

PLASTIC IGNITION TEMPERATURE TESTER



Plastic Ignition Temperature Tester - ToronFT™ IGT

ToronFT™ IGT Plastic Ignition Temperature Tester specifies the use of a hot air test furnace to determine the flash-ignition temperature and autoignition temperature of plastics. This method is suitable for determining the combustion performance of materials, products, or assemblies under the action of heat or flame under laboratory conditions. The test results can be used as a key factor in evaluating fire risk of materials, products, and assemblies in actual fires.

The ToronFT™ IGT features a complete, precision hot air furnace system — comprising a polished stainless steel furnace shell, an emery furnace tube (inner diameter 100 mm, length 240 mm), a heating jacket, thermocouple, air source, temperature control device, igniter, balance, timer, and fume hood — and complies with ISO 871 standard requirements, providing internationally recognized flash-ignition and spontaneous-ignition temperature test data for plastics in North American and global markets.

APPLICATIONS

Plastic Ignition Temperature Tester - ToronFT™ IGT Applications

The ToronFT™ IGT is applicable for flash-ignition temperature and spontaneous-ignition (autoignition) temperature testing of the following materials and product categories:

- Plastic materials and polymeric compounds for flash-ignition temperature (FIT) and autoignition temperature (AIT) characterization per ISO 871
- Building and construction materials — including insulation boards, cladding panels, and pipe systems — for fire risk assessment based on flash-ignition and autoignition temperature data
- Electrical and electronic equipment plastic components for ignition temperature-based fire hazard evaluation

- Consumer product materials and assemblies requiring flash-ignition and autoignition temperature data for fire safety regulatory compliance
- Transportation materials — automotive, aerospace, and rail — requiring ignition temperature characterization for fire risk assessment in enclosed environments
- Research and development testing of new polymer formulations, fire-retardant treated materials, and composite systems for ignition temperature performance evaluation



Standards

The ToronFT™ IGT is designed to comply with the following international standards for plastic flash-ignition and spontaneous-ignition temperature testing:

- ISO 871: Plastics: Determination of ignition temperature using a hot-air furnace

FEATURES

Plastic Ignition Temperature Tester - ToronFT™ IGT Key Features

- Complete, integrated plastic ignition temperature tester system — furnace shell, furnace tube, heating jacket, thermocouple, air source, temperature control device, igniter, balance, timer, and fume hood — providing a fully self-contained flash-ignition and autoignition temperature test platform
- Polished stainless steel furnace shell provides excellent corrosion resistance, thermal stability, and a professional laboratory-grade finish for long-term ignition temperature test service
- Emery furnace tube with inner diameter 100 mm and length 240 mm provides the standardized combustion geometry required by ISO 871 for reproducible flash-ignition and autoignition temperature measurements
- Removable bottom plug at the base of the furnace tube enables convenient specimen loading and removal while maintaining the defined furnace geometry during the ignition temperature test
- Precision thermocouple provides accurate, real-time furnace temperature measurement throughout the flash-ignition and autoignition temperature test heating profile
- Dedicated igniter precisely positioned above the furnace tube opening detects flash-ignition of evolved decomposition gases — enabling accurate FIT determination with minimal lag
- Integrated balance measures specimen mass before and after the ignition temperature test — providing mass loss data to complement FIT and AIT ignition temperature results

- Fume hood safely evacuates combustion gases and decomposition products from the test environment throughout the flash-ignition and autoignition temperature test sequence
- Complies with ISO 871 and ASTM D1929, providing internationally recognized plastic flash-ignition and autoignition temperature test results accepted by fire safety authorities and certification bodies in North America and globally

THEORY & METHOD

Theory and Method

Flash-ignition temperature (FIT) is the lowest temperature at which a plastic material generates sufficient flammable decomposition gases to ignite momentarily when a small pilot flame is applied to the gas stream escaping from the hot air furnace. Autoignition temperature (AIT, also called spontaneous-ignition temperature) is the lowest temperature at which the evolved decomposition gases ignite spontaneously — without the application of any external ignition source. The difference between FIT and AIT reflects the material's intrinsic thermal stability and the minimum conditions required for self-sustained ignition.

In the ToronFT™ IGT, the plastic specimen is placed inside the emery furnace tube (inner diameter 100 mm, length 240 mm, with a removable bottom plug) inside the polished stainless steel furnace shell with heating jacket. The temperature control device manages the hot air furnace temperature profile, while the thermocouple provides precise temperature measurement throughout the test. The igniter is positioned above the furnace opening to detect flash-ignition of evolved decomposition gases for FIT determination. For autoignition temperature testing, no igniter is applied, and the furnace temperature is raised until spontaneous ignition of the evolving gases is observed. The balance records specimen mass before and after testing, and the timer tracks ignition event timing. The fume hood safely evacuates combustion gases from the test environment.

TECHNICAL SPECIFICATIONS

Plastic Ignition Temperature Tester - ToronFT™ IGT Technical Specifications

Parameter	Specification
Product Name	Plastic Flash-Ignition and Spontaneous-Ignition Temperature Tester — ToronFT™ IGT
Test Device Components	Furnace shell, furnace tube, heating jacket, thermocouple, air source, temperature control device, igniter, balance, timer, fume hood
Furnace Shell Material	Polished stainless steel
Furnace Tube Material	Emery
Furnace Tube Inner Diameter	100 mm
Furnace Tube Length	240 mm
Bottom Opening	Removable bottom plug
Parameters Determined	Flash-Ignition Temperature (FIT); Autoignition/Spontaneous-Ignition Temperature (AIT/SIT)
Test Method	Hot air furnace method
Compliance Standards	ISO 871

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



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