ThermoFisher SCIENTIFIC

# Blaze new trails


## With our fully integrated combustion-ion chromatography system

Thermo Scientific™ Cindion™ Combustion Ion Chromatography System

thermo scientific

# Spark new insights

This fully integrated combustion-ion chromatography (C-IC) system automates screening for potentially corrosive and toxic halogens and sulfur—helping your laboratory ensure both quality and safety.

## A bold way to ignite new insights

Combustion-ion chromatography has become an indispensable tool to screen solid, liquid and gas samples for corrosive and toxic halogens and sulfur constituents by removing potentially interfering sample components.

## Explore even more sample types and application areas

- **Corrosives and sulfur in petroleum products.** Reduce likelihood of damage to storage and transportation vessels; meet requirements to reduce potential pollutants that could result in acid rain and have negative impacts on health.
- **Contaminants in water.** Screen aqueous samples by determining adsorbable organic halogens (AOX) or, in the case of Per- and polyfluoroalkyl substances (PFAS), by measuring adsorbable organic fluorine (AOF).
- **Toxins in food packaging and other consumer products.** Measure the presence and potentially harmful levels of PFAS and other compounds in numerous materials.
- **Banned substances in plastics and electronics.** Detect restricted fluorinated or brominated substances such as fire retardants that can affect recycling or disposal.
- **Corrosives in mining samples.** Determine parameters that could impact the value of ores prior to processing.

## The Cindion C-IC system

Whether you are screening for low levels of PFAS or the presence of corrosive hazardous compounds, your laboratory needs a highly sensitive and consistent platform. With the Cindion C-IC system, your laboratory can determine halogens and sulfur in multiple sample types with minimal operator intervention. The Cindion C-IC system is the solution—a fully integrated system that offers complete automated workflows with robust performance and exceptionally low background levels for the most sensitive detection.

By combining several components into a single module and using a unique, compact combustion tube, valuable bench space is conserved. This high degree of integration simplifies both setup and maintenance, while, unlike other systems, the innovative design minimizes sources of contamination, enhancing sensitivity.

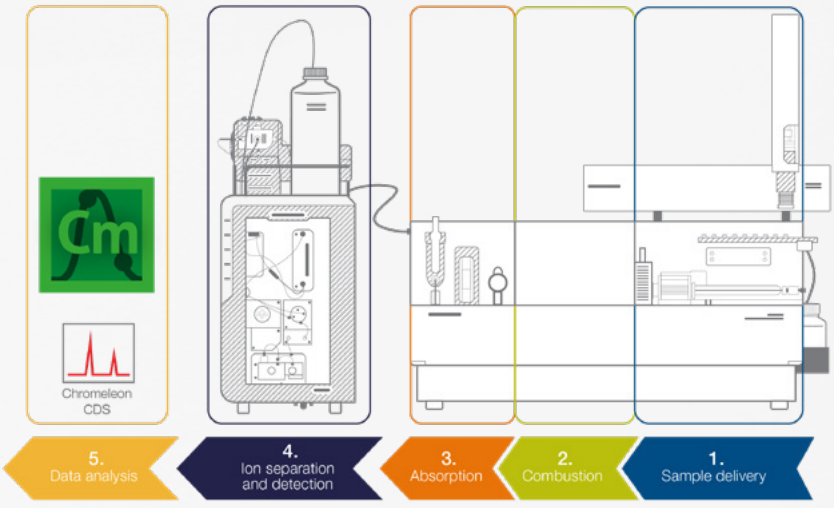
## Consistent, time-saving performance

- **Screen a vast array of samples.** Use C-IC to analyze solid, liquid and gas samples, allowing the investigation of even more product types.
- **Safeguard products and the environment.** Readily detect corrosive and toxic halogens and sulfur.
- **Assure quality.** Maintain high-quality standards by detecting impurities and contaminants.
- **Save time and increase consistency.** Streamline determinations by combining combustion with analysis in a fully integrated system.

