Trace Elemental
Instruments

Configuration: XPLORER with NEWTON 60 positions*

// XPLORER

Full range AOX, TOX, POX and EOX instruments for the modern environmental laboratory

TE Instruments has developed the **XPLORER**, an AOX, TOX, POX and EOX analyzer offering fast, accurate and precise analysis of organic halogens. This brand new model is designed to offer customized solutions to match both current and future analytical needs.

www.TE Instruments.com >>

Configuration: XPLORER with manual Liquids Module*

Speed & Performance with minimal footprint

Key features include:

- Compact design, smallest elemental combustion analyzer available in today's market
- Fast generation of sample queues and application methods with TE Instruments Software (TEIS)
- Short start-up time (less than 15 minutes)
- Fast and precise measurement of soil and liquid samples
- Easy to use and intuitive user interface
- Compact, stackable auto sampler for high sample throughput and low cost per analysis
- Ultra-low detection limit, high stability and reliability due to the temperature controlled titration cell
- Low maintenance, optimal combustion and conditioning of gases results in near to zero downtime
- Fast and easy switching between AOX, TOX, POX and EOX analysis, resulting in high productivity
- ISO, DIN, NEN, EPA and CEN compliant

Configuration: XPLORER with POX module*

Vertical Liquids Module*

High Performance and High Throughput out of a small footprint

The **XPLORER** is designed to measure rapidly and precise in a wide range of liquid and solid matrices. It is ideal for laboratories performing Organic Halogen analysis, if necessary for round-the-clock operation. The AOX, EOX and POX modules are easily interchangeable. In the AOX manual introduction mode, just one sample cup or frit handling is needed to get spot on results.

Assisted by a unique solid cup slider principle, the sample cup simply utilizes Newton's law of gravity, by allowing the cup or frit to "fall" into the boat, before entering the horizontal furnace.

When the boat returns from the furnace, the slider moves to the eject position, where the "burned" cup or frit is collected for re-use, without any pile-up in the furnace tube.

The **XPLORER** can be upgraded with the TE Instruments **NEWTON**, a solids auto sampler for full automation of the AOX batch & column method. For direct injection of AOX columns, TE Instruments offers the **TUSCAN**, a column auto sampler with 42 positions.

How does it work?

Once the pre-treatment is completed, the samples are oxidized at high temperature.

The combustion gas, carrying halide ions, is led into a sulfuric acid scrubber for rapid water and interference removal. The dried and clean gas is led into the temperature controlled titration cell, where the halide ions react with silver ions, present in the titration cell.

The amount of charge (the integral of the regeneration current over the measuring time) used to regenerate the lost silver ions, is directly related to the Halogen content of the sample.

COMBUSTION:

$R\text{-}X + O_2 \longrightarrow HX + CO_2 + H_2O$

TITRATION:

$HX + Ag^+ \longrightarrow H^+ + AgX$

ANODE:

$Ag \longrightarrow Ag^+ + e$

Compliance and Regulations

Our instrument complies with, but is not limited to, the following international standards for:

AOX/TOX	DIN 38409 part 14 DIN 38414 part 18 ISO 9562 ISO 11480 EPA 9020 EN 1485
EOX	DIN 38409 part 8 NEN 5777 NEN 5735 NEN 6402 NEN 6676
POX	NEN 6401

For a complete overview of regulations & compliance, please visit:
www.teinstruments.com/regulations

TE Instruments Analytical Software (TEIS):

Ensuring intuitive and smooth control of your analysis. The user interface of the TE Instruments Software (TEIS) hardly needs any explanation. Its simplicity ensures smooth operation of the **XPLORER** series, with intuitive controls and operation features. TEIS assists the user to achieve routine analyses in an efficient, fast and reliable way. Instrument operation remains simple. This resourceful software makes it possible to modify sample lists, evaluate data and calibration lines, completely independent. Results can be presented in customized print reports or exported in a variety of data formats. Sensor readings and generated log files help the user to handle daily matters and plan a service intervention ahead in time. No suprises!

