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# FIRE RETARDANT COATING SMALL CHAMBER TESTER

# Fire Retardant Coating Small Chamber Tester — ToronFT™ FR-CSC

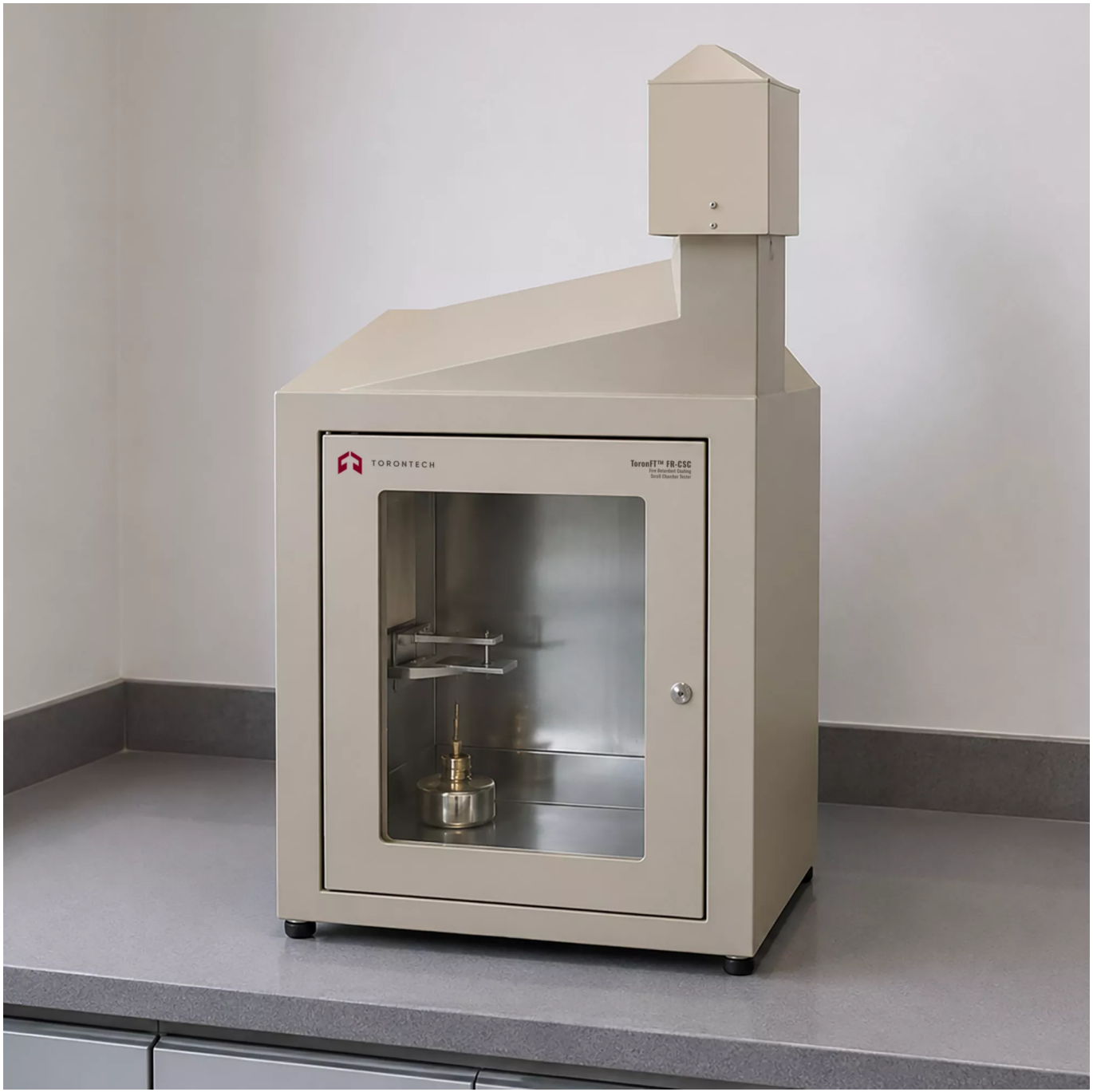
ToronFT™ FR-CSC Fire Retardant Coating Small Chamber Tester is a compact, enclosed fire performance testing instrument designed to evaluate the fire retardant performance of fire retardant coatings applied to the surfaces of combustible substrates under controlled laboratory conditions. Unlike the large plate method, the small chamber method encloses the burning test within a defined combustion chamber, providing a controlled environment that minimizes ambient airflow interference and delivers highly repeatable, reproducible fire retardant performance results.

