Lumin & Atomx XYZ

Purge & Trap Concentrator

Optimized Solution for Analysis of VOCs in Water

YOUNG IN Chromass

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What is Purge and Trap?

01

What is Purge and Trap?

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Purge and Trap Concentrator?

A purge and trap concentrator is a sample preparation instrument that efficiently concentrates volatile organic compounds in water, soils, sludges and sediments to analyze with superior sensitivity.

01

What is Purge and Trap?

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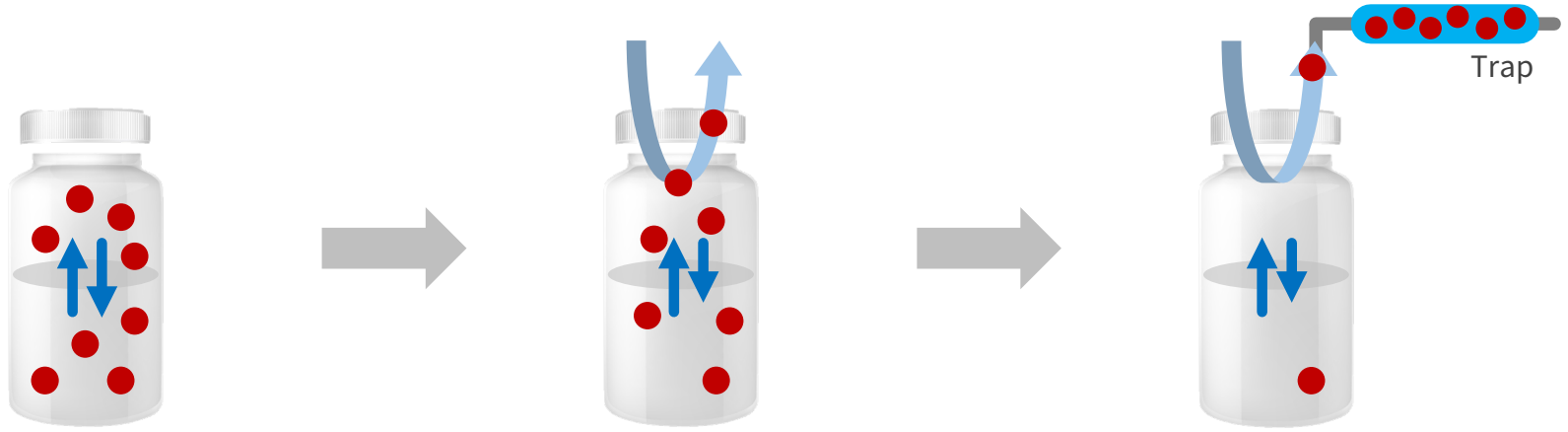
VOC Extraction at Disequilibrium



Purging a sample with an inert gas breaks the equilibrium and triggers extraction of volatile organic compounds from the sample. VOC extraction efficiency is much better than at equilibrium by concentrating the VOCs on a trap.

01

What is Purge and Trap?

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Factors of Purge Efficiency

- Vapor Pressure
- Temperature
- Solubility
- Type of Purge Method
- Purge Volume

