB mean in ASTM D2837 analysis?

HDB categorizes long-term hydrostatic strength derived from material stress-rupture data, while PDB categorizes long-term pressure strength derived from product pressure-rupture data. The distinction preserves whether the result describes material behavior or a specific product.

Why does hydrostatic regression validation examine scatter and downturns?

Hydrostatic regression validation examines scatter and downturns because data pattern, branch behavior, and fit affect whether extrapolation is supportable. Screening prevents an analyst from treating every plotted data set as suitable for a long-term result.

Conclusion

Participants take back a Hydrostatic Test Analysis Dossier. It combines scope decisions, source-data traceability, condition records, screening evidence, regression outputs, confidence information, category decisions, validation checks, uncertainty notes, and reviewer actions. The dossier changes a collection of rupture records into an auditable analysis package for technical review and further qualification decisions.

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