



NEEDLE FLAME TESTER

Needle Flame Tester - ToronFT™ NFT

ToronFT™ NFT Needle Flame Tester is a versatile laboratory instrument designed for research on lighting, low-voltage appliances, household appliances, machine tools, motors, power tools, electronic instruments, electrical instruments, information technology equipment, electrical affairs equipment, electrical connectors, auxiliary parts of electrical and electronic equipment, and their components and production and quality inspection. The needle flame test simulates the effect of a small ignition source — such as a momentary electrical fault or brief flame contact — on insulating and combustible materials used in electrical and electronic products.

The ToronFT™ NFT features a test chamber of volume $\geq 0.5 \text{ m}^3$ with a black inner surface, an integrated exhaust system, a glass observation window, and a 10 mm thick smooth wooden board bedding system. It complies with IEC 60695-11-5 and IEC 60335-1 — the principal international standards for needle flame testing — and is also suitable for insulation materials, engineering plastics, and other solid combustible material categories per IEC 60695-1 requirements.

APPLICATIONS

Needle Flame Tester - ToronFT™ NFT Applications

The ToronFT™ NFT is applicable for needle flame testing of the following materials and product categories:

- Electrical and electronic equipment enclosures, housings, and plastic components for needle flame ignition resistance qualification
- Household appliances, lighting equipment, and low-voltage electrical equipment for needle flame test compliance per IEC 60335-1
- Insulation materials, engineering plastics, and other solid combustible materials used in electrical and electronic products for needle flame flammability characterization

- Machine tool appliances, motors, power tools, and electronic instruments requiring needle flame test certification
- Electrical connectors, terminal blocks, and auxiliary parts of electrical and electronic equipment for needle flame compliance
- Information technology equipment and telecommunication apparatus components for needle flame test qualification and related product standards



Standards

The ToronFT™ NFT is designed to comply with the following international standards for needle flame testing:

- IEC 60695-11-5: Fire hazard testing: Test flames — Needle-flame test method — Apparatus, confirmatory test arrangement, and guidance
- IEC 60335-1: Household and similar electrical appliances: Safety — General requirements

FEATURES

Needle Flame Tester - ToronFT™ NFT Key Features

- Needle Flame Tester compliant with IEC 60695-11-5 — providing the standardized needle flame ignition source and test environment for comprehensive electrical product material flammability qualification
- Large test chamber volume $\geq 0.5 \text{ m}^3$ with black inner surface — maximizes visual contrast for accurate needle flame ignition and self-extinguishing observation throughout the test
- Outer shell constructed from electrostatic high-temperature baking paint steel plate — providing durability, corrosion resistance, and thermal stability for long-term needle flame tester service
- Integrated exhaust device closed during the test and combustion period — maintaining the calm, undisturbed air environment required by IEC 60695-11-5 for reproducible needle flame test results
- Glass observation window installed in the front panel enables continuous, safe visual monitoring of specimen ignition behavior and burning particle fall during the needle flame test
- 10 mm thick smooth wooden board bedding with packaging tissue paper layer cover beneath the specimen — providing the standardized base for detection of burning droplet and particle ignition as required by IEC 60695-11-5
- Standardized test lengths — 300 mm (horizontal) and 457 mm (vertical) — comply with IEC 60695-11-5 specimen size and test geometry requirements for consistent, comparable needle flame test results

- Suitable for a broad range of electrical product materials — including engineering plastics, insulation materials, and combustible solid components — covering all major electrical and electronic product categories addressed by IEC 60695-11-5 and IEC 60335-1
- Complies with IEC 60695-11-5 and IEC 60335-1, providing internationally recognized needle flame test results accepted by electrical product certification bodies in North America and globally

THEORY & METHOD

Theory and Method

The needle flame test evaluates the ignitability of materials and components used in electrical equipment when exposed to a small standardized Bunsen burner flame (the 'needle flame') simulating a small ignition source that might result from a brief electrical fault, overloaded component, or accidental flame contact. The test assesses whether the material ignites, how quickly it self-extinguishes, and whether burning particles fall to the base — providing critical information for fire risk assessment of electrical product components.

In the ToronFT™ NFT, the test specimen is placed inside the $\geq 0.5 \text{ m}^3$ test chamber on a 10 mm thick smooth wooden board with a layer of packaging tissue paper covering it tightly. The needle flame burner applies the calibrated flame to the specimen at the specified angle and position for the defined exposure duration. The test chamber interior is black to maximize visual contrast for observation of flame ignition and propagation. An exhaust device is installed — closed during the test and the combustion period — and the glass observation window on the front allows safe visual monitoring. The test length is 300 mm (horizontal) and 457 mm (vertical), corresponding to the standard specimen and test geometry required by IEC 60695-11-5.

TECHNICAL SPECIFICATIONS

Needle Flame Tester - ToronFT™ NFT Technical Specifications

Parameter	Specification
Product Name	Needle Flame Tester — ToronFT™ NFT
Test Chamber Volume	≥0.5 m³
Chamber Interior	Black surface; outer shell electrostatic high-temp. baking paint steel plate
Exhaust Device	Integrated; closed during test and combustion period
Observation Window	Glass; front-mounted
Bedding	10 mm thick smooth wooden board; covered with packaging tissue paper
Test Length — Horizontal	300 mm
Test Length — Vertical	457 mm
Compliance Standards	IEC 60695-11-5; IEC 60335-1

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



Torontech Inc.

251 Consumers Road, Suite 1200
Toronto, Ontario, M2J 4R3, Canada 

Phone: +1 416 368 2721 | Fax: +1 416 981 7652
Email: info@torontech.com

Torontech, LLC

601 Brickell Key Drive, Suite 700
Miami, FL 33131, USA 

Toll-Free: 1-866-383-7919
Email: sales@torontech.com

Torontech ME FZE

Meydan Grandstand, 6th Floor,
Meydan Road, Nad Al Sheba,
Dubai-261440, UAE 

Phone: +971 488 19252
Email: me@torontech.com