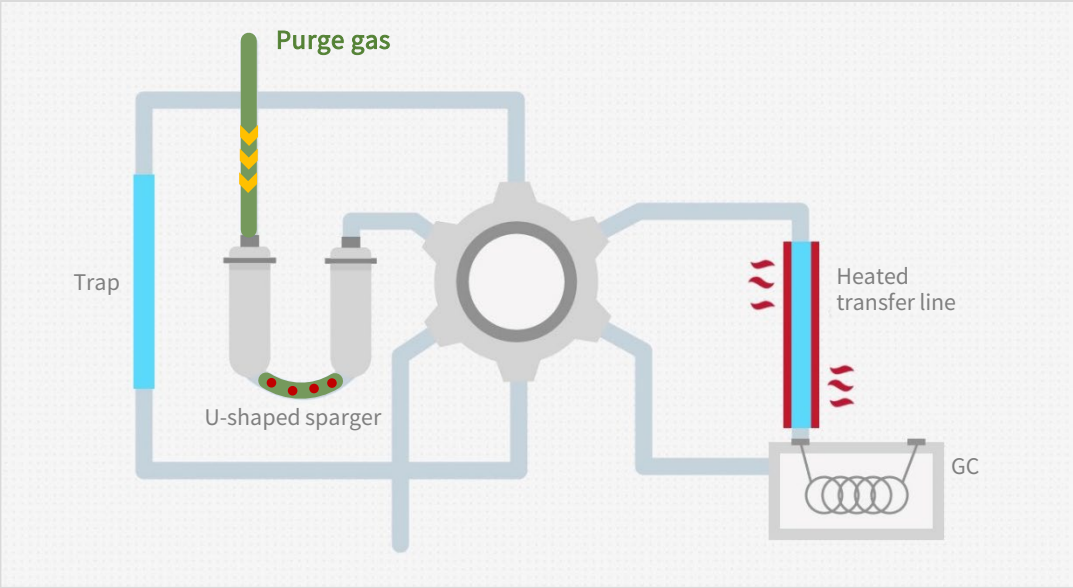
02

How it works

How it works

1) Purge Step

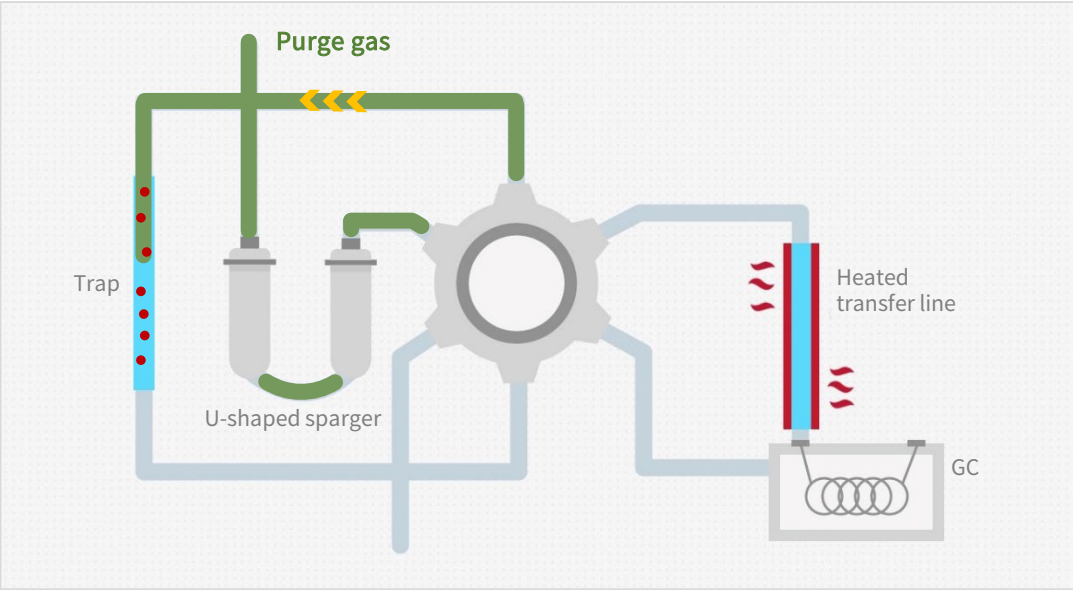
When an inert gas purges the sample in a U-shaped sparger, the VOCs get separated from the sample.



