



TORONTECH

RADIANT HEAT PROTECTION TESTER



Radiant Heat Protection Tester - ToronFT™ RHP

ToronFT™ RHP Radiant Heat Protection Tester is a precision laboratory instrument designed for testing the thermal insulation and radiant heat protection performance of single-layer and multi-layer flame-retardant materials, including horizontally placed flame-retardant protective clothing fabrics exposed to both radiant and convective heat sources. Radiant heat protection testing is critical for verifying that protective clothing fabrics and assemblies provide adequate heat shielding to prevent burns and thermal injury to wearers in high-radiant-heat environments.

The ToronFT™ RHP complies with NFPA 1971, ISO 12749, ISO 6942, and EN 366 — the primary international standards for radiant heat protection testing of protective clothing — making it suitable for certification testing of flame-retardant fabrics and protective clothing systems in North American and European markets. Note: this instrument is not suitable for testing non-flame-retardant materials.

APPLICATIONS

Radiant Heat Protection Tester - ToronFT™ RHP Applications

The ToronFT™ RHP is applicable for radiant heat protection performance testing of:

- Single-layer and multi-layer flame-retardant protective clothing fabrics for radiant heat protection evaluation per NFPA 1971 and ISO 6942
- Structural fire-fighting protective ensembles and proximity fire-fighting suits requiring radiant heat protection performance certification
- Industrial flame-retardant coveralls and protective clothing for oil and gas, foundry, steel, and chemical industries
- Aluminized and metallized heat-reflective protective clothing for radiant heat shielding performance qualification

- Research and development testing of new flame-retardant fabric constructions and multi-layer protective systems for radiant heat protection optimization
- Quality assurance testing of flame-retardant protective clothing production batches for radiant heat protection consistency



Standards

The ToronFT™ RHP is designed to comply with the following international standards for radiant heat protection testing:

- NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting
- ISO 12749: Protective clothing against heat and fire: Test method for determination of the heat transmission
- ISO 6942: Protective clothing: Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat
- EN 366: Protective clothing: Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat (superseded by EN ISO 6942)

FEATURES

Radiant Heat Protection Tester - ToronFT™ RHP Key Features

- Dual convection heat source igniters — placed symmetrically beneath the specimen and oriented at 45° to the vertical — provide uniform convective heat flux distribution across the flame-retardant fabric test specimen for accurate radiant heat protection performance measurement
- Precision igniter design: 38 mm diameter, 0.3 mm gas hole diameter, metal mesh igniter port structure — delivers a controlled, stable, and reproducible heat source for consistent radiant heat protection tests
- Adjustable air-to-combustible gas mixing ratio at the lower part of each igniter enables fine calibration of heat output to precisely meet the flux requirements of NFPA 1971, ISO 12749, ISO 6942, and EN 366 radiant heat protection test protocols
- Horizontal specimen orientation accurately replicates the exposure geometry of protective clothing worn horizontally over the body during firefighting or industrial heat exposure — providing realistic radiant heat protection test conditions
- Suitable for both single-layer and multi-layer flame-retardant fabric assemblies, enabling radiant heat protection testing of the full range of protective clothing constructions addressed by NFPA 1971 and ISO 6942

- Computer-controlled data acquisition and processing system records transmitted heat data, calculates radiant heat protection indices, and generates test reports for certification and quality documentation
- Complies with NFPA 1971, ISO 12749, ISO 6942, and EN 366, providing internationally recognized radiant heat protection test results accepted by certification bodies in North America and Europe

THEORY & METHOD

Theory and Method

Radiant heat protection testing evaluates the thermal insulation performance of a flame-retardant fabric or material assembly by measuring the heat transmitted through the specimen when it is exposed to a calibrated radiant heat flux. The transmitted heat is measured by a calorimeter or sensor on the protected side of the specimen, and the time to reach defined pain and injury thresholds is calculated — providing the Radiant Heat Transmission Factor (RHTF) or equivalent heat protection index used for product classification.

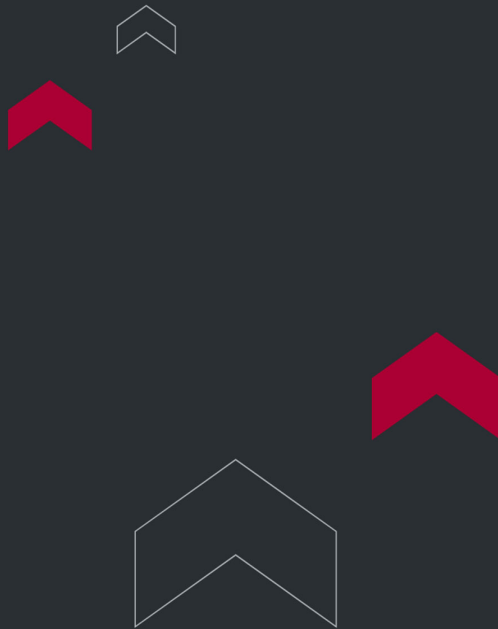
In the ToronFT™ RHP, the flame-retardant fabric specimen is placed horizontally, and the convection heat source — consisting of two igniters placed symmetrically beneath the sample and oriented at 45° to the vertical axis — applies a controlled convective heat flux to the specimen surface. Each igniter has a diameter of 38 mm, a gas hole diameter of 0.3 mm, and a metal mesh igniter port structure. The lower part of each igniter is adjustable to control the air-to-combustible gas mixing ratio, enabling precise heat output calibration for reproducible radiant heat protection test conditions. This dual-igniter convective heat source arrangement, combined with the radiant heat source, fully characterizes the flame-retardant fabric's protection performance under realistic fire-exposure conditions.

TECHNICAL SPECIFICATIONS

Radiant Heat Protection Tester - ToronFT™ RHP Technical Specifications

Parameter	Specification
Product Name	Radiant Heat Protection Tester — ToronFT™ RHP
Applicable Materials	Single-layer and multi-layer flame-retardant materials; not suitable for non-flame-retardant materials
Test Orientation	Horizontal (specimen placed horizontally)
Heat Sources	Radiant and convective
Convection Heat Source	Two igniters, symmetrically placed beneath specimen, 45° to vertical
Igniter Diameter	38 mm
Gas Hole Diameter	0.3 mm
Igniter Port Structure	Metal mesh
Air/Gas Mixing Ratio	Adjustable at lower part of igniter
Compliance Standards	NFPA 1971; ISO 12749; ISO 6942; EN 366

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



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