

FLAME RETARDANT WOOD FIRE TUBE TESTER



Flame Retardant Wood Fire Tube Tester — ToronFT™ FR-100WBT

ToronFT™ FR-100WBT Flame Retardant Wood Fire Tube Tester is a precision combustion testing instrument designed to evaluate the burning mass loss rate and flaming burning time of indoor decoration wooden boards and wood products with a thickness not exceeding 20 mm ($d \leq 20$ mm) that have been treated with flame retardant impregnation. By subjecting flame retardant-treated wood specimens to controlled burning conditions within the fire tube test geometry, the ToronFT™ FR-100WBT provides the quantitative burning performance data required for qualification and classification of thin flame retardant-treated wood products used in interior decoration applications.

The Flame Retardant Wood Fire Tube Tester features microcomputer control with automatic ignition and automatic timing, real-time temperature display with data printing capability, and a temperature control accuracy of $180 \pm 10^{\circ}\text{C}$ — providing a complete, automated wood burning test platform for production quality assurance and certification testing programs.

APPLICATIONS

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Applications

- Wood product and decorative panel manufacturers: flame retardant impregnation performance qualification for thin wood products ($d \leq 20$ mm) used in indoor decoration
- Third-party fire testing and certification laboratories: burning mass loss rate and flaming time testing per international wood fire performance standards
- Interior design material manufacturers: fire retardant performance verification for decorative wood panels, veneers, and boards
- Quality assurance departments: production-lot sampling of flame retardant-treated thin wood product burning performance

- R&D departments: evaluation of new flame retardant impregnation formulations and treatment processes for thin decorative wood products



FEATURES

Flame Retardant Wood Fire Tube Tester — ToronFT™ FR-100WBT Key Features

- Designed for thin flame retardant-treated wood products: indoor decoration wooden boards and wood products with thickness $d \leq 20$ mm
- Evaluates two key parameters: burning mass loss rate and flaming burning time — the primary performance metrics for flame retardant wood qualification
- Microcomputer control with automatic ignition and automatic timing — reducing operator variability and ensuring repeatable, consistent test execution
- Real-time temperature display: continuously monitored and displayed throughout the test event
- Data printing capability: test temperature and timing data printed in real time for traceable documentation
- Timing accuracy: 0.1 seconds — precise flaming time measurement for accurate burning performance characterization
- Temperature control accuracy: $180 \pm 10^{\circ}\text{C}$ — controlled burning conditions within the standard-specified temperature range

THEORY & METHOD

Theory and Method

The fire tube method subjects a flame retardant-treated wood specimen to a controlled flame from the automated ignition system within a defined tube geometry. The test measures two key combustion performance parameters: the burning mass loss rate (the proportion of specimen mass consumed during the controlled burning period) and the flaming burning time

(the total duration for which visible flaming combustion is sustained after the ignition source is withdrawn).

The ToronFT™ FR-100WBT microcomputer controller manages the complete test sequence — initiating automatic ignition at the specified time, maintaining temperature at $180 \pm 10^{\circ}\text{C}$ throughout the burning period, and timing the flaming duration with 0.1-second accuracy. Real-time temperature data is displayed continuously and printed via the integrated data printer, providing a complete, traceable record of the thermal conditions throughout each test. Both mass loss and flaming time results are used to classify the flame retardant treatment effectiveness of the tested wood product against the acceptance criteria of the applicable standard.

TECHNICAL SPECIFICATIONS

Flame Retardant Wood Fire Tube Tester — ToronFT™ FR-100WBT
Technical Specifications

Parameter	Specification
Model	ToronFT™ FR-100WBT
Test Method	Fire tube method
Applicable Wood Thickness	$d \leq 20 \text{ mm}$
Applicable Products	Flame retardant-impregnated indoor decoration wooden boards and wood products
Measured Parameters	Burning mass loss rate, flaming burning time
Control System	Microcomputer (automatic ignition, automatic timing)
Temperature Display	Real-time
Data Output	Data printing (real-time)

Parameter	Specification
Timing Accuracy	0.1 seconds
Temperature Control Accuracy	180 ± 10°C



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