



Trace Elemental  
Instruments



## // 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](http://www.TE Instruments.com)

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## Speed & Performance with minimal footprint

### Key features include:

- Compact design
- 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
- CEN, DIN, EPA, ISO and NEN compliant





### High Performance and High Throughput out of a small footprint

The TE Instruments analyzer is designed to measure rapidly and precisely 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-20, a solids auto sampler for full automation of the AOX batch & column method.

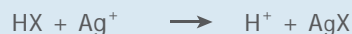
### How does it work?

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.

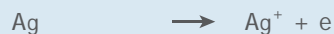
#### COMBUSTION:



#### TITRATION:



#### ANODE:



### Compliance and Regulations

Our instruments comply with the following international standards for:

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



*No future without sustainability...*

### **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 and EPA, 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 meeting the toughest requirements.

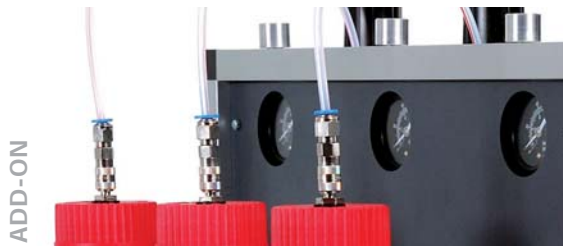
### **Environmental Applications**

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 and Research Facilities
- Universities



### **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 laboratories' analytical needs.

The **XPREP 3** is a 3 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 running through them 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



### **NEWTON 20 auto sampler: Absolute sample control**

TE Instruments **NEWTON 20** is a stackable batch & column auto sampler designed for accurate and fast introduction of samples into the Xplorer. The **NEWTON 20** 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 20** 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 cup 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 reused immediately.

#### **Key features of the NEWTON 20 auto sampler are:**

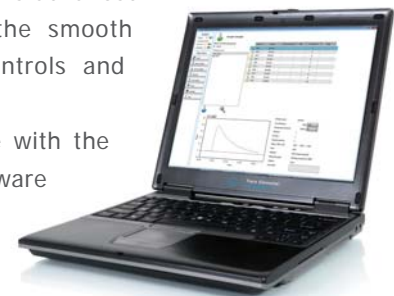
- Optimal preservation of samples using purge flow and a protective lid on the sample carousel
- Tray suitable for sample carrying
- Sensor check on sample handling, introduction and retrieval
- Around the clock productivity
- Fully controlled by TEIS software
- Stackable with second & third tray (max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



...it all starts with clean water.

### TE Instruments Analytical Software (TEIS):

Ensuring intuitive and smooth control of your total halogen analysis. The advanced user interface of the TE Instruments Software (TEIS) ensures the smooth operation of the AOX, EOX, POX analyzers with user-friendly controls and operation. TEIS assists the user to achieve routine analysis in an efficient, fast and reliable way. Instrument operation remains simple with the incorporation of clear and user friendly icons. This resourceful software makes it possible to modify sample queues, evaluate data and calibration lines, while running analysis. Results can be presented in customized print reports or exported in a variety of data formats.



#### FEATURES

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

#### BENEFITS

- Reduces complexity and improves productivity
- Maximal analysis control, compare samples at a glimpse
- Optimal analysis control and time saving procedure
- Security and data integrity
- Full and flexible control of the analysis/system
- Efficient, user friendly and time saving

### XPLORER System Specification

Dimensions (W x H x D)	40 x 28 x 70cm (15.7 x 11 x 27.6 inch)
Weight	29kg (64lbs)
Voltage	100-240 V, 50-60 Hz
Power requirement (max)	1150 W
Gas connector	1/8" Swagelok
Gases	Oxygen 99.6 % (2.6), Argon 99.998 % (4.8)
Input gas pressure	2-10 bar
Internal gas pressure	1.8 bar, adjustable
Furnace voltage	Dual zone, low voltage
Furnace temp. (max)	1150 °C (2102 °F)
Furnace cooling	Pulling Fan, auto control
Sample introduction AOX/TOX:	Quartz boat
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)

