

# TOTAL CHLORINE & AOX ANALYZER **HELIOS CL**

## ACCORDING STANDARDS

ASTM D4929 / ASTM D5808  
ASTM D6721 / ASTM D5194  
UOP 779 / UOP 910 / EN14077  
ISO 9562 / ISO 11480



**FOR LIQUID, SOLID AND GAS SAMPLES**

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## HELIOS CL

HELIOS CL for Total Chlorine (Halogens) measurement in all types of samples (matrices).

It is used by Refineries, Environmental Monitoring Services, Industries, Research bodies, Quality Control as well as contract laboratories to measure Total Chlorine in mainly:

liquid, oil, biofuel, lubricating oil, solvent, water, plastics, sediments, chlorinated PVC, paper pulp, coal, tar, cements, soils, palm oil, gas, LPG, solid samples.....

### Two configurations, Two prices:

- For only liquid (even viscous) and gas (even LPG) samples.
- For all types of matrices, also used to measure Total Chlorine in AOX, EOX, POX.

## CHLORINE ANALYSIS

### Total Chlorine in liquid, gas and lpg samples:

Thanks to our Autoinjector (single shot) or the Mini-Autosampler (Mini-PSR) 6 positions or the Autosampler (Big-PSR) 50 positions, it is possible to inject automatically sample in the Pyro-Combustion furnace and perform measurement.

For gas and LPG the injection is performed with the Autosampler (G-PSR).

### Total Chlorine in Solid and AOX, POX, EOX samples:

Sample is directly introduced in the Pyro-combustion furnace with a boat or cup.

For AOX, samples must be pre-treated with batch method or with column method.

If the sample is inert to the electrolyte, the measure is directly carried out in injecting directly into the titration cell without using the combustion system.

Halides in liquids or emulsions can be measured directly. Suspensions and solids can be treated in the same way if the halides to measured are extractable.

## ADVANTAGES OF HELIOS CL:

- **Absolute titration method (as in volumetry). No need to calibrate, auto calibration and absolute method (it is possible to calibrate if you wish).**
- **Replacing the H<sub>2</sub>SO<sub>4</sub> absorber with drying / flushing system automatically managed by the device. This helps avoid handling acid.**
- **Measure of very small quantities of electricity, up to 0.1 nano Faraday and very large up to 100 nano Faraday.**

It is possible to make various calibrations, according measurement ranges as well as method of calibration and save them in the software.

## HIGH PERFORMANCE AND FLEXIBILITY

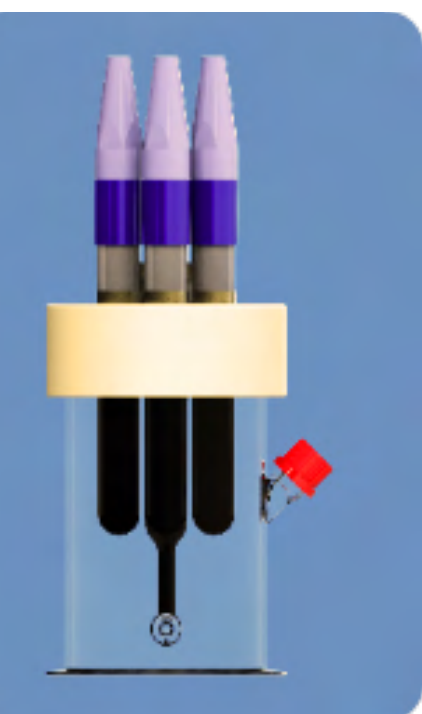
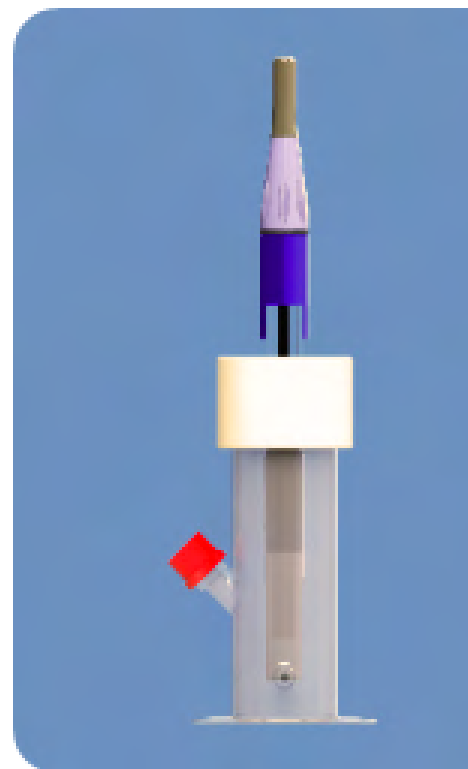


Accuracy, repeatability and reliability are the keys. We offer single analyzer with two titration cells, which could be placed at the same time:

- Cell of medium volume, used for sample having less than 1 ppm to 3000 ppm.
- Cell of large volume, used for sample from 1000 ppm to 80% (without dilution).

### Accordingly, we offer three types of electrolytes:

- electrolyte very low concentration, for traces, for samples less than 1 ppm.
- electrolyte low concentration for samples 1ppm to 3000ppm.
- electrolyte high concentration for samples 1000ppm to 80% (without dilution).



### Some features:

Protective cover against lights effects, semi-pressured cell, refreshing/heating option, auto-flushing system, septum for direct injection, very easy to fill and empty.

**You understand now, thanks to these precautions, you don't need to frequently replace the electrolyte...save time and chemicals.**

**All these configurations/options/choices allow to reduce pollution, to increase sensitivity and to improve accuracy.**

## ANALYSIS PRINCIPLE & SPECIFICATIONS



Sample is introduced and combusted in the Pyro-combustion furnace. The resulting gas is led to the titration cell after drying system. In the titration cell silver ions are generated by the silver electrode, and the titration takes places.

