

FIRE RETARDANT COATING LARGE PLATE TESTER



Fire Retardant Coating Large Plate Tester — ToronFT™ FR-CLP

ToronFT™ FR-CLP Fire Retardant Coating Large Plate Tester is a precision fire performance testing instrument designed to evaluate the flame-retardant properties of decorative fire-retardant coatings applied to the surfaces of combustible substrates under specified test conditions. In addition to coating flammability characterization, the ToronFT™ FR-CLP is also applicable to the determination of the flame-resistance time of decorative fire-retardant coatings — providing manufacturers and laboratories with the quantitative fire performance data required for product qualification and listing programs.

The large plate method testing machine consists of an integrated test stand, dual-burner system, and jet aspirator, assembled within a standardized frame structure that positions the specimen and flame precisely at the distances and angles required by the applicable test method.

APPLICATIONS

Fire Retardant Coating Large Plate Tester — ToronFT™ FR-CLP Applications

- Fire retardant coating manufacturers: flame-retardant property qualification and flame-resistance time determination for decorative coatings
- Building materials manufacturers: fire performance testing of coated combustible substrates (wood, particleboard, MDF, and similar)
- Third-party certification and listing laboratories: fire retardant coating performance qualification per international standards
- Construction and interior design product manufacturers: compliance testing of decorative panels and surface treatments for fire performance ratings
- R&D departments: evaluation of new fire retardant formulations and coating application methods



FEATURES

Fire Retardant Coating Large Plate Tester — ToronFT™ FR-CLP Key Features

- Integrated test device composition: test stand, dual burner system, and jet aspirator — complete, self-contained large plate method testing machine
- Test stand frame: fabricated from 30 mm × 30 mm angle steel; internal dimensions 760 mm × 760 mm × 1400 mm; lower end 100 mm height for specimen placement; upper end for test piece positioning
- Dual burner system: two copper-sleeve burners, 42 mm outer diameter, 3.0 mm wall thickness, 42 mm height (large) and 28 mm inner diameter, 3.0 mm wall thickness, 25 mm height (small) — installed on a variable-diameter straight pipe joint (nominal 40 mm × 32 mm)
- Burner-to-sample distance: 730 mm ± 6 mm — precisely controlled flame exposure geometry
- Jet aspirator: 32 mm × 32 mm × 15 mm reducing tee joint with 54 mm nozzle (14 mm central aperture) — consistent air-fuel mixture delivery for reproducible flame conditions
- Suitable for both flame-retardant property testing and flame-resistance time determination of decorative fire-retardant coatings
- Compatible with combustible substrate specimens including wood, particleboard, and similar construction materials

THEORY & METHOD

Theory and Method

The large plate method burning test applies a controlled flame from two precision copper-tube burners to the surface of a coated combustible substrate specimen mounted on the test frame. The burners are positioned at a standardized distance from the specimen surface (burner mouth to sample distance: 730 mm ± 6 mm), and the flame is directed onto the coating surface for the specified test duration. The test evaluates whether the fire retardant coating prevents flame propagation across the substrate surface, and measures the time for which the coating maintains its flame-resistance function before breakthrough or failure.

The jet aspirator supplies the air-gas mixture required for stable, reproducible burner combustion, with the nozzle geometry (32 mm × 32 mm × 15 mm reducing tee joint, nozzle length 54 mm, central aperture 14 mm) engineered to deliver consistent flame characteristics throughout the test. The test stand frame (30 mm × 30 mm angle steel, 760 mm × 760 mm × 1400 mm internal dimensions) positions the specimen at the standard height and angle required for repeatable, standard-compliant test geometry.

TECHNICAL SPECIFICATIONS

Fire Retardant Coating Large Plate Tester — ToronFT™ FR-CLP Technical Specifications

Parameter	Specification
Model	ToronFT™ FR-CLP
Test Device Composition	Test stand, burner (×2), jet aspirator
Frame Material	30 mm × 30 mm angle steel
Frame Internal Dimensions (W×D×H)	760 mm × 760 mm × 1400 mm
Frame Lower End Height	100 mm
Large Burner Dimensions	OD 42 mm, wall 3.0 mm, height 42 mm (copper sleeve)

Parameter	Specification
Small Burner Dimensions	ID 28 mm, wall 3.0 mm, height 25 mm (copper sleeve)
Burner Pipe Joint	Variable diameter straight pipe, nominal 40 mm × 32 mm
Burner-to-Sample Distance	730 mm ± 6 mm
Jet Aspirator Tee Joint	32 mm × 32 mm × 15 mm reducing tee
Nozzle Length / Central Aperture	54 mm / 14 mm



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