How it works

2) Adsorption Step

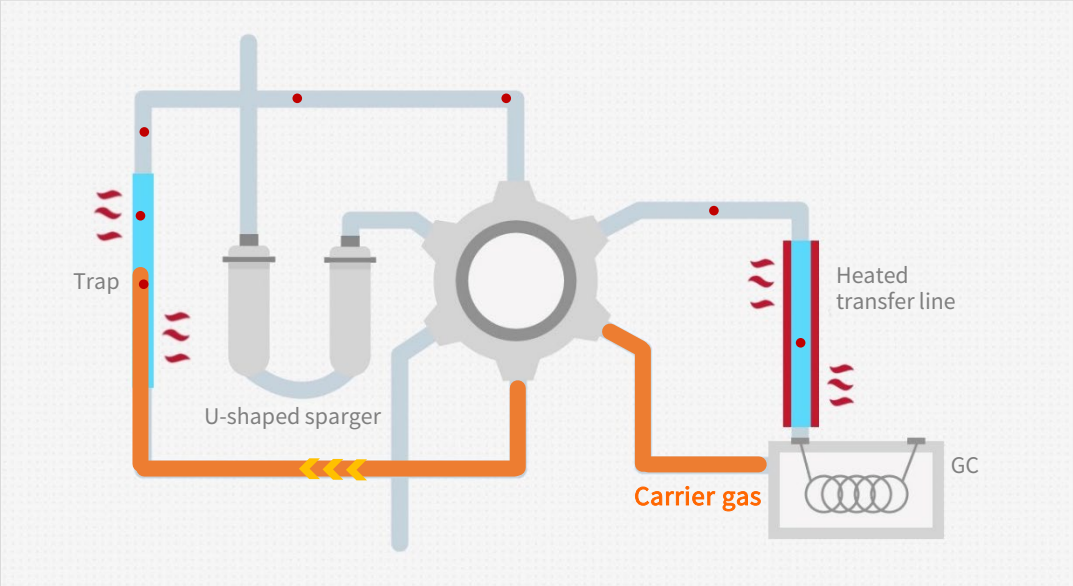
The extracted VOCs are transferred and adsorbed in an analytical trap.



How it works

3) Desorption Step

After the adsorption step, the trap is heated to release the VOCs. Once it is heated enough to desorb the VOCs, carrier gas delivers the VOCs into a GC for separation and detection.



03

Products

Product Overview

Lumin

AQUATek LVA

Atomx XYZ

Products···Lumin

Lumin

Features

- Stand alone type purge and trap concentrator
- Faster trap cooling system
- Improved moisture control
- Reduced total run time
- Increased sample throughput
- Easy maintenance
- Guardian foam sensor (option)
- Guardian and eliminator (option)

Products···AQUATek LVA

AQUATek LVA

Features

- Fully automated purge and trap autosampler
- Increased productivity
- XYZ Platform
- 84-Position sample tray
- Stackable configuration
- Vial chiller for sample cooling

  (requires an optional external recirculating cooling bath)
- pH probe (option)

Products···Atomx XYZ

Atomx XYZ

Features

- Integrated model of autosampler and P&T concentrator
- Patented three-stage single needle design
  - in-vial sparging, water removal
- Designed for environmental samples with complex matrices
- XYZ Platform
- 84-Position vial tray
- Vial chiller (option)
- Improved moisture control
- Faster trap cooling system

04

Features

Features···New Trap Design

- U-shaped trap minimizes path length
  → Enhanced efficiency
- Reliable trap heating
- Faster cooling down times than previous model
  → 22 % or more faster!
- Increased sample throughput

