ASPROC
Advanced Solutions for Process Controls

ASPROC

ONLINE WATER ANALYZER

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Scan Me

Application

SEA WATER
Desalination plant, Harbor

S^{2-} Hydrocarbon NH_4^+ NO_2^- H_2S / HC / S^{2-}

SURFACE WATER
River, Lake, Rainfall water

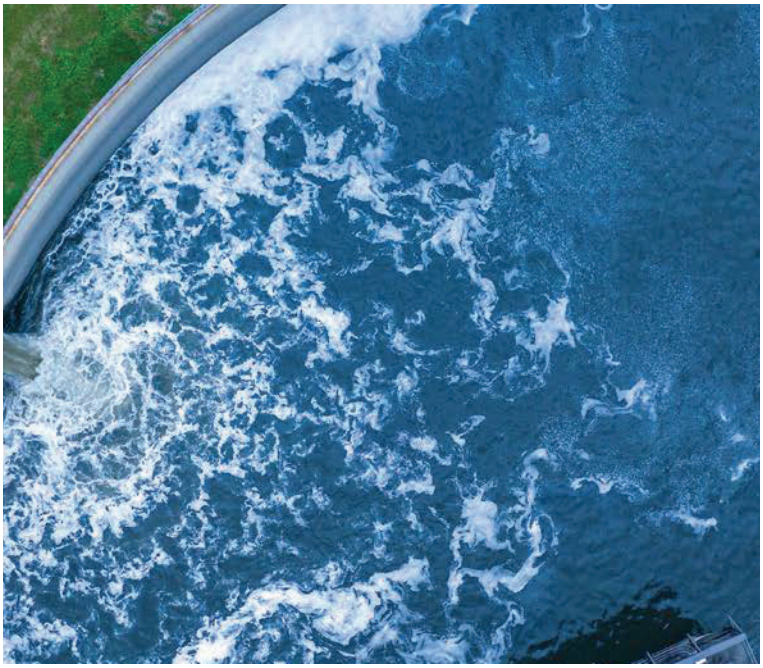
NO_3^- PO_4^{3-} Hydrocarbon COD Salinity DO pH $NH4^+$

PROCESS WATER
Industry, Power plant

(Ammonium, Oil, Organic matter, H2S monitoring)

WASTE WATER
Waste water treatment plant

NO_3^- NO_2^- NH_4^+ COD pH TSS PO_4^{3-} Colour



Features

Measurement

. High resolution and sensitivity optical sensor

. Powerful mathematical treatment FTLS

Sampling

. Multiplexing system in option

. Heated system and filtration

Communication and interface

. Memory storage data (16 GB)

. Intuitive friendly interface

. TFT color

. Touch screen (glass to glass) 8,5”

Enclosure (only wall mounted)

. IP65 Stainless Steel enclosure

. ATEX in option

Maintenance

. 10 year lifetime UV lamp

. Once a year calibration

Online water / Liquid Analyzer

Measured component

Sensor	Range	Liquid phase	Gas phase	External sensor
Ammonium (NH_4^+)	0,1...1000 mg/L		✔	
Nitrites (NO_2^-)	0,001...20 mg/L	✔	✔	
Organic Material (CODeq)	1...10000 mg/L	✔		
Organic Carbon (TOC)	1...10000 mg/L		✔	
Suspended solids (TSS)	1...10000 mg/L	✔		
Turbidity (Turb)	0,001...10000 NTU	✔		
Chlorine dioxide (ClO_2)	0,01...20 mg/L	✔	✔	
Hydrocarbons (HC)	0,01...100 mg/L	✔		
Nitrates (NO_3^-)	0,1...200 mg/L	✔	✔	
Phosphates (PO_4^{3-})	0,01...20 mg/L	✔		
Total phosphates (TP)	0,01...20 mg/L	✔		
Sulphides (S^{2-})	0,1...1000 mg/L		✔	
Sulphites (SO_3^{2-})	0,1...1000 mg/L		✔	
Total Sulphides (TS)	0,1...1000 mg/L		✔	
Colour (Color)	0,01...2000 Pt-Co	✔		
Chlorine (Cl_2)	0,01...20 mg/L	✔	✔	
Oxygen (O_2)	0,01...100 mg/L	✔	✔	
BOD	1... 10000 mg/L	✔		
Ozone	0,01... 10 mg/L		✔	
Phenol (C_6H_6O)	0,1...200 mg/L	✔		
Hydrogen Sulfide (H_2S)	0,1...200 mg/L	✔		
Conductivity (EC)	0,001...2000 mS/cm			✔
pH	0...14 H^+			✔

We can measure all the parameters with spectrometry in liquid phase or gas phase.