# Meet the Cindion C-IC system

### Why the Cindion C-IC system? Integrated solution, innovative benefits

- **Small system footprint.** A novel, compact combustion tube design ensures complete combustion in a shorter distance within the oven. The autosampler and absorption tube are integrated into the combustion/absorption module.
- **Minimized PFAS contamination.** With its sample flow path that incorporates PFAS-free components whenever possible, the Cindion C-IC system eliminates potential sources of PFAS during analysis to deliver the lowest achievable background levels, enabling the most sensitive detection.
- **Industry-leading IC features.** Unique innovations include electrolytic suppression and reagent-free IC (RFIC) eluent generation, which enhance consistency and facilitate ease of use.
- **Single-source convenience.** Acquire the complete system and all consumables from a single vendor for a seamless customer experience.
- **Complete workflow package.** Enjoy an unparalleled breadth of complementary technologies for analytical determinations—especially advantageous for PFAS analysis requiring both targeted and unknown screening analyses.
- **Experience and support.** Count on Thermo Scientific's extensive library of C-IC application notes for multiple sample types and benefit from our 50 years of experience in IC technology.



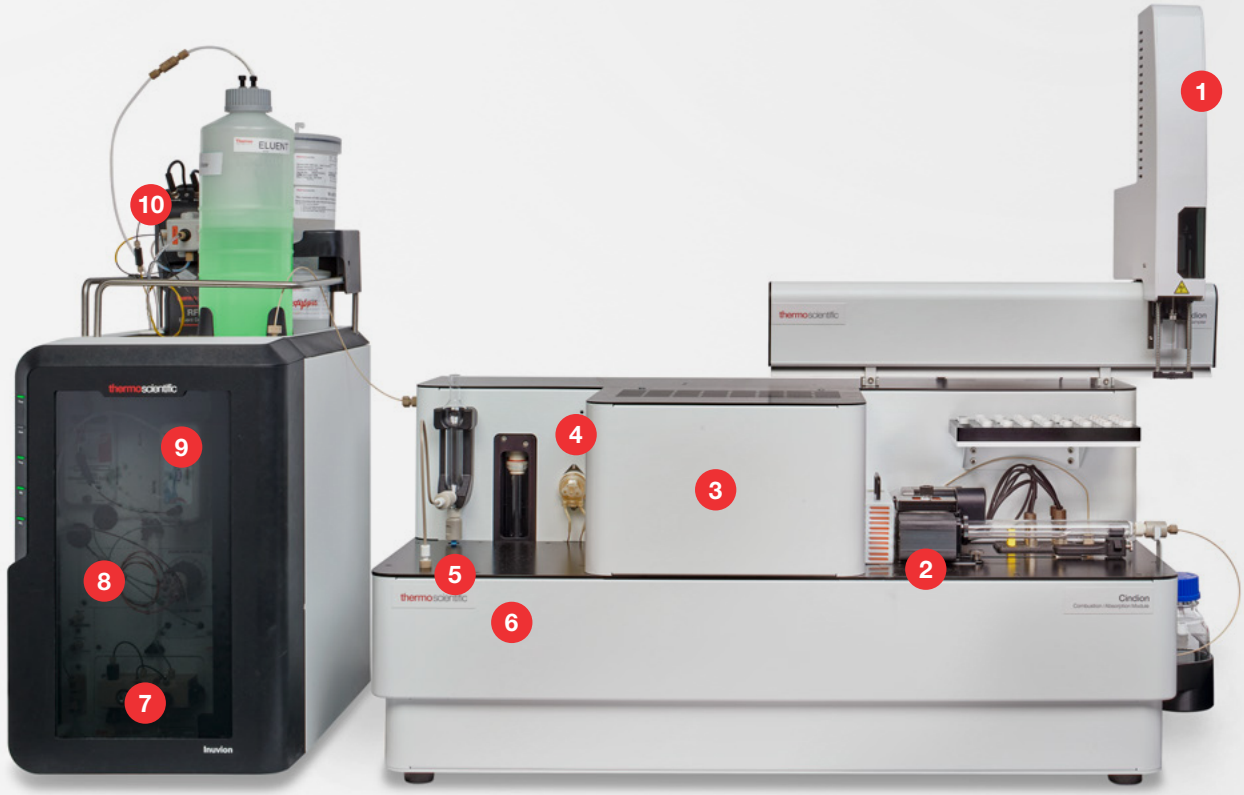

## How does C-IC work?

C-IC is an automated process consisting of several steps:

