

# FAA Micro Calorimeter

(ASTM D7309)

firetesting  
technology



## Accurate and cost effective micro calorimetry using a Pyrolysis Combustion Flow Calorimeter (PCFC) ASTM D7309

The **FTT** Micro Calorimeter was developed in co-operation with the Federal Aviation Administration (FAA). It determines fundamental thermo-chemical data in seconds and predicts fire properties of materials.

The technique enables parameters such as Specific Heat Release Rate (W/g), Heat of Combustion (J/g) and Ignition Temperature (°C) to be quickly determined from very small (1-5mg) specimens. It is a low cost and accurate technique; typical repeatability is  $\pm 5\%$ .

Micro Calorimeter data has been shown to correlate with fire test data (Cone Calorimeter, OSU), flammability results (LOI, UL94) and combustion tests (Bomb Calorimeter) and is therefore seen as a powerful, low cost tool to assess and predict flammability properties.

The **FTT** Micro Calorimeter uses the same oxygen consumption calorimetry technique used in our bench and room scale calorimeters. The specimen is first heated at a constant rate of temperature rise (typically 1°C/s) in a pyrolyser and the degradation products are purged from the pyrolyser by an inert gas (nitrogen). The gas stream is mixed with oxygen and enters a combustor at 900°C where the decomposition products are completely oxidised. Oxygen concentrations and flow rates of the combustion gases are used to determine the oxygen consumption involved in the combustion process and the heat release rates are determined from these measurements.



## Software

The **FTT** Micro Calorimeter is supplied with a Microsoft Windows based data acquisition and analysis software with an intuitive user interface using standard Windows data entry fields, drop down selectors, check boxes and switches.

Instrument supplied with software at no extra charge. Software updates provided free of charge.

The software enables:

- The instrument status to be shown
- Calibration of the instrument and storage of calibration results
- Collection of data generated during a test
- Calculating the required parameters
- Presenting the results in a manner approved by the Standard

## Features and Benefits

- Ability to generate quantitative results in minutes
- Automatic control of temperature and gas flow rates
- Small sample size (1-5mg)
- Over temperature protection of both furnaces
- Removable rear cover to access all serviceable parts such as the Fuel Cell for ease of maintenance
- Dual voltage 96-264VAC, 50-60Hz (No need to switch)



## 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 more than 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 9001, ISO 14001 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