

UNIVERSITY OF DAYTON RESEARCH INSTITUTE

FIRE SAFETY SCIENCE CAPABILITIES

Cone Calorimeter (FTT)

- Standard test for fundamental understanding of materials fire behavior (ASTM E-1354, E-1474, E-1740, D6113, ISO 5660, MIL-STD 2031)
- Measures heat release rate by oxygen consumption calorimetry
- Can also measure mass loss rate, smoke production rates, and CO/CO₂ production rates
- Has special low-oxygen calorimetry attachment for burning samples in sub-ambient (lower than 20.95% oxygen) conditions Can perform modified cone calorimeter experiments for specialized fire test needs

Micro Combustion Calorimeter (D7309)

- Also known as a pyrolysis combustion flow calorimeter
- Small-scale quantitative flammability testing apparatus (5-50 mg sample) enabling rapid screening for flammability performance
- 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

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

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, ISO 9831

For additional information on our capabilities or on how we can help you solve complex issues in fire safety and/or materials flammability, contact Dr. Alex Morgan at 937-229-3079 or alexander.morgan@udri.udayton.edu.

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