Features···Innovative Moisture Control System

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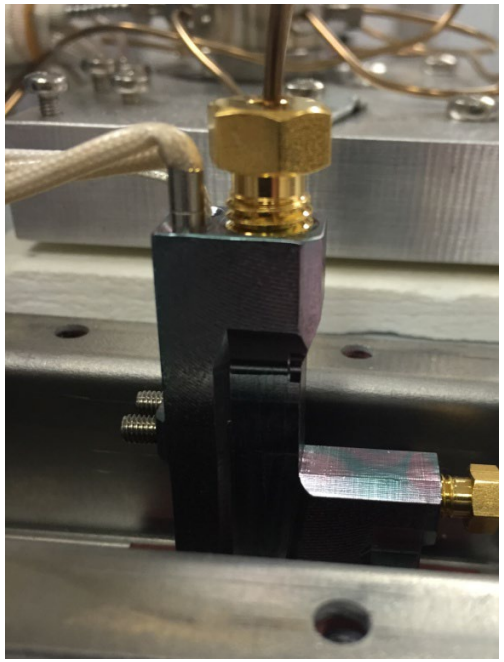
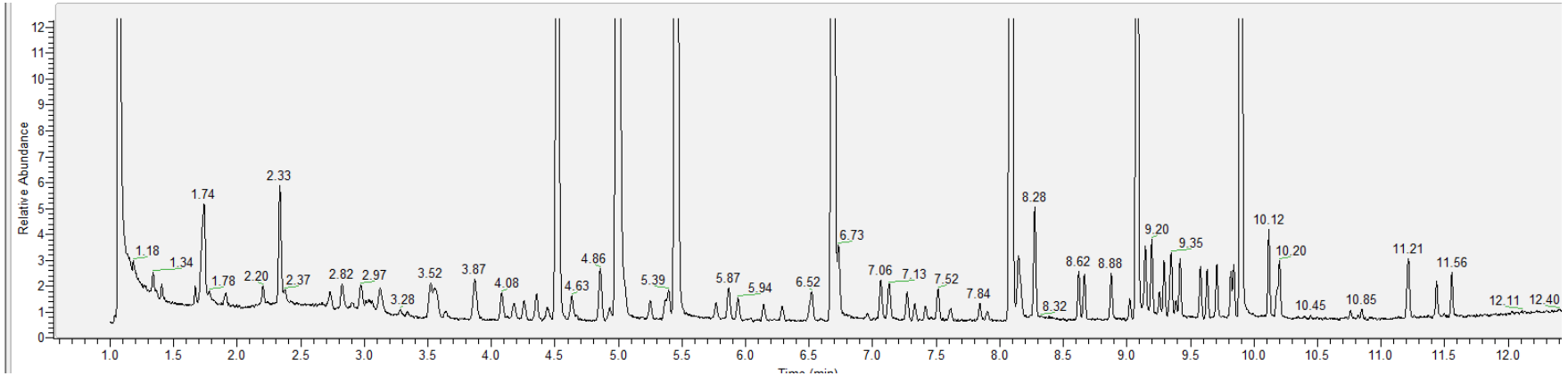
- Improved moisture management
- Reduced water vapor removal up to 60% of H_2O than previous models
  - → Reduced peak interference
  - → Increased GC column lifespan



04 Features···Increased Sensitivity

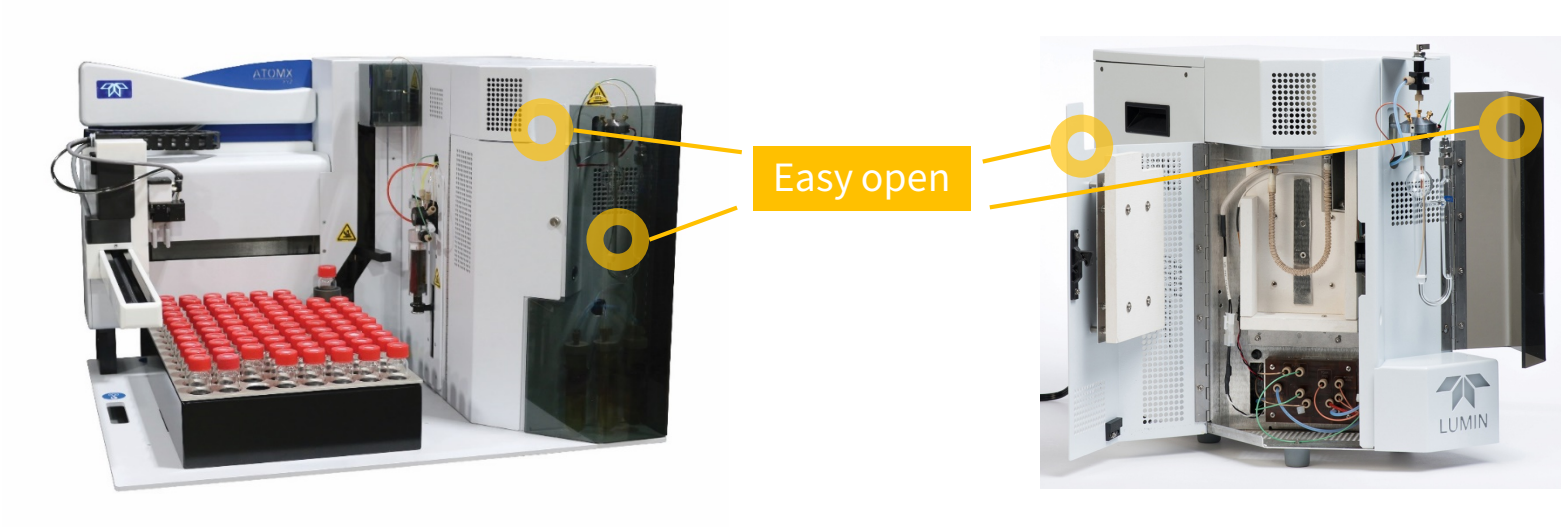
MDL is shown below 0.5ppb on most of the target compounds