We can also measure 3-4 parameters with the same analyser.

In addition, the pH sensor, DO sensor, Conductivity sensor or other parameter sensors can be added inside or outside the analyser.

Online Water/Liquid Analyzer AL1800

AL1800 analyzer can be configured regarding the analysis and the installation to suit your industrial application, for example pure water and process water.

Provided with an enclosure (zone I or zone II), or including 4-20mA and relay output signals, the analyzer can be easily integrated into your existing installation. With robust elements and a measurement method without chemical consumption, AL1800 analyzer requires little service and maintenance resources. The instrument may be equipped with multiplexing system to measure several sampling points in a same instruments.

Technical Specification

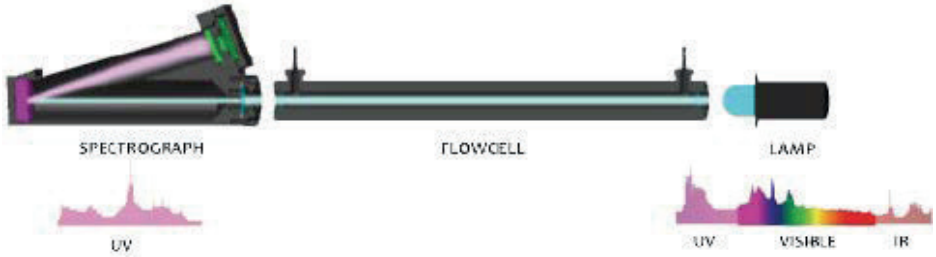
Accuracy	< ± 2 %
Repeatability	< ± 2 %
Detection limit	< ± 2 %
Response time	< 10 sec
Sample Condition	
Flow	0 ... 2 L/min
Pressure	0... 2 bars
Temperature	5 to 40°C (up to 190°C in option)
Controller	
Display	8.5" TFT colour screen 16/9 (LED backlight)
Resolution	800 x 480 pixels
Touch screen	Glass to glass
Memory	16 GB SD card
Data transfer	USB Type A
Operating temperature	5 ...50 °C
Operating humidity	< 90 % RH
Communication output	
Analog	4-20 mA isolated (Active or Passive) / 500 Ω max.
Relay	Programmable limit or fault alarms / 5A (NO) 3A (NC) @ 277 VAC
Digital	RS485 / Modbus (Slave or Master)
Power supply	
Voltage	100 ... 240 VAC (50 - 60 Hz) or 24 VDC
Consumption	< 20 W (60 W max.)
Enclosure	
Type	Wall Mounted
Material	SS 316L
Dimensions	H570mmxW340mm xD200mm / 430 x 340 x190 mm (HxWxD)
Weight	<20 kg / 15kg
Protection class	IP65

We are an innovative company that designs, manufactures and sells instruments for the real-time monitoring of compounds in liquids and gases. Our devices are designed to selectively measure multiple compounds in complex mixtures. This is possible thanks to the combination of three technologies, the result of many years of experience.

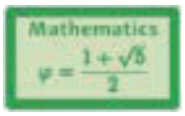
1

High resolution and high sensitivity optical system

Measurement principle based on UV / Vis / IR absorption spectroscopy.



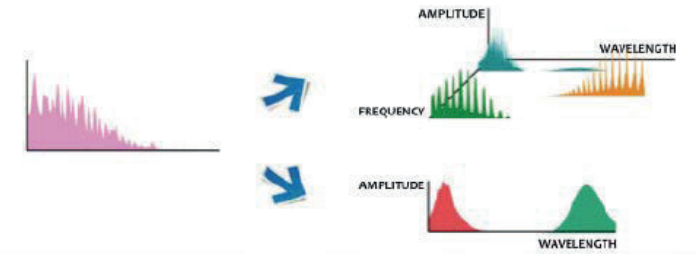
Optical system is designed to achieve high spectral resolution with very large scale dynamics.



