



FIRE RETARDANT COATING TUNNEL METHOD TESTER

Fire Retardant Coating Tunnel Method Tester — ToronFT™ FR-CTM

ToronFT™ FR-CTM Fire Retardant Coating Tunnel Method Tester is a laboratory fire performance testing instrument designed to characterize the flame propagation behavior of fire retardant coatings applied to the surface of combustible substrates using the small tunnel furnace method. Enclosed within a compact burning box, the tunnel test provides a controlled environment in which the flame spread characteristics of the coated specimen can be evaluated under repeatable, standard-specified laboratory conditions.

The tunnel method fire retardant coating burning testing machine consists of two components (a main control box and a removable burning box) making it compact, portable, and simple to operate. With 500 W power (AC 220V / 50Hz), a 15-second alarm interval for real-time burn status recording, and a 4-minute total burning time, the ToronFT™ FR-CBM delivers efficient, precise tunnel method flame propagation testing for fire retardant coating qualification programs.

APPLICATIONS

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Applications

- Fire retardant coating manufacturers: tunnel method flame propagation qualification for coatings applied to combustible substrates
- Third-party fire testing and certification laboratories: tunnel method burning test for fire retardant coating performance certification
- Building material manufacturers: flame propagation characterization of fire retardant-treated panels and composite substrates
- Quality assurance departments: production-lot and incoming inspection sampling of fire retardant coating tunnel flame propagation performance

- R&D departments: rapid screening and comparative evaluation of fire retardant coating formulations and application thicknesses using the tunnel method



FEATURES

Fire Retardant Coating Burning Testing Machine (Tunnel Method) — ToronFT™ FR-CTM Key Features

- Two-part instrument design: main control box and removable burning box — compact, portable, and simple to operate
- Total burning time: 4 minutes — standard tunnel method test duration for fire retardant coating flame propagation assessment
- 15-second alarm interval during the test — alerting the operator to record the current burning status at each defined observation point
- Timer accuracy: error not greater than 1 s/h — precise, reliable timing throughout the 4-minute test event
- Power: 500 W, AC 220V / 50Hz — compatible with standard North American laboratory power supplies
- Removable burning box — independent specimen loading and positioning before insertion into the control unit
- Compact, bench-top instrument for efficient laboratory integration and minimal floor space requirements
- Suitable for fire retardant coatings applied to combustible substrate surfaces in laboratory conditions

THEORY & METHOD

Theory and Method

The tunnel method burning test evaluates the rate and extent of flame propagation along the surface of a fire retardant-coated substrate specimen within a small-scale tunnel furnace. The specimen is placed horizontally in the burning box, and the tunnel flame source is applied at one end. As the flame propagates along the coated specimen surface, the operator records the current flame front position at each 15-second alarm interval throughout the 4-minute test duration.

The enclosed tunnel geometry of the burning box confines airflow and heat to the specimen surface, creating a consistent thermal environment that standardizes the flame propagation conditions for comparative and pass/fail assessments. The removable burning box design allows the specimen to be loaded and positioned independently before insertion into the main control unit, reducing setup time and minimizing operator exposure to residual combustion products between tests. The timer error specification (not greater than 1 s/h) ensures that alarm intervals and total test duration are accurately maintained throughout each test event.

TECHNICAL SPECIFICATIONS

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Technical Specifications

Parameter	Specification
Model	ToronFT™ FR-CTM
Test Method	Tunnel method (small tunnel furnace)
Instrument Composition	Main control box + removable burning box
Total Burning Time	4 minutes
Alarm Interval	Every 15 seconds (burn status recording reminder)
Timer Accuracy	Error ≤ 1 s/h
Power	500 W, AC 220V / 50Hz (110V is also available)
Standard Reference	ASTM E84; UL 723; ISO 5658-2



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