FEATURES

One software solution for all TEI analyzers
Real time measurement curves
Multi-Elemental analysis
Selectable user and service levels
Customized applications and analysis methods
Fully multi-tasking

BENEFITS

Reduces complexity and improves productivity
Maximum analysis control, compare samples
Optimal analysis control and time saving
Security and data integrity
Full and flexible control of the analysis/system
Efficient, user friendly

Meeting the toughest Standards and Regulations

Most of the organic halogens found in nature are toxic, carcinogenic, persistent and bio-accumulative.
Over time, these might pose a threat to the environment and to mankind. As a consequence, regulatory authorities around the globe have issued mandates defining maximum permissible levels of these compounds in soil and water.
Analyzing their specific composition in order to identify whether they stay within the permissible limits is both difficult and time consuming. Therefore, standard methods have been developed to ensure fast and reliable screening for routine analysis. In general, there are three different methods:

- AOX/TOX (Adsorbable / Total Organic Halogens)
- POX (Purgeable Organic Halogens)
- EOX (Extractable Organic Halogens)

Reference Methodology

Microcoulometry is the reference method for the determination of total organic halogen content in AOX, TOX, POX and EOX samples. This method complies with ISO, DIN, NEN, EPA and CEN leading to fast, quantitative, economical and absolute results. Our product range for environmental solutions provides a perfect match to these standard methods, helping our customers to meet the toughest requirements.

Environmental Applications

Fast screening of organic halogens greatly relies on the analysis of AOX, TOX, POX and EOX content. TE Instruments coulometric systems are the new bench mark for many applications:

- Drinking water
- Surface water
- Ground water
- Effluent water
- Influent water
- Waste water
- Cooling water
- Salty water
- Process water
- Pulp and paper products
- Soil
- Sediment
- Sludge and waste oil

Solution provider for the following industries:

- Environmental laboratories
- Drinking water laboratories
- Pulp and paper laboratories
- Governmental Institutes
- Research Facilities
- Universities

ADD-ON

XPREP-3: Effective Batch & Column filtration. Pre-Treatment for AOX and TOX Samples

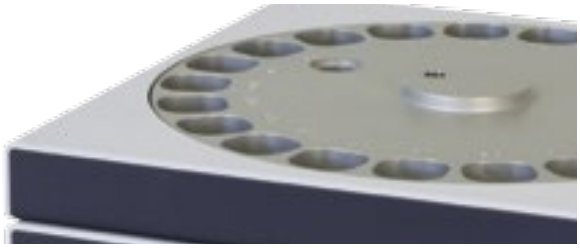
TE Instruments has developed AOX/TOX sample pre-treatment systems that take advantage of proven methodology to satisfy today's analytical needs.

The **XPREP-3** is a three channel sample filtration unit designed to use for both batch & column method. The instrument consists of three independent filtration units, all of which can be equipped with quartz frit filters or joint columns. The quartz frit separates the water from the activated carbon after the adsorption stage, the column method adsorbs the halogens, while the water runs through at a rate of 3 mL/min.
Each autonomous channel is pressure- and therefore speed adjustable, while running both filtration methods.

Key features include:

- Intuitive & Easy operation
- Universal unit, suitable for both Batch & Column method
- Compact size
- Closed filtration system, preventing any risk of contamination from laboratory environment
- Re-usable and self-cleaning quartz frit
- High filtration speed for frit method
- Independent and complete control of sample flow speed over the columns (per channel)
- Adjustable input pressure control

ADD-ON



NEWTON auto sampler: Absolute sample control

TE Instruments **NEWTON** is a stackable batch & column auto sampler designed for accurate and fast introduction of samples into the **XPLORER**. The **NEWTON** has been especially developed to comply with the AOX Batch & Column method. It is a simple and user friendly system. The purge flow and protective lid of the sample carousel offers optimum preservation of samples. In conjunction with TE Instruments TEIS software, the **NEWTON** auto sampler allows sample cup & frit introduction, increasing sample throughput and efficiency. The size of the sample cup allows dual column introduction. The standard 20 position sample tray can be extended with a second and third carousel in order to provide a capacity of 60 sample positions. The auto sampler is directly coupled with the slider introduction module.
Sample cups and frits are simply released into the quartz sample boat and transferred into the furnace.
Once analyzed and cooled down, clean sample cups are retrievable from the collection point and can be re-used immediately.