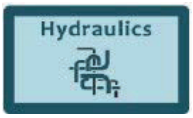
2

Innovative mathematical processing (FTLS)

Selective and precise measurement obtained thanks to the combination of innovative mathematical processing applied to the absorption spectra



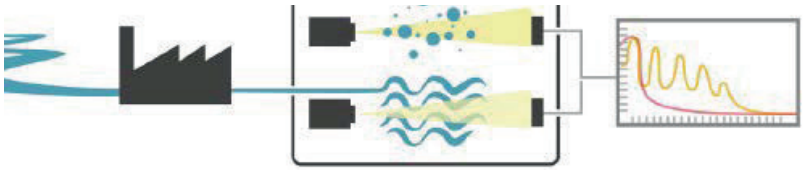
FTLS is the association of Fourier Transform and Least Squares calculations.



3

Selective sampling system without risk of contamination

An innovative fluidic system allows high selectivity of compounds.



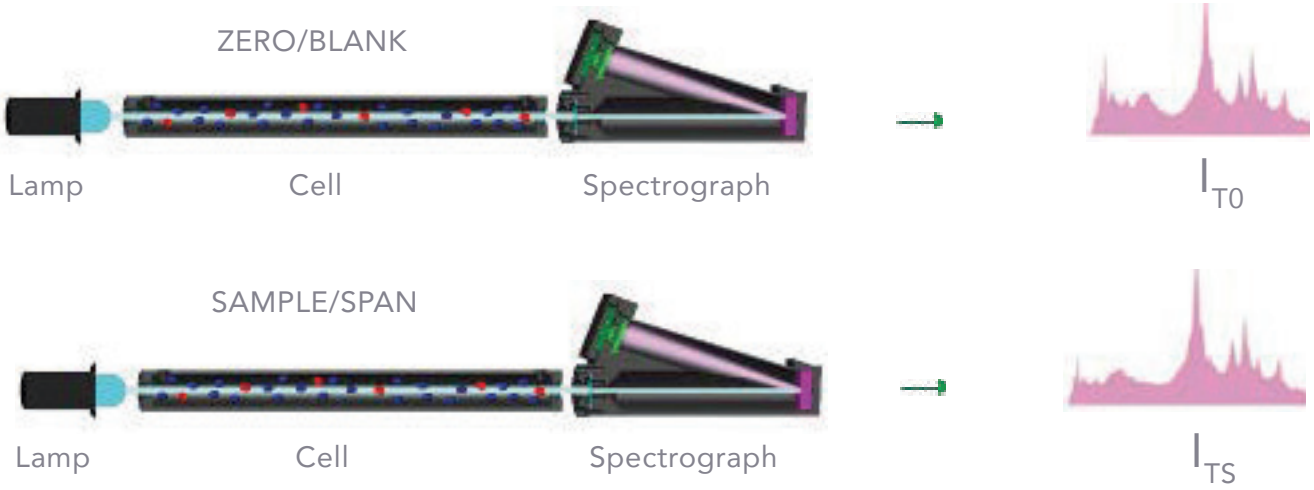
The liquid or gaseous sample is not altered from the point of collection to the analysis cell. With extremly low memory effect.

The use of a high-resolution optical system combined with a powerful mathematical algorithm and an innovative process for selecting compounds ensures the reliability and precision of the instruments

Principle

UV-Visible Spectroscopy

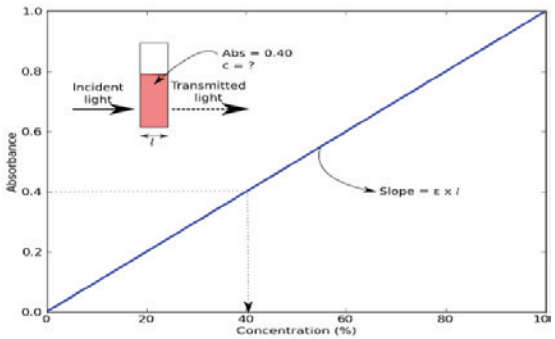
The measuring principle is based on UV spectroscopy according to the Beer-Lambert law. The spectrograph scans from 180 to 280 nm.



