

COMBUSTION ION CHROMATOGRAPH - TORON-IC™ 3200 (ONLINE)



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Combustion Ion Chromatograph - Toron-IC™ 3200 (Online) is an advanced online combustion ion chromatograph designed for high-accuracy determination of halogens and sulfur in solid and liquid samples.

By integrating automated high-temperature combustion, efficient gas absorption, and ion chromatographic detection, the system eliminates manual oxygen bomb combustion while delivering superior repeatability, traceability, and analytical efficiency.

The Toron-IC™ 3200 features a multi-zone programmable combustion furnace, automated sample handling, rapid Peltier cooling, and optional ion enrichment, making it an ideal solution for laboratories and process environments requiring continuous, reliable elemental analysis.

APPLICATIONS

Combustion Ion Chromatograph - Toron-IC™ 3200 (Online) Applications

The Combustion Ion Chromatograph Toron-IC™ 3200 is a versatile tool for elemental analysis across several key sectors:

- **Petrochemical & Energy:** Supports quality control and regulatory compliance through online determination of halogens and sulfur in fuels, oils, and various petrochemical products.
- **Environmental Testing:** Facilitates the measurement of trace halides and sulfur species in both solid and liquid environmental samples.
- **Chemical Manufacturing:** Essential for process monitoring and the analysis of impurities in raw materials, intermediates, and finished chemical products.

- Pharmaceutical & Fine Chemicals: Utilized for elemental impurity analysis to ensure product safety and quality assurance.
- Research & Contract Laboratories: Provides high-precision elemental analysis for routine testing, method development, and validation.



FEATURES

Combustion Ion Chromatograph - Toron-IC™ 3200 (Online) Key Features

Enhanced Performance and Efficiency

- Fully Automated High-Temperature Combustion: Replaces the manual oxygen bomb technique with a programmable, automated combustion system, significantly boosting accuracy and repeatability.
- Parallel Processing: Maximizes throughput by allowing the combustion of the next sample to begin concurrently with the ongoing Ion Chromatography (IC) analysis.
- Peltier Cooling: Rapidly cools the gas to 5 °C, which enhances absorption efficiency and stabilizes the measurement.
- Ion Enrichment (Optional): Includes an optional capability to enrich ions, improving sensitivity for very low-concentration analytes.

Advanced Combustion Control

- Multi-Zone Gradient Heating Furnace: Features five independent temperature zones, capable of reaching up to 1200 °C, to prevent sample splashing and guarantee complete combustion.
- Efficient Oxygen Purging: Uses a reverse oxygen scavenging mechanism to return any unburned residues to the reaction zone, ensuring total combustion.

Automated Workflow and Traceability

- High-Capacity Autosampler: A 50-position boat injection system supports both solid and liquid samples, enabling continuous, unattended operation.

- Automatic Sample Retention: An integrated 46-position system automatically stores absorbed samples, providing full traceability for retesting, auditing, and data integrity.

Seamless Integration

- IC Compatibility: Designed for seamless integration with high-pressure ion chromatograph systems, allowing for precise conductivity detection.

TECHNICAL SPECIFICATIONS

Combustion Ion Chromatograph - Toron-IC™ 3200 (Online) Technical Specifications

Combustion & Absorption Unit

Parameter	Specification
Furnace Temperature Range	Ambient to 1200 °C
Temperature Zones	5 independently controlled zones
Solid Sample Weight	0-200 mg (recommended 20-50 mg)
Liquid Sample Volume	0-200 µL (manual injection)
Autosampler Capacity	50 positions
Retention Sampler Capacity	46 positions
Oxygen Purity	≥99.999%
Oxygen Flow Range	0-500 sccm

Parameter	Specification
Argon Purity	≥99.999%
Argon Flow Range	0-300 sccm
Absorption Volume	5-100 mL
Injection Accuracy	0.01 mL
Cooling Method	Peltier (minimum 5 °C)
Average Analysis Time	≤30 minutes
Dimensions (Combustion Unit)	2060 × 550 × 770 mm

Ion Chromatograph (Optional Configuration)

Parameter	Specification
Eluent Types	KOH / NaOH / LiOH / MSA
Eluent Concentration Range	0.1-100 mM
Maximum Pump Pressure	42 MPa
Flow Rate Range	0.001-12 mL/min
Suppressor Type	Self-regenerating electrolytic suppressor
Detector Type	Auto-range conductivity detector
Detection Resolution	≤0.0020 nS/cm
Linearity	≥0.999
Quantitative Repeatability	≤0.5%
Minimum Detection Limit	Cl ⁻ ≤0.0003 µg/mL; Li ⁺ ≤0.0001 µg/mL

Parameter	Specification
Power Consumption	150 W
IC Dimensions	360 × 510 × 610 mm
Net Weight	35.5 kg



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