Utilizing chemically pure grade absolute ethanol as the fuel and a specimen clamp tilted at 45° ± 2°, the ToronFT™ FR-CSC provides a standardized, consistent test geometry and combustion environment — making it an efficient and economical instrument for fire retardant coating qualification in both production quality assurance and R&D environments.

## APPLICATIONS

## Fire Retardant Coating Small Chamber Tester — ToronFT™ FR-CSC Applications

- Fire retardant coating manufacturers: small chamber method fire retardant performance qualification and batch quality control
- Building materials and construction product manufacturers: fire performance testing of coated combustible substrates in a compact laboratory instrument
- Third-party certification and listing laboratories: small chamber burning test for fire retardant coating performance qualification
- R&D departments: rapid screening and comparative evaluation of fire retardant formulations and coating thicknesses
- Quality assurance departments: production-line and incoming inspection testing of fire retardant coating samples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## FEATURES

# Fire Retardant Coating Small Chamber Tester — ToronFT™ FR-CSC Key Features

- Enclosed combustion box design: 337 mm × 229 mm × 794 mm — controlled test environment eliminating ambient airflow interference
- Single test station design — focused, efficient testing for quality assurance sampling and R&D screening
- Test board dimensions: L300 mm × W150 mm, 5 mm thickness with a flat and smooth surface — standardized specimen geometry
- Fuel: chemically pure grade absolute ethanol — consistent, reproducible combustion energy for standard-compliant test conditions
- Specimen clamp angle: 45° ± 2° — standardized inclination for repeatable flame impingement geometry
- Compact, self-contained instrument — minimal bench-top footprint for space-efficient laboratory integration
- Suitable for fire retardant coatings applied to combustible substrates including wood, MDF, particleboard, and similar building materials
- Economical and rapid test method for fire retardant coating screening and quality control programs

## THEORY & METHOD

# Theory and Method

The small chamber method test positions a coated combustible substrate specimen in the specimen clamp at a 45° ± 2° angle within the enclosed combustion chamber. Chemically pure grade absolute ethanol is used as the standardized fuel

source, providing consistent, reproducible combustion energy and flame characteristics across all test runs. The fuel is ignited below the specimen, and the flame impinges on the lower edge of the specimen — replicating the ignition scenario for which fire retardant coatings must demonstrate resistance.

The enclosed combustion box (337 mm × 229 mm × 794 mm) contains the flame and combustion gases within a defined volume, eliminating external airflow variables that can affect test reproducibility in open-geometry methods. The test evaluates the time for which the fire retardant coating prevents flame spread up the specimen, the extent of charring or burning on the substrate surface, and whether the coating successfully suppresses ignition of the underlying combustible substrate.

## TECHNICAL SPECIFICATIONS

# Fire Retardant Coating Small Chamber Tester — ToronFT™ FR-CSC Technical Specifications

| Parameter | Specification |
|---|---|
| Model | ToronFT™ FR-CSC |
| Test Method | Small chamber burning method |
| Number of Test Stations | 1 |
| Test Board Dimensions (L×W×thickness) | 300 mm × 150 mm × 5 mm (flat and smooth surface) |
| Fuel | Chemically pure grade absolute ethanol |
| Specimen Clamp Angle | 45° ± 2° |
| Combustion Box Dimensions (L×W×H) | 337 mm × 229 mm × 794 mm |

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