The absorption spectrum calculation is the difference between incident light (I_{T0}) on zero and transmitted light (I_{TS}) on the sample. Absorbance is defined with the formula :

$$A = \log \frac{I_{T0}}{I_{TS}}$$

The concentrations of molecules (c) are linear to the absorbance spectrum (A) and the optical path (l) of the measuring cell. The absorption coefficient (ε) is defined with the formula :

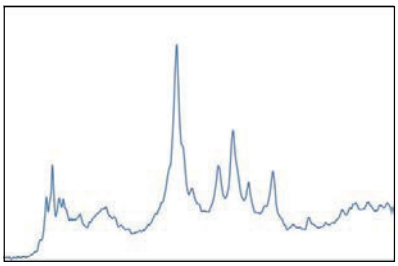


$$\varepsilon = \frac{A}{l.c}$$

The absorption spectrum of the sample is processed using Fourier Transform and Least Squares (FTLS)

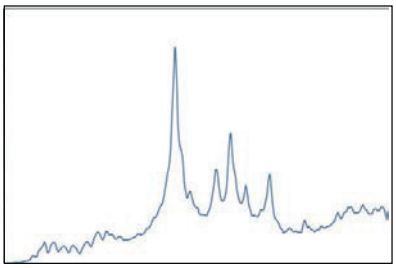
Below is an example of NH_3 absorption spectrum acquisition and Fourier Transform treatment.

Zero transmission

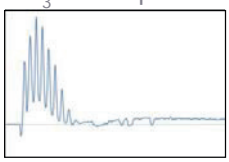


Xenon lamp emission spectrum

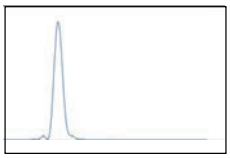
Gas transmission



NH_3 absorption



FFT



Measure cycle

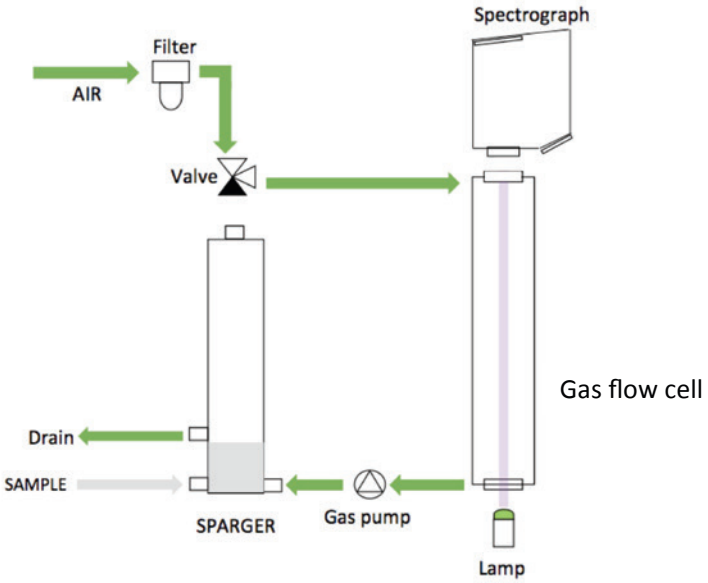
The measuring cycle usually consists of 4 steps:

1- Zero

Before starting our measurements, an auto zero can be programmed to set up the blanks regular with:

