Non-Combustibility Apparatus

(EN ISO 1182)

firetesting technology

Fire Testing Technology Limited
Charlwoods Road, East Grinstead, West Sussex RH19 2HL, UK
+44 (0)1342 323600 | sales@fire-testing.com | www.fire-testing.com
A Judges Scientific plc company

EN ISO 1182:

Reaction to fire tests for building products – Non-combustibility test

This apparatus determines the non-combustibility performance, under specific conditions, of homogenous products and substantial components of non-homogeneous building products. This test is part of the requirements of the European construction products regulation classification of reaction to fire performance for wall lining and roofing products and floor-coverings. Full classification and performance criteria can be found in a separate document “Reaction to fire instruments for testing according to New European Fire Testing and Classification for Construction Products.”

How the non-combustibility apparatus is used to classify products

The European Construction Products Regulation classification criteria for all building products, has performance classes from A-F. Although another test is required for assessment, the non-combustibility apparatus is needed for qualifying all types of construction products to the highest performance criteria – A1 and $A1_{fl}$ (non-combustible).

The classification criteria is shown in the table below. This principally applies to non-organic materials.

Classification for construction products excluding floorings

CLASS	TEST METHODS	CLASSIFICATION CRITERIA	OTHER TEST METHODS
A1, $A1_{fl}$	EN ISO 1182	$\Delta T \geq 30°C$: and $\Delta m \geq 50\%$; and $t_f = 0$ (i.e. no sustained flaming)	EN ISO 1716

The FTT Non-Combustibility Apparatus

The **FTT** system has been designed with accuracy and longevity in mind. The apparatus is safeguarded to ensure that the heater element cannot be damaged during the heating cycle if the electrical current is too high. The benefits of this system over traditional variac systems are: soft start, ramp rate, power limit and over temperature prevention. This design also helps to considerably extend the life of the furnace.

Special Tube Furnace

Manufactured from steel with a painted black finish. This single zone furnace has a maximum operating temperature of 900°C. The furnace is easily replaceable during maintenance and servicing procedures. The furnace and stabilising cone are held in a frame which also includes the specimen holder support and viewing mirror.

Instrumentation

A 19" instrument case houses all the instrumentation. This unit features a temperature controller, an over-temperature alarm and a power controller, which control the furnace temperature at 750°C, compensating for supply voltage fluctuations and displaying the power being supplied to the furnace.

Software

The 'NonComb' software is a Microsoft Windows based application with simple push button actions, data entry fields, check boxes and other standard Windows operations.

The operator can monitor temperatures on a Status panel before performing a test without recording any data. Before a test, the specimen information (material name, density, mass, laboratory name, etc.) is entered into the computer and saved to a file.

During a test, the temperature of the furnace, specimen surface and specimen centre thermocouples are recorded at a rate of 2 Hz (i.e. every 0.5 seconds) and the temperatures displayed on a graph in real time. Also the initial, maximum and final temperatures recorded by the three thermocouples are displayed during the test run.

After the test, the user is prompted to enter any comments about the material performance, the total time of sustained flaming and the final mass. The appropriate temperature rises are calculated and then a report for the test specimen can be generated.

The test report shows the material information, the initial, maximum and final temperatures, the required temperature rises, the total flaming time, the mass loss (actual and as a percentage of the initial mass) and a graph of the recorded temperatures against time. The test report also includes a reference to the pass-fail criteria given in the appropriate Standards and states whether the specimen meets these criteria.

All the test data is saved to the hard disk as an ASCII file which can then be imported into spreadsheets for additional analysis.

TECHNICAL SPECIFICATIONS	
Measuring Principle	Single zone furnace with three-term (PID) control and power control
Alarm	Over temperature alarm included as standard
Standard Operating Temperature	Furnace thermocouple = 750°C
Furnace Tube Dimensions	Inner diameter: 75 mm height: 150 mm
Instrument Dimensions (approximate)	400mm (W) × 400mm (D) × 1800mm (H)
Software	NonComb included as standard (Windows PC required)

SERVICES	
Test Room	The non-combustibility apparatus should be situated in a draught free environment at 23 ± 5°C and a relative humidity of 50 ± 20%.
Electrical Supply	230 VAC, 12 Amps
Hood	The apparatus should be situated under a suitable extraction system.

Due to the continuous development policy of **FTT** technical changes could be made without prior notice.

Other Euroclass Tests

Detailed product catalogues are also available for:

- **Single Burning Item**
  EN 13823 Reaction to fire tests for building products excluding floorings exposed to thermal attack by a single burning item, the SBI.
- **Oxygen Bomb Calorimeter**
  EN ISO 1716 Reaction to fire tests for building products
  – Determination of the heat of combustion.
- **Ignitability Apparatus**
  EN ISO 11925-2 Reaction to fire tests for building products
  – Ignitability of building products subjected to direct impingement of flame.
- **Flooring Radiant Panel**
  EN ISO 9239-1 Reaction to fire tests for building products
  – Horizontal surface spread of flame for floor coverings.

Unrivalled Experience in Design and Manufacturing

FTT's site in East Grinstead, is home to the largest group of fire scientists and instrumentation design engineers working on fire testing instrumentation, and is at the heart of our design and manufacturing. For almost 30 years **FTT** has provided the highest quality instruments and service for fire testing and research professionals worldwide, directly and through its extensive global sales and support network.

Quality

- World-class manufacturing in accordance with multiple international and national standards, including: EN, ISO & ASTM
- ISO 14001, ISO 9001 certified

Integrity

- A dedicated team passionate about fire testing instrumentation and continuous product improvement
- Delivering reliable, robust and easy-to-use instruments for the past 30 years

Excellence

- A world-class team made up of qualified fire scientists, mechanical, electrical and electronic fire instrument design engineers and production, installation and maintenance engineers

Global

- World-wide distribution network for global sales, installations, training, maintenance and technical support
- Leading global supplier of the Cone Calorimeter, Large Scale Calorimeter, NBS Smoke Chamber and Oxygen Index