Key features of the NEWTON auto sampler are:

- Optimal preservation of samples using purge flow and a protective lid on the sample carrousel
- Tray suitable for sample carrying
- Sensor check on sample handling, introduction and retrieval
- Around the clock productivity
- Fully controlled by TEIS software
- Stackable with second & third tray (max 60 positions)

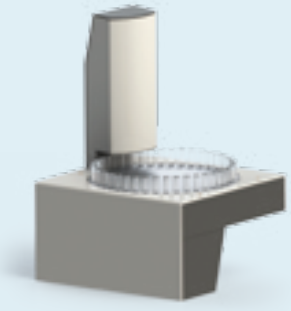
Option: Archie Auto sampler

auto sampler Archie*

TE Instruments is proud to introduce our robotic liquids auto sampler, Archie.

Unlike previous generation liquids samplers, the **Archie** uses a 100 µL syringe to inject the sample with utmost precision into a vertical liquids, or boat introduction module at controlled speed, forming a perfect match with the **Xplorer** analyzer for EOX.

Option: Tuscan Auto sampler

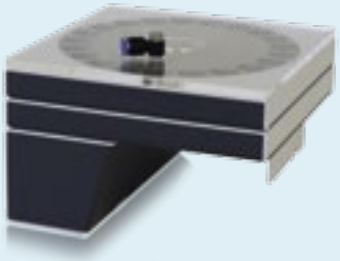


auto sampler Tuscan*

Tuscan auto sampler, for absolute sample control, measuring up to 42 columns unattended.

TE Instruments **Tuscan** is a stackable column auto sampler, designed for accurate and fast introduction of columns into the **Xplorer**. It is a simple and user friendly system capable of running 42 columns in a row unattended! For more information see our **Xprep** & **Tuscan** brochure.

Option: Newton Auto sampler



auto sampler Newton*

Newton auto sampler, for absolute sample control, measuring up to 60 samples unattended.

TE Instruments **Newton** is a stackable batch & column auto sampler, designed for accurate and fast introduction of samples into the **Xplorer**. It is a simple and user friendly system capable of running 20, 40 or 60 samples in a row unattended!

Xplorer System Specifications

Dimensions (W x H x D)	36 x 27.2 x 69 cm (14.2 x 10.7 x 27.2 inch)
Weight	29 kg (64 lbs)
Voltage	100-240 V, 50-60 Hz
Power requirement (max)	1150 W
Gas connectors	⅛" Swagelok
Gases	Oxygen 99.6 % (2.6), Argon 99.998 % (4.8)
Input gas pressure	3-10 bar
Internal gas pressure	1.8 bar, adjustable
Furnace voltage	Dual zone, low voltage
Furnace temp. (max)	1150 °C (2100 °F)
Furnace cooling	Pulling Fan, auto control
Sample introduction AOX/TOX	Solid introduction by quartz boat
Sample introduction EOX	Direct injection by liquids module
Sample introduction POX	Introduction by POX module
Solids:	5-1000 mg
Boat driver	Software controlled, adjustable
Slider/shutter driver	Software controlled, adjustable
Detector	SMD, Digital Coulometer
Detector accuracy	Better than 2% CV
Titration cell conditioning	Temperature controlled, adjustable
Software	dot.NET-based, TEIS software
Ambient temperature	5-35 °C (41-95 °F)

*Used images are examples of configurations which may deviate from ordered configurations.