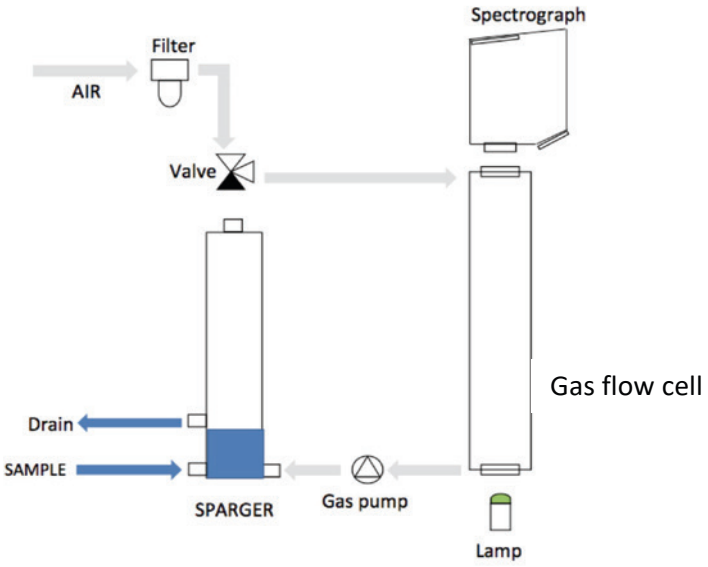
The air in the gas phase

*Blank: light transmission signal when flow cell doesn't contain compounds that absorbs in the UV range.



2- Sampling

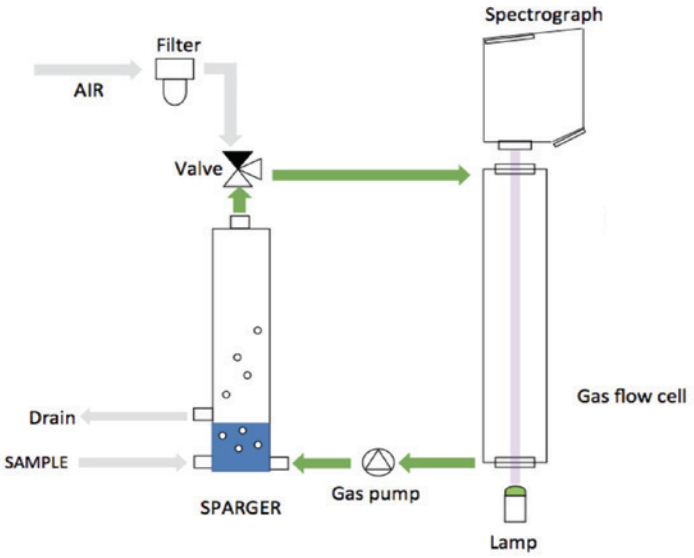
The sample is introduced into the sparger by sampling pump.



3- Sample measurement

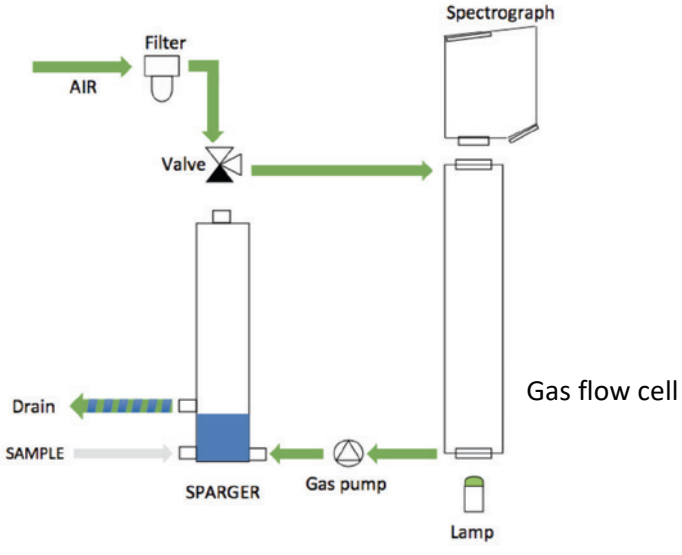
For the gas phase , sample are stripped in a close loop.

Then, the spectrograph measures the light absorbed in gas phase.



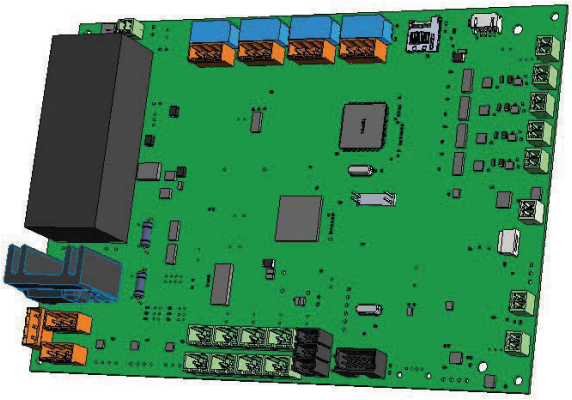
4- Drain

The sample is drained by introducing ambient air into the system.