Atomx XYZ water 0.5 ppb Standard

Features···Easy Maintenance

- Simplified layout of internal components
- One door access to trap oven – Just open it without tools
- Consolidated solenoid valve manifold



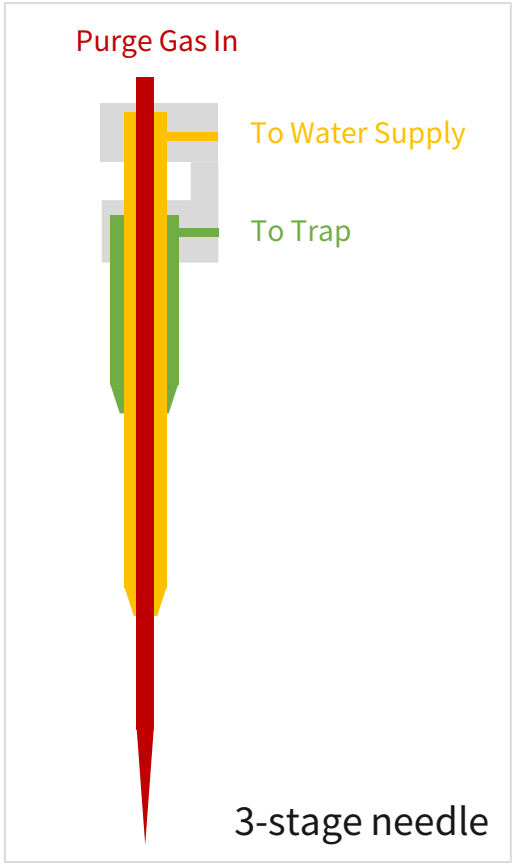
Features···Optional Expandability

- Optional vial chiller tray
  - 10 °C or less capability
  - Re-circulating bath is required
- Optional foam sensor and eliminator
- Optional sample glassware heater

Features···3-Stage Needle Design

utilized in Atomx XYZ

- For environmental samples from liquids to soils
- Optimized design for versatile extractions
  - in-vial sparging
  - methanol extraction
  - water removal
  - liquid addition