The concentration of Chlorine is obtained (calculated) from the quantity of electricity required to perform the titration.



### Automatic control:

It consists in controlling the addition speed of titrating species, and so the electrolysis intensity value, according to the dependant parameter value (pH, potential...), to reach as fast as possible a set-point without going over.

Parameters allowing the adjustment of auto control ,

- **Maximum authorized intensity** Maximum speed of the titrating addition.
- **Minimum authorized intensity** Minimum speed of the titrating addition.
- **Set-point** titration end potential.
- **Preview set-point** Potential from which intensity decreases.

<b>Injections</b>	20 to 80 µl liquids / 10 ml gas / 20 µl LPG
<b>Supply gas</b>	Oxygen 99.998% - 3 bar      Argon 99.995 % - 3 bar.
<b>Electric</b>	110 V / 230 V / 60Hz - 50 Hz / 800W
<b>Furnace</b>	Temperature Furnace F2 up to 1100°C
<b>Dimensions (W x H x D)</b>	66 cm x 83 cm x 56 cm / weight 32 kg

Analyzer with vertical furnace configuration and analyzer with horizontal configuration furnace has the same performances mainly for liquid and gas samples.

## PYRO-COMBUSTION SYSTEM



As a manufacturer of tubular furnaces for industry and scientific research, we pay particular attention to the design and manufacturing of the combustion systems and combustion tube for our analyzers.

**Nowadays, some famous international brands use our furnaces for their analyzers, this is the sign and proof that we have wide know-how and better technology.**

The combustion efficiency, has a direct impact to measurement results. Combustion with injection and oxydation temperature well controlled, without soot production is one of the key of reliable measurement.

- Very robust furnace, guaranteed up to 5 years with no extra cost.
- Designed to facilitate quick replacement of thermocouple and combustion tube.
- Very low energy consumption with temperature accuracy better than  $\pm 1^{\circ}\text{C}$ .
- No need to use gases (inert and oxygen) during heating, before reaching working temperature.



## NEW SOFTWARE HELIO-SOFT



User-friendly and intuitive software.

Function export results to LIMS, to Excel and others commonly used formats such as PDF, HTML, XLS, CSV, or TXT.



- Verification of calibration stability with graph (type control card).
- Alert function for tracking and replacement of spare parts and consumables.



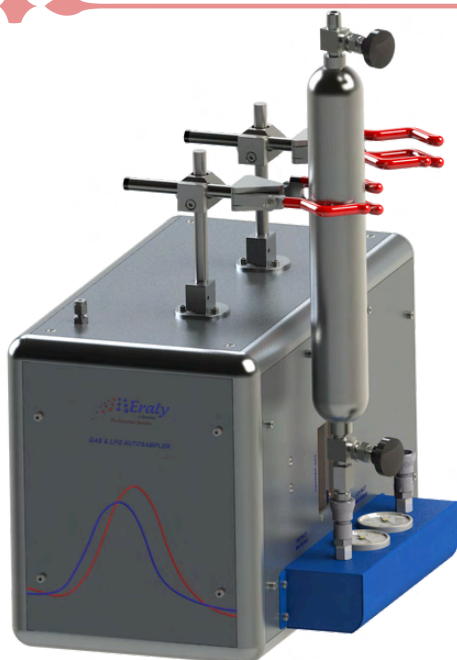
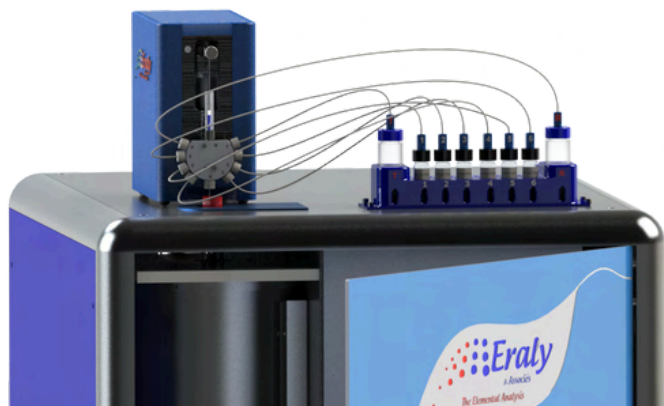
## ACCESSORIES



### Mini AutoSampler / Auto-injector

Tray of 1 position (single shot) or 6 positions, plus trash can and rinsing bottle.

Used for sampling and injecting liquids samples (e.g: methanol, petrolether, ethanol, toluene, naphtha, additives, kerosene, gasoline, diesel, bio diesel, bio ethanol, lubricant oil, waxes, organic solvents.....)



### Gas and LPG AUTOSAMPLER

According ASTM D6667.

a sampling loop for Gaz and LPG....up to 10 ml.

two regulators of pressure, at the inlet.

two flowmeters

an expansion Loop with 15 ml of volume / LPG.

Used for sampling and injecting Butane, Propane, Methane, Natural Gas, Hydrocarbons and their mixtures (ethylene, methane, etc.).

### AutoSampler - 50 Positions

Tray of 50 positions, with cooling and/or heating options.

Used for sampling and injecting liquids samples (e.g: methanol, petrolether, ethanol, toluene, naphtha, additives, kerosene, gasoline, diesel, bio oil, lubricant oil, waxes, organic solvents.....).

Sampling volume adjustable between 10  $\mu$ l and 80  $\mu$ l. Sampling speed adjustable.