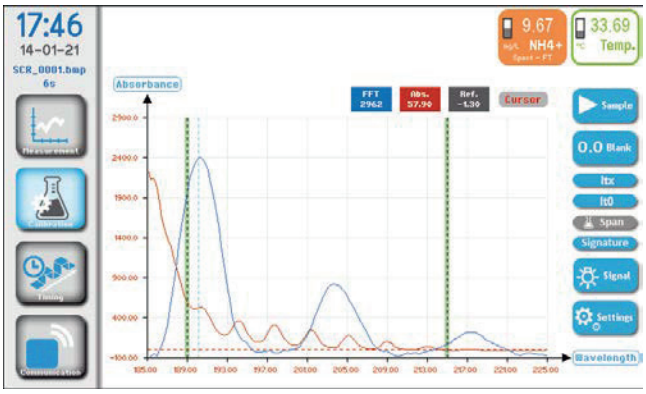


We develop:

Our Electronics

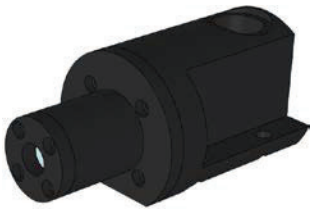


Our HMI



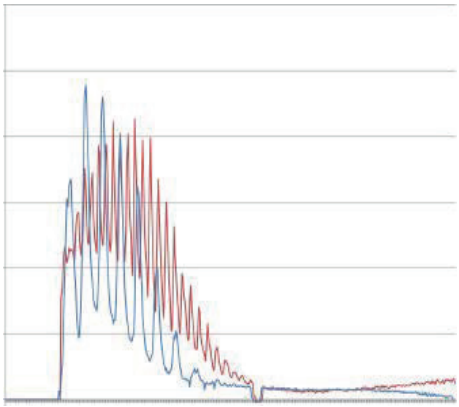
Our Optics

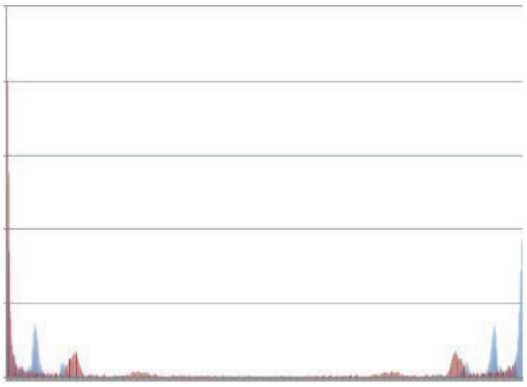