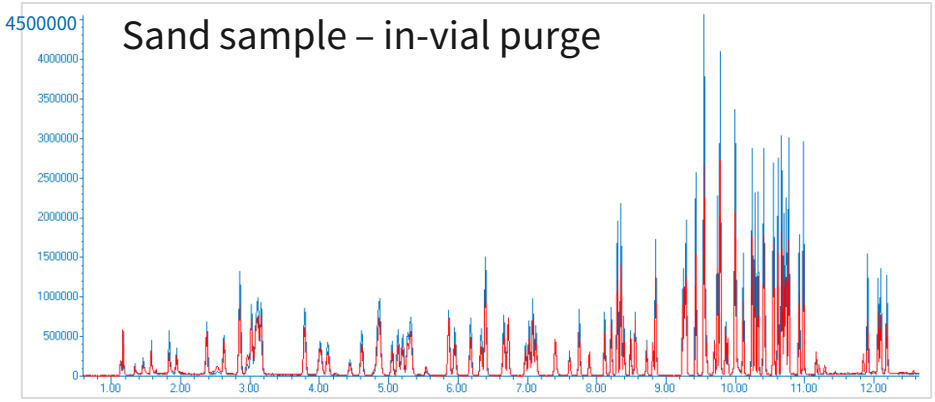


Features···In-vial Purge vs MeOH Extraction

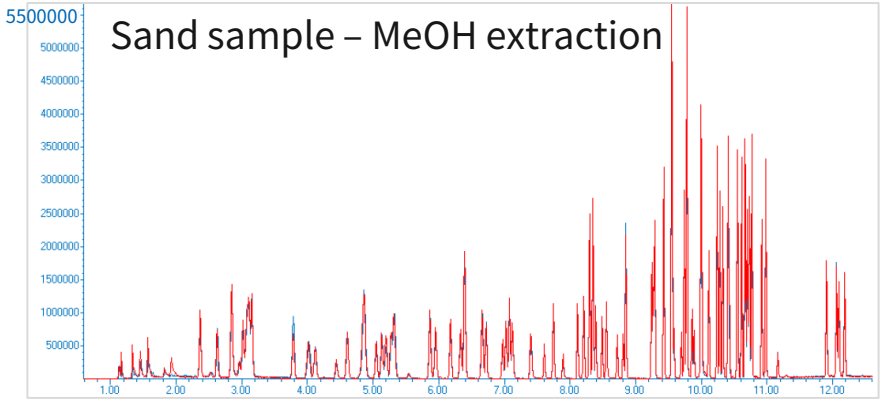
utilized in Atomx XYZ

- In-vial purge for low concentration of sample
- Methanol extraction for high concentration of sample

: Increased sensitivity without water interference



Blue = water standard



05

Application in Use

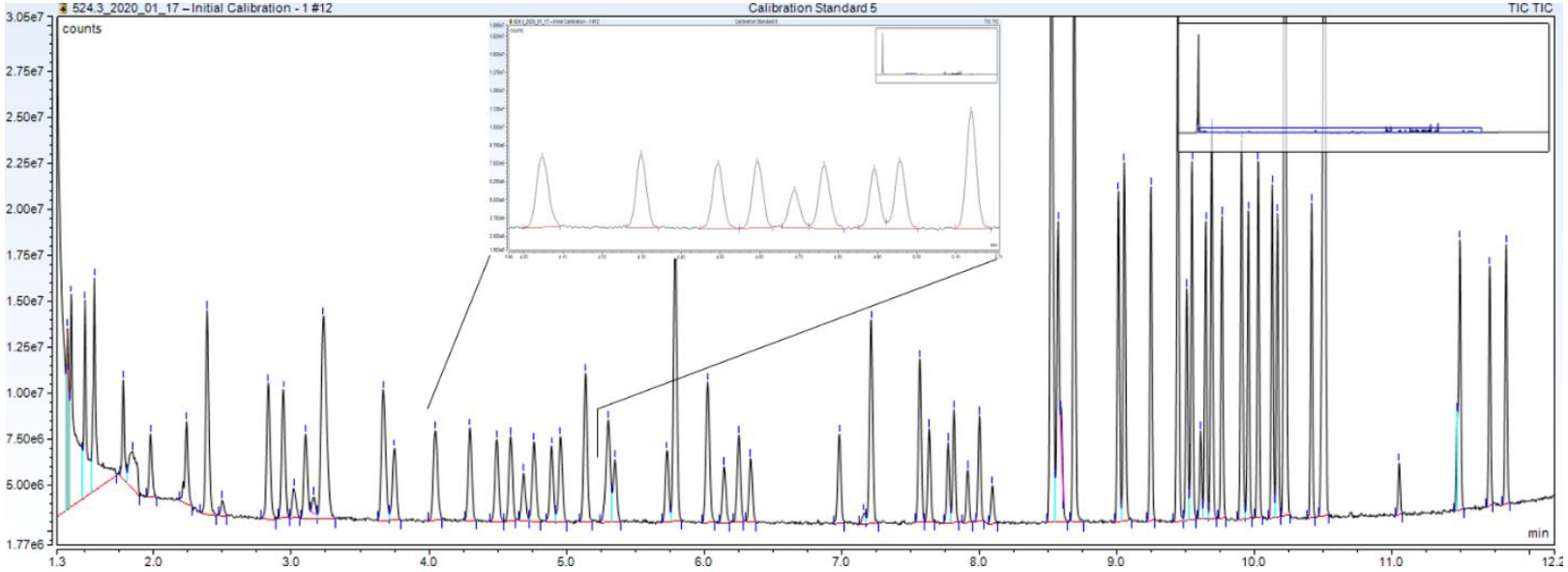
Application in Use

Analysis of VOCs in Drinking Water

- US EPA Method 524 for VOCs in Drinking Water
- US EPA Method 5030C for VOCs in Aqueous Samples
- US EPA Method 502.2 for VOCs in Water
- Analysis of Epichlorohydrin in Drinking Water