1. Sample combustion at elevated temperature (~1000 °C) in the presence of humidified oxygen
2. Capture of liberated gases into an absorption solution
3. Injection of an aliquot into an IC system which separates and detects anions
4. Data analysis to determine concentrations of halogens or sulfur compounds present

# System components

The Cindion C-IC system is comprised of three core components: a sample delivery component (either liquid/solid autosampler or gas/LPG injector), a combustion oven with absorption, and an IC system. For those who need to determine adsorbable organic halogens (AOX) or fluorine (AOF), an adsorption module is available that enables the use of granular activated carbon (GAC) columns to screen aqueous samples for the potential presence of toxic compounds.




1. **Versatile autosampler.** Load up to 45 (solid) or 120 (liquid) samples and easily switch between sample types without the need for tools.
2. **Peltier cooled sample introduction.** Reduce cycle time by accelerating the cooling of the boat between samples.
3. **Compact combustion tube.** Enhanced oxygen flow reduces time needed for complete combustion by increasing efficiency.
4. **Smart hydration.** Peristaltic pump delivers water only during sample combustion to minimize usage and preserve tube integrity.
5. **Variable absorption volume.** Optimize the absorption volume based on analytical need.
6. **Reduced sample pathway.** Lower baseline contamination and low sample carryover to decrease wash time between samples.
7. **Advanced high-performance pump technology and electronics.** Take advantage of a wider range of columns and chemistries improving speed and quality of results.
8. **Function driven design.** Quickly and safely access everything on the instrument.
9. **Fast, flexible, convenient electrolytic suppression.** Just connect the suppressor; no external pump or offline conditioning needed for regeneration.
10. **Thermo Scientific™ Dionex™ Reagent-Free™ Ion Chromatography (RFIC™).** Makes eluent preparation as simple as "just add water," while ensuring more consistent results and enabling optimized gradient separations.

# Results you can count on

Getting analytes into solution is only part of the process. Being able to resolve them so that each peak can be accurately quantified is equally integral to reliable, accurate results.

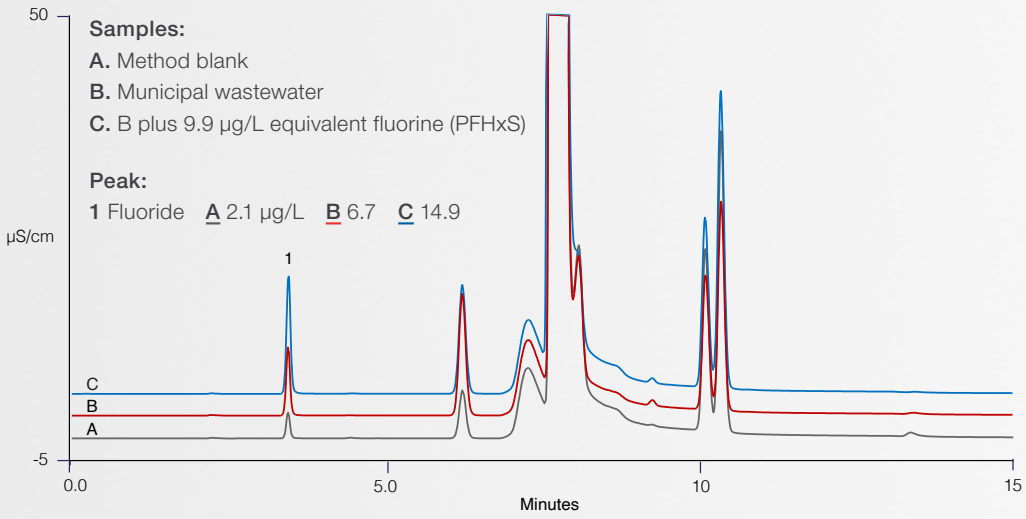



**Figure 1. PFAS as adsorbable organic fluorine (AOF) in municipal wastewater.** C-IC can be used as a screening tool for presence of PFAS compounds by adsorption onto granular activated carbon, subsequent combustion and IC analysis.

