

SURFACE SPREAD OF FLAME TESTER



Surface Spread of Flame Tester - ToronFT™ SS

ToronFT™ SS Surface Spread of Flame Tester is a precision laboratory instrument designed for testing the flame retardant and fireproof properties of various building materials, building components, and surface products. It is primarily used to evaluate the fire performance of indoor wall and ceiling lining materials by measuring the flame spread index — a quantitative parameter describing the rate and extent of fire propagation across a product surface under standardized test conditions.

The ToronFT™ SS is applicable for testing indoor wall materials, thermal and acoustic insulation materials, ceiling finishes, fire-retardant-impregnated wood products, and other building surface materials under specified burning conditions. It complies with BS 476-6 (Fire propagation test for products) and related international surface flame spread standards, providing test results that are widely recognized for building material fire safety classification and building code compliance.

APPLICATIONS

Surface Spread of Flame Tester - ToronFT™ SS Applications

The ToronFT™ SS is applicable for surface flame spread level testing of the following building material and product types:

- Indoor wall lining materials and wall panels for flame spread index determination and fire safety classification
- Ceiling materials and ceiling tiles for surface flame spread level evaluation under standardized burning conditions
- Thermal and acoustic insulation materials for interior applications requiring flame spread performance characterization
- Timber and engineered wood products after fire-retardant impregnation treatment — for verification of flame spread index improvement
- Composite building boards and panels requiring surface flame spread level data for building code compliance

- Research and development testing of new fire-retardant coatings, treatments, and surface materials for flame spread performance optimization



Standards

The ToronFT™ SS is designed to comply with the following international standards for surface flame spread level testing:

- BS 476-6: Fire tests on building materials and structures: Method of test for fire propagation for products
- BS 476-7: Fire tests on building materials and structures: Method of test to determine the classification of the surface spread of flame of products
- ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials
- ISO 5658-2: Reaction to fire tests: Spread of flame — Part 2: Lateral spread on building and transport products in vertical configuration

FEATURES

Surface Spread of Flame Tester - ToronFT™ SS Key Features

- Horizontal gas burner combined with two electric heating elements inside the burning chamber delivers the combined convective and radiant heat input required for standardized surface flame spread level testing per BS 476-6
- Compact burning chamber internal dimensions of 190 mm × 190 mm × 90 mm with 1 cm thick calcium silicate plate walls provide excellent thermal stability and uniform heat distribution for consistent flame spread index measurements
- 96 mm × 25 mm air inlet in the burning chamber front face provides controlled, standardized airflow to the specimen surface during the surface flame spread test
- 50 mm × 50 mm mica observation window on the front of the burning chamber enables direct visual monitoring of flame spread behavior throughout the test without disturbing the chamber environment
- Gas lamps and 4 electric tube heating elements in the chamber room provide additional radiant heat supplementation for the precise heat flux conditions required by BS 476-6 surface flame spread level test protocols
- Detachable steel chimney and fairing with removable cap at the top of the burning chamber manage exhaust gas direction and flow rate, ensuring stable and reproducible test conditions for surface flame spread level measurement

- Complete instrument system consisting of burning chamber, sample holder, and electronic control provides a fully integrated surface flame spread level test solution
- Complies with BS 476-6 and BS 476-7, providing internationally recognized surface flame spread level test results accepted by building product certification bodies in North America and globally

THEORY & METHOD

Theory and Method

Surface flame spread level testing evaluates the rate and distance of flame propagation across a building material specimen surface under a defined combination of radiant heat and direct flame exposure. The flame spread index is derived from measurements of the flame front position over time during the test, and is used to classify the material into flame spread categories for building code purposes.

In the ToronFT™ SS, the specimen is mounted at the rear of the burning chamber. The burning chamber contains a horizontal gas burner and two electric heating elements, providing both convective and radiant heat exposure to the specimen surface. The chamber's internal dimensions are 190 mm × 190 mm × 90 mm, with 1 cm thick calcium silicate plate walls for thermal stability. A 96 mm × 25 mm air inlet and a 50 mm × 50 mm mica observation window on the front of the burning chamber enable airflow control and visual monitoring of flame spread progress during the test. Gas lamps and 4 electric tube heating elements provide the supplementary radiant heat input required for reproducible surface flame spread level measurement. The detachable steel chimney and fairing with a removable cap at the top of the chamber manage exhaust gas flow during the test.

TECHNICAL SPECIFICATIONS

Surface Spread of Flame Tester - ToronFT™ SS Technical Specifications

Parameter	Specification
Product Name	Surface Spread of Flame Tester — ToronFT™ SS
Instrument Components	Burning chamber, sample holder, electronic control
Burning Chamber Heat Sources	Horizontal gas burner + 2 electric heating elements; gas lamps; 4 electric tube heating elements
Burning Chamber Internal Dimensions (L×W×H)	190 mm × 190 mm × 90 mm
Chamber Wall Material	Calcium silicate plate, 1 cm thick
Air Inlet	96 mm × 25 mm (front face)
Observation Window	50 mm × 50 mm mica (front face)
Chimney	Detachable steel chimney and fairing with removable cap (top)
Sample Position	Fixed at rear of burning chamber
Compliance Standards	BS 476-6; BS 476-7; ASTM E84

For more information, pricing, or to request a quotation, please contact ToronFT. Specifications are subject to change without prior notice.



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