

Flame Retardant Research & Development



SERVICES

We provide standard test services to evaluate the thermal stability and flammability of materials from macro- to microscale techniques. We help to understand the behaviors of materials in fire based on various physical and chemical characterization tools essential for fundamental studies. We also help to develop flame retardant technology and solve complex issues in materials flammability.

LABORATORY TESTING CAPABILITIES

Microscale Combustion Calorimeter

- Also known as pyrolysis combustion flow calorimeter
- A small-scale quantitative flammability testing apparatus (5-50 mg sample) enabling rapid screening for flammability performance
- Anaerobic or aerobic pyrolysis at heating rates of 6 to 300 °C/min from 50 to 900 °C
- Standard testing of ASTM D 7309



Cone Calorimeter

- Well-known bench-scale instrument for measuring fire properties of combustible materials, including plastics, wood, fabrics, and polymers
- Measures heat release rate by oxygen consumption calorimetry
- Measure mass loss rate, smoke production rates, and CO/CO₂ production rates
- Standard testing of ISO 5660 and ASTM E1354



Flame Retardant Research & Development

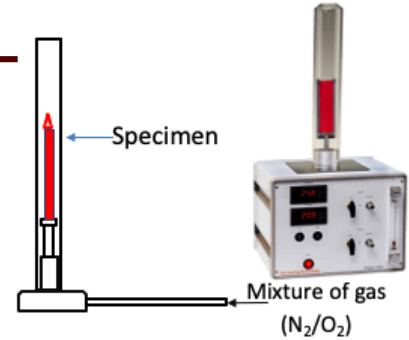
UL-94 Chamber

- Measure the ability of plastic part to extinguish the flame after ignition and its dripping behavior in response to a small open flame
- Standard testing 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 HB)



Limiting Oxygen Index

- Minimum oxygen concentration to support candle-like combustion of plastics
- Standard testing of ASTM D2863, BS ISO 4589-2, and NES 714



LABORATORY MANUFACTURING CAPABILITIES

Process 11 Parallel Twin-Screw Extruder

- Mimic a complete compounding line for developing industrial processes on a laboratory scale
- Optimize a safer process when scaling up productions
- Applications:
 - Compounding
 - Masterbatches
 - Nanocomposite



For more information on how we can help you develop flame retardant technology and solve complex issues in materials flammability, contact Dr. Wang at 979-845-9803 or qwang@tamu.edu.