Our IC systems are paired with an unmatched portfolio of columns that are optimized to deliver the capacity, selectivity and resolution you need to get the answers you seek.

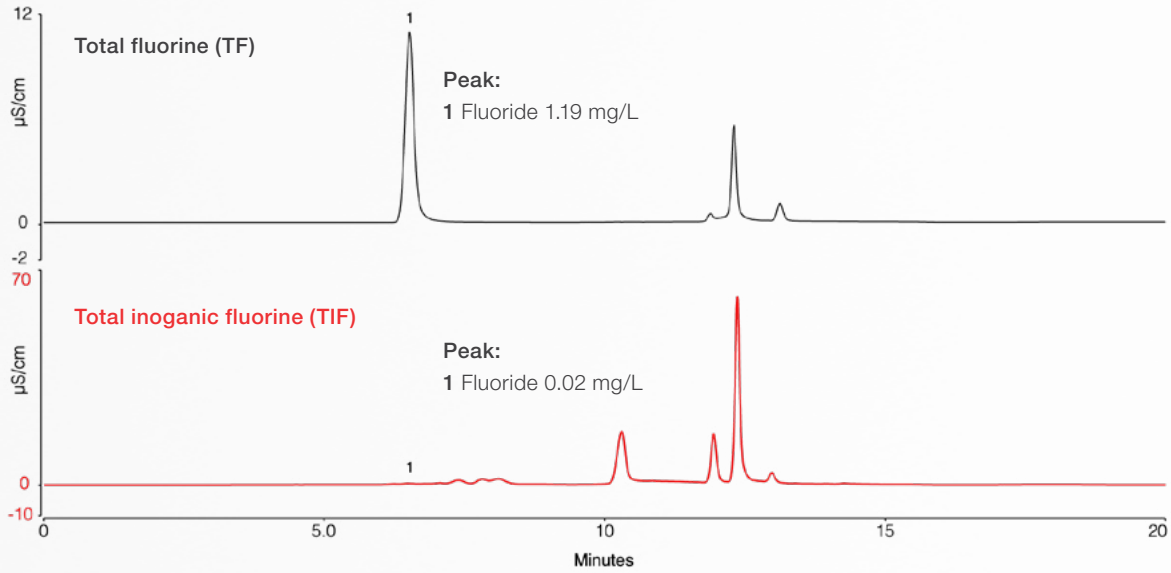



**Figure 2. PFAS in food contact material.** PFAS, as organic fluorine, can be determined by subtracting values for total inorganic fluorine (TIF) from total fluorine (TF) by IC and C-IC, respectively.

## Count on us for the support you need, when and where you need it—so you can focus on your work

When you invest in the Thermo Scientific Cindion C-IC system, you not only benefit from top-quality product performance, you can also enjoy world-class service from Unity™ Lab Services solutions. Our comprehensive service portfolio was designed to meet the needs of your lab. Keep focused on what matters.

unity lab services

We've got your back.

**Learn more at thermofisher.com/unitylabservices**

## A single software solution: Chromeleon CDS

A trusted industry standard all over the world, "Simply Intelligent" Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) software brings out the full power of the Cindion C-IC system. Individual modules are controllable and easily monitored from within the combustion and IC ePanels. Simply set up a single sequence to control the entire combustion and data analysis process, from sample introduction to report generation.

# Let the Cindion C-IC system blaze a path to sample enlightenment

Learn more at **thermofisher.com/cindion**

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