Application in Use

Analysis of drinking water according to US EPA Method 524.4



TIC of water method, 77 of 5 ppb VOC standard compounds with no water interference

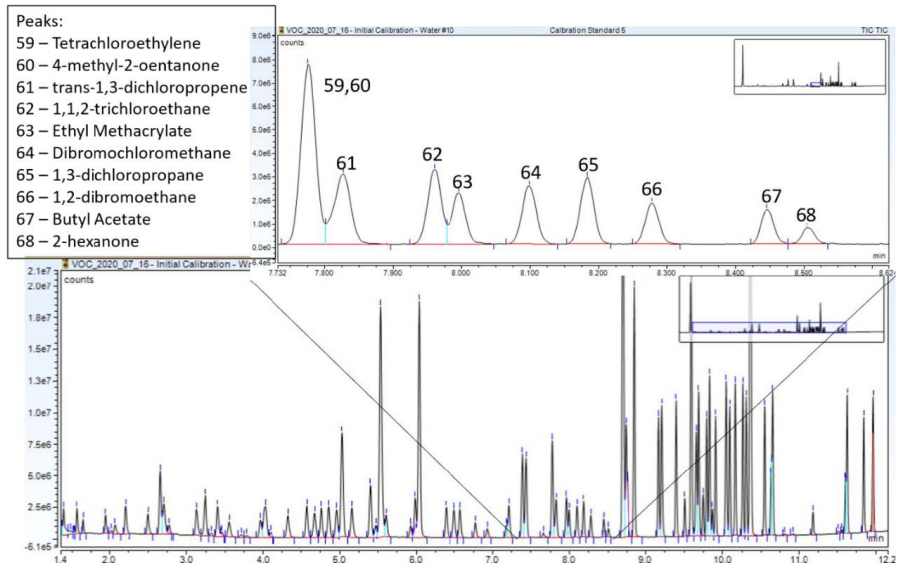
Application in Use

Analysis of VOCs in Soils

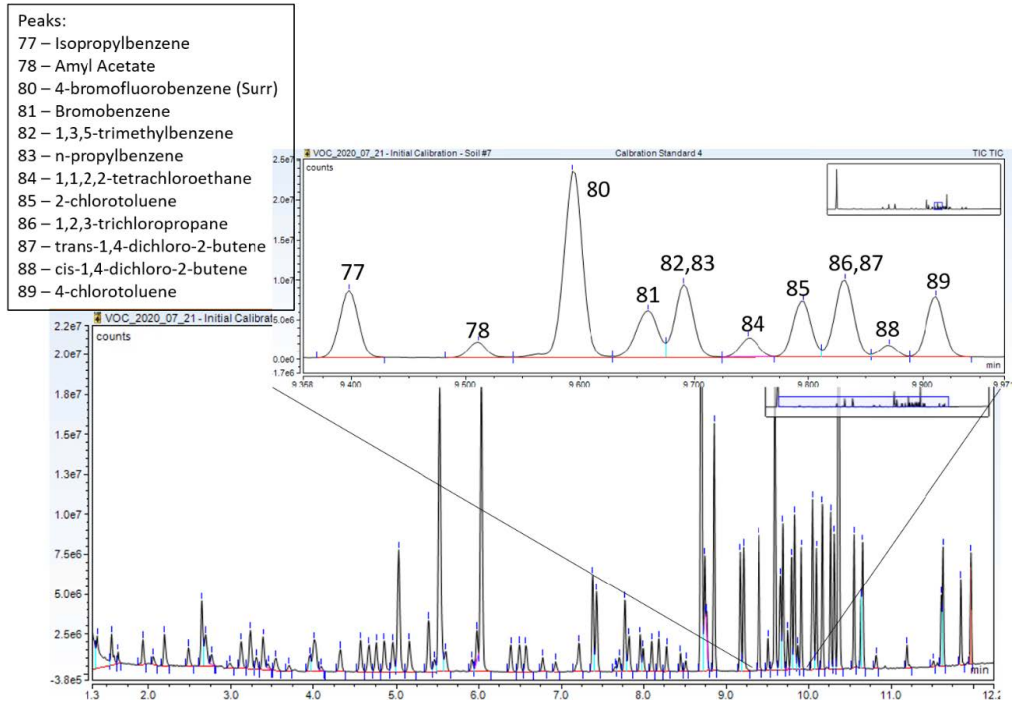
- US EPA Method 8260 for VOCs in Soils and Water
- US EPA Method 624 for VOCs in Wastewater Samples
- US EPA Method 5035 for VOCs in Solid Materials (Soils, Sediments and Solid Waste)

