



University of Dayton
Research Institute



FIRE SAFETY SCIENCE LAB

The Fire Safety Science Laboratory (FSSL) is certified to ISO 9001: 2015 (Eagle Certification Group, Cert No. 5587).

CONE CALORIMETER

Standard test for fundamental understanding of materials fire behavior.

- ASTM E1354, E1474, E1740, D6113, ISO 5660, MIL_STD 2031, and various other tests
- Measures heat release rate by oxygen consumption calorimetry
- Measures mass loss rate, smoke production rates, and CO/CO₂ production rates

MICRO COMBUSTION CALORIMETER

Small-scale quantitative flammability testing apparatus (5-50 mg sample) enabling rapid screening for flammability performance.

- Meets ASTM D7309
- Also known as a pyrolysis combustion flow calorimeter
- Materials can be pyrolyzed under air or nitrogen at rates of 1°C/sec from 50°C to 900°C
- Heat of combustion measurements can be collected with as little as 5mg of material
- Future use as FAA test for re-qualification of materials

UL-94 TEST STATION

Standard test for polymers in electronics and electronic enclosures. Covers the following UL/ASTM methods:

- ASTM D635 (UL-94 HB)
- ASTM D3801 (UL-94 V)
- ASTM D4804 (UL-94 VTM)
- ASTM D5048 (UL-94 5V)
- ASTM D4986 (UL-94 HBF)

HORIZONTAL FLAMMABILITY TESTER

Standard test for aerospace and automotive parts. Covers the following fire test standards:

- FMVSS 302
- FAR Part 25.853 Horizontal Test
- ISO 3795



VERTICAL FLAMMABILITY TESTER

Standard test for many aerospace, automotive, building and textile products.
Covers the following fire test standards:

- FAR part 25.853 Vertical test
- NFPA 1971
- ASTM D6413
- California Technical Bulletin TB-117
- Federal and CPSC fabric flame spread tests

FAA MULTI-TESTER

Instrument capable of meeting several FAA standard test methods under FAR Part 25.853 and 25.855.

- FAR Vertical Bunsen Burn Test (both 12 & 60 seconds flame exposures)
- Horizontal Bunsen Burn Test
- 45 Degree and 60 Degree Angle Bunsen Burn Tests

OXYGEN BOMB CALORIMETER

Standard test for measuring heat release and total heat of combustion for solids and liquids.

- Sample size (0.5g to 1g)
- Solids can be homogeneous or heterogeneous

Instrument can conduct the following ASTM and ISO methods:

- ASTM: D240, D3176, D3180, D4809, D5468, D5865, E711
- ISO: ISO1928, ISO9831

For additional information on our capabilities or on how we can help you solve complex issues in fire safety and/or materials flammability, contact:

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