Spectrographe HD

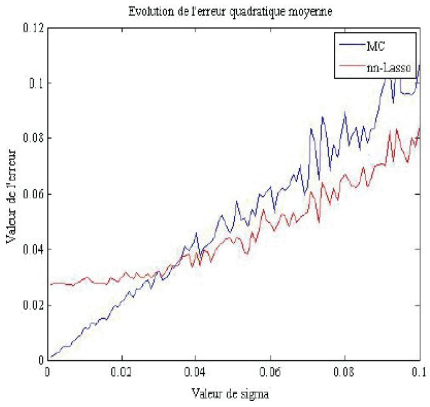


Lamp

Our signal processing

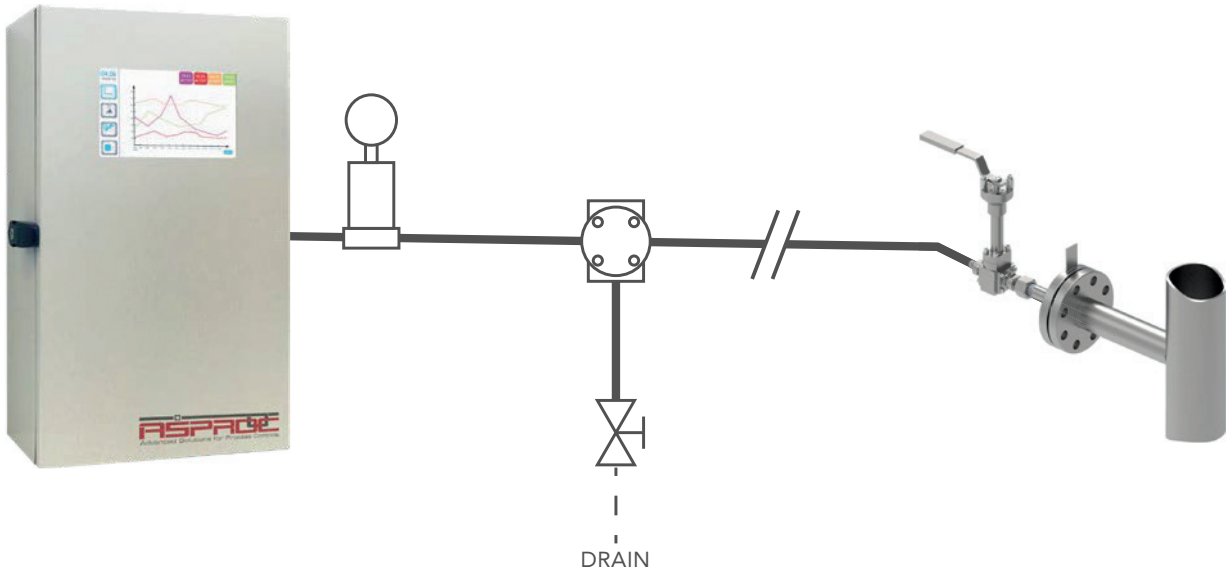




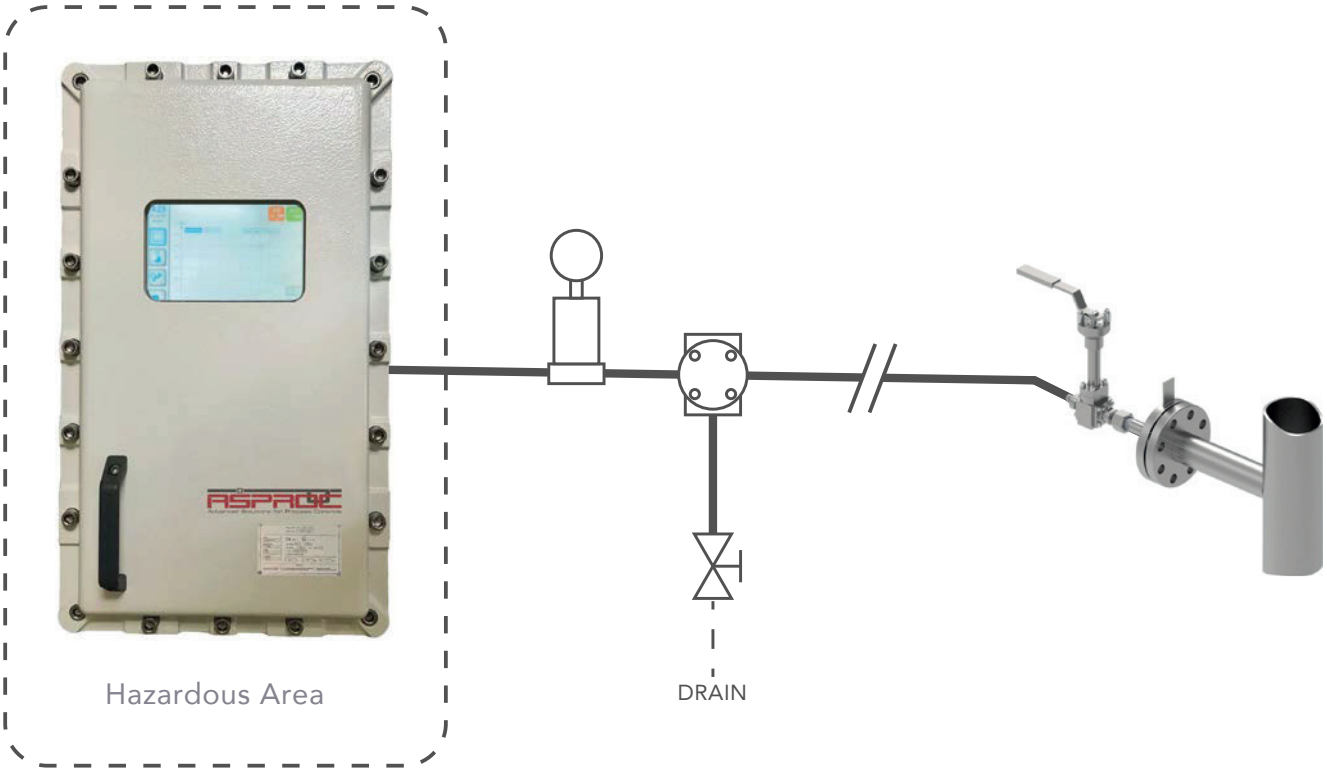


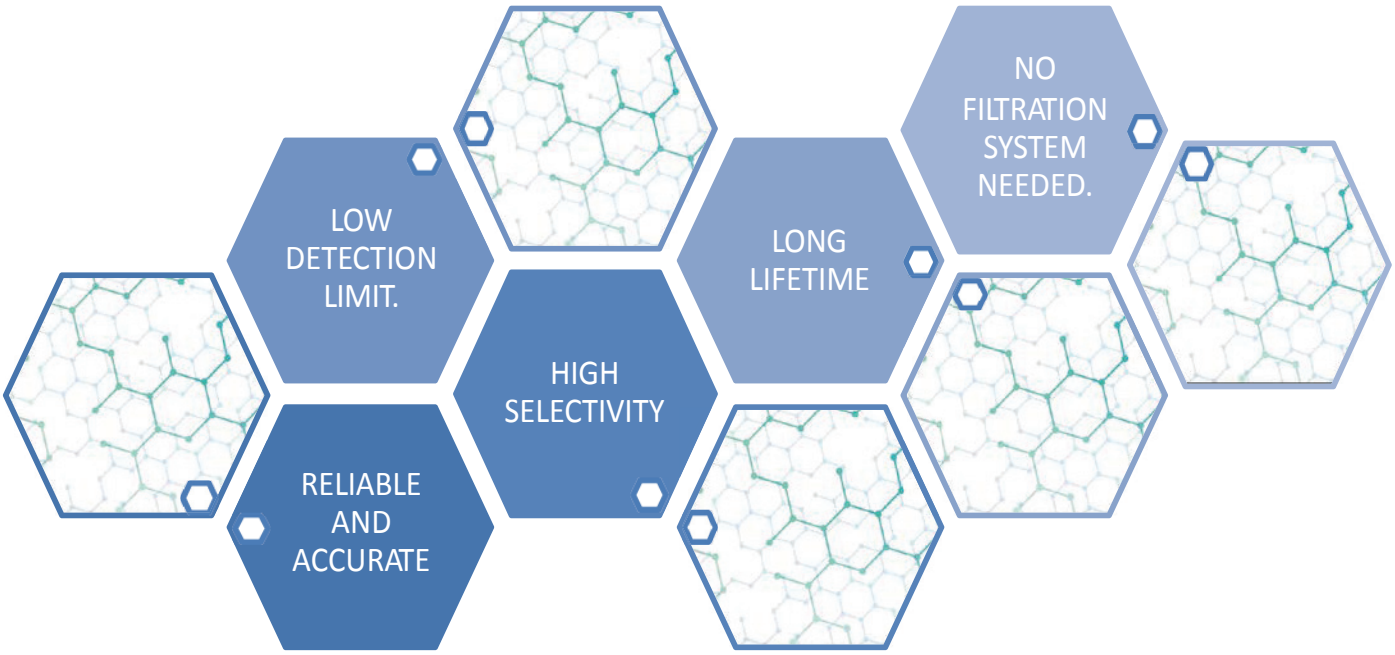
Fourier transform and least squares

Typical conditioning system



ATEX Version





Some customers

VEOLIA ENVIRONNEMENT
TOTAL
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Vopak
PUB SINGAPORE'S NATIONAL WATER AGENCY
GDF SUEZ