Application in Use

Analysis of VOCs in water and soil according to US EPA Method 8260



TIC of water method,
104 of 5 ppb VOC standard compounds



TIC of soil method,
104 of ppb VOC standard compounds

Application in Use

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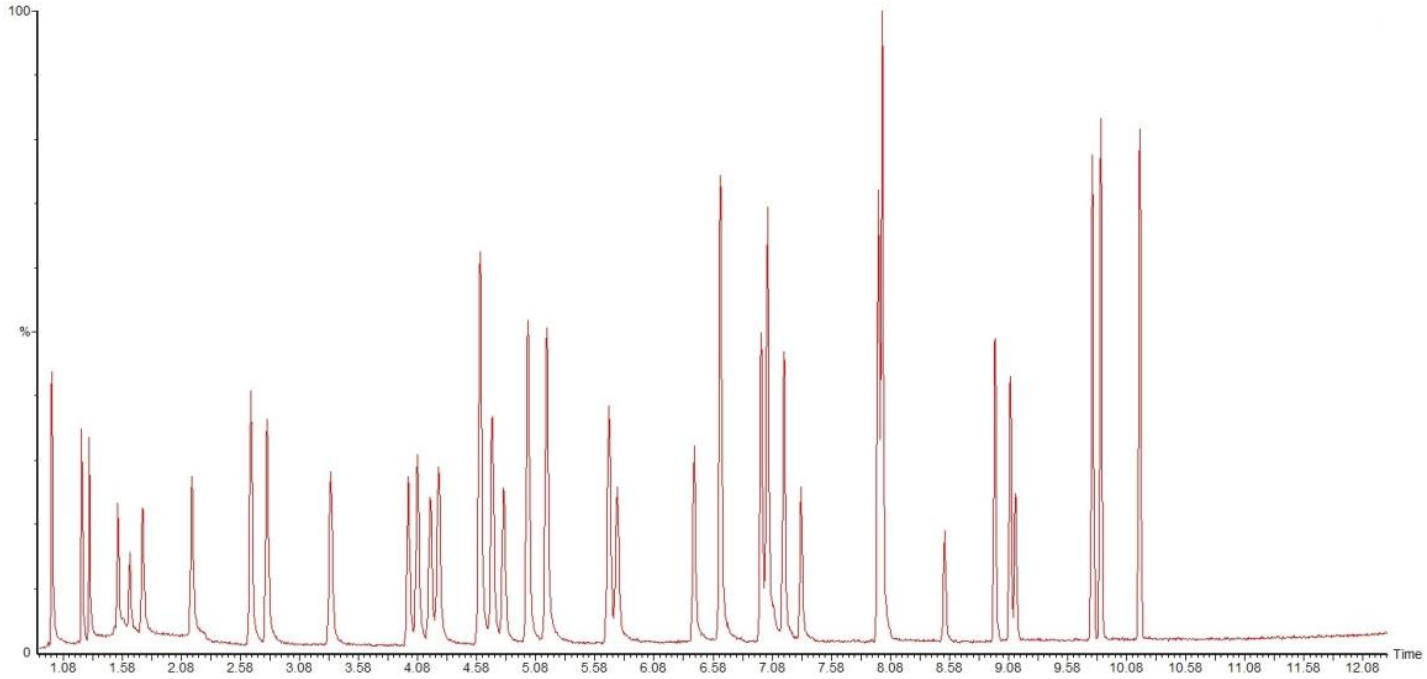
Analysis of VOCs in wastewater according to US EPA Method 624



TIC of 30 ppb VOC standard indicating consistent peak shapes with no water interference