

BUILDING MATERIALS FLAMMABILITY TESTER



Building Materials Flammability Tester — ToronFT™ BMF

ToronFT™ BMF Building Materials Flammability Tester is a precision combustion testing instrument designed for the difficult-flammability (limited combustibility) testing of building materials. This instrument specifies and executes the complete test workflow — including specimen preparation, test operations, determination of the remaining specimen length after burning, and generation of standardized test reports — in a single micro-controlled platform.

The ToronFT™ BMF determines the difficult-flammability properties of building materials by subjecting specimens to a controlled combustion environment within a precisely constructed combustion shaft furnace. With an overall instrument footprint of 1020 mm × 1020 mm × 3930 mm and an internal combustion chamber space of 800 mm × 800 mm × 2000 mm, the ToronFT™ BMD accommodates full-scale building material specimens for realistic, reproducible flammability characterization.

APPLICATIONS

Building Materials Flammability Tester — ToronFT™ BMF Applications

- Building materials manufacturers: difficult-flammability (limited combustibility) qualification testing for construction products
- Third-party fire testing and certification laboratories: flammability classification testing for building product listing and approval
- Construction and insulation material manufacturers: fire performance characterization of panels, boards, insulation, and composite materials
- Regulatory compliance programs: building material fire classification for national and international building code compliance

- R&D departments: evaluation of new building materials and flame retardant treatments for difficult-flammability performance



FEATURES

Building Materials Flammability Tester — ToronFT™ BMF Key Features

- Complete micro-controlled test workflow: specimen preparation, test operations, remaining length determination, and test report generation — all managed by the integrated control system
- Combustion shaft furnace composition: combustion chamber, burner, specimen holder, air flow layer, and exhaust flue — fully integrated in one platform
- Overall instrument dimensions: 1020 mm × 1020 mm × 3930 mm — purpose-built for building material specimen sizes
- Internal combustion chamber space: 800 mm × 800 mm × 2000 mm — accommodating full-scale building material test specimens
- Insulated sandwich-structure furnace wall for stable, uniform thermal conditions throughout the test volume
- Furnace door design: divided into upper and lower doors, connected to furnace body with hinges, closed with handwheels and fixed screws — providing a secure, repeatable seal
- Upper furnace door and rear combustion chamber wall both feature observation windows for non-intrusive specimen monitoring
- Horizontal burner positioned at center of combustion chamber, 1000 mm above furnace bottom — standardized, reproducible flame geometry per test protocol
- Automated test report generation — reducing manual documentation effort and improving traceability

THEORY & METHOD

Theory and Method

The difficult-flammability test evaluates whether a building material can be classified as having limited combustibility by exposing standard-sized specimens to a defined flame source within the combustion shaft furnace for a specified duration. Key performance metrics include the remaining unburned length of the specimen after the test and the extent of flame propagation — both of which are used to assign the material's flammability classification.

The ToronFT™ BMD combustion shaft furnace consists of a combustion chamber with an insulated sandwich-structure furnace wall, upper and lower doors connected to the furnace body by hinges, and observation windows on both the upper furnace door and the rear wall of the combustion chamber for non-intrusive specimen monitoring. The burner is positioned horizontally at the center of the combustion chamber, 1000 mm above the furnace bottom, delivering a consistent, standardized flame to the specimen throughout the test. The micro-controller manages all test parameters — burner timing, temperature monitoring, and data acquisition — to ensure fully automated, reproducible test execution and report generation.

TECHNICAL SPECIFICATIONS

Building Materials Flammability Tester — ToronFT™ BMF Technical Specifications

Parameter	Specification
Model	ToronFT™ BMF
Overall Instrument Dimensions (L×W×H)	1020 mm × 1020 mm × 3930 mm
Combustion Chamber Internal Space (W×D×H)	800 mm × 800 mm × 2000 mm
Furnace Wall Construction	Insulated sandwich structure
Furnace Door Design	Upper and lower doors, hinge-connected, handwheel and screw closure
Observation Windows	Upper furnace door and rear combustion chamber wall

Parameter	Specification
Burner Position	Horizontal, center of combustion chamber, 1000 mm above furnace bottom
Combustion Shaft Furnace Components	Combustion chamber, burner, specimen holder, air flow layer, flue
Control System	Micro-controller (automated test, data acquisition, report generation)



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