PROCESS MONITORING

Online Analysers
TOPAZ SOLUTIONS FOR CHEMICAL PROCESSES AND INDUSTRIES

ONLINE ANALYSER TAILORED TO THE NEEDS OF CHLORINE PRODUCTION PLANTS

Description

The TOPAZ analyser is designed for automatic and continuous monitoring of chemical processes using membranes, mercuric cells and diaphragm cells. It allows reducing to its minimum the corrosion factor in the petrochemical industries and chlorine / soda production plants. Thanks to its concept using a combination of analytical methods (Colorimetry, Titrimetry and Iodometry) the TOPAZ is also widely used for the treatment of liquid and gaseous effluents.

Applications

Control of industrial process: Chlorine production, Soda production, Electro-chlorination

Control of chemical effluents: Residual concentration of active chlorine

Control of Tail-Gas exhaust Spray Towers: NaOH/Na₂CO₃ in a Sodium Hypochlorite / Soda solution

Oil & Gas: refineries, oil exploration

PARAMETERS

- **CA+Mg** in brine (0.1 to 5 mg/l)
- **CA+Mg** traces in brine (5 to 100 µg/l)
- **NaOH/Na₂CO₃** in brine *
- **SO₄** in brine *
- **ACTIVE CHLORIDES** Cl⁻, ClO⁻ in brine and in chemical effluents*
- **CHLORIDES** traces in a soda solution, (5 to 100 mg/l)
- **NH₄⁺** in brine
- **NaOH/Na₂CO₃** in a sodium hypochlorite / soda medium : control of the residual alkalinity on a tail-gas exhaust treatment tower in an electrochlorination workshop (50 to 250 g/l Na)
- **NCl₃** in chlorine, in association with the determination of **NH₄⁺**, its precursor in brine, on diaphragm or membrane production processes.

*(range and detection limits depending on the process)*
## System Specifications

### CONSTRUCTION & ENVIRONMENT

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Wall cabinet stainless steel 316L: 610 x 825 x 400 mm (W x H x D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight &amp; Material</td>
<td>20 kg approx. - Stainless steel 316L</td>
</tr>
<tr>
<td>Environment &amp; Protection</td>
<td>Installation in safe and sheltered area, away from corrosive atmosphere, IP55.</td>
</tr>
<tr>
<td>Ambient T°</td>
<td>5 to 40°C (depend method)</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>10 to 80%</td>
</tr>
</tbody>
</table>

### ELECTRICAL UTILITIES

<table>
<thead>
<tr>
<th>Power supply</th>
<th>110 - 240 VAC 50 / 60 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>Typical 150 VA - Maximum 300 VA</td>
</tr>
</tbody>
</table>

### ANALYSIS

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Refer to list on reverse page / Consult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>Depend on parameter / Consult</td>
</tr>
<tr>
<td>Method</td>
<td>Continuous, on line measurement</td>
</tr>
<tr>
<td>Reagents</td>
<td>Refer to list on reverse page / Consult</td>
</tr>
<tr>
<td>Number of Streams</td>
<td>1 to 6 on option (above, please consult)</td>
</tr>
<tr>
<td>Multi-parameter</td>
<td>Single or multi-parameter analyser (consult)</td>
</tr>
<tr>
<td>Cycle duration</td>
<td>15 min on average</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 1 to 2% end of range (colo, titri, pot.)</td>
</tr>
<tr>
<td>Repeatability</td>
<td>± 1 to 2% end of range (colo, titri), ± 3 to 5% (pot.)</td>
</tr>
</tbody>
</table>

### CONNECTIVITY, ALARMS & COMMUNICATION

<table>
<thead>
<tr>
<th>User interface</th>
<th>Colour LCD display, 5.7&quot;, 160 x 230 mm, touch-screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data storage</td>
<td>Data storage in analyser memory</td>
</tr>
<tr>
<td>and retrieval</td>
<td>Transfer via USB port</td>
</tr>
<tr>
<td>Input / Output &amp; Communication</td>
<td>On option : support converter RS485</td>
</tr>
<tr>
<td>Alarms</td>
<td>Thresholds per stream (HI-LO), sample &amp; analyser failure</td>
</tr>
<tr>
<td>Remote control</td>
<td>JBus/ModBus protocol or dry contact: end of cycle stop,</td>
</tr>
</tbody>
</table>

### SAMPLING

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Filtration if needed / Dilution, depending on application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample inlet</td>
<td>Flow : min 30 l/h - optimum 46 l/h (4 l/h with water saver)</td>
</tr>
<tr>
<td>Pressure</td>
<td>0.1 to 3 bar maximum</td>
</tr>
<tr>
<td>Temperature</td>
<td>5 to 45°C</td>
</tr>
<tr>
<td>Hydraulic</td>
<td>Sample : Inlet 1/4” BSP F / Outlet soft tubing D INT 9</td>
</tr>
<tr>
<td>connections</td>
<td>Waste : soft tubing D INT 12</td>
</tr>
<tr>
<td>Volume of vessel</td>
<td>25 ml for potentiometry, otherwise 8 to 10 ml</td>
</tr>
</tbody>
</table>

### OPERATION

| Zero           | Automatic at end of each measurement cycle                   |
| Semi-automatic calibration | Required upon renewal of reagents                        |
| Cleaning       | Mechanical wiper on option, if needed                       |

### Modules & Features

**User interface**  
smart & intuitive interface enabling all the analyser controls and status reports via Touchscreen

**Measurement**  
emission & reception directly on the PCB gathering all programs driving the whole measurement process for each parameter. Increased accuracy and response time resulting from the association of the measuring and its fibre optics system

**JBus/ModBus module**  
retrieval data / steering

**Supervision**  
management of data and JBus/ModBus « slave » protocol, execution of cycles & measurement PCB control, data storage

**Low Operating cost**  
Minimum reagents’ consumption

**Multi-stream**  
1 to 6 channels multiplexer
Also available with the TOPAZ

COLORIMETRY

- Ammonium, Free and/or Total Chlorine, Hydrazine, Morpholine, Phenol, Sulphates
- Colour, Silica, Phosphates (Orthophosphates), Hardness
- Aluminium, Chromium VI, Copper, Iron, Nickel, Lead, Zinc

TITRIMETRY

- TH, Alkalinity

POTENTIOMETRY

- Ammonium, Chlorides, Cyanides, Fluorides, ...

Specific, customized methods can be adapted on TOPAZ for the surveillance of process water & brines:

- Peracetic acid, VFA, Ca Mg, NH₄, etc...

**OTHER PARAMETERS : PLEASE CONSULT**

Scope of supply

From a stand alone analyser to a complete monitoring station (stationary or mobile), AquaGas supplies turnkey systems fully integrated meeting the Australian standards and matching the exact project requirements.
PROCESS CONTROL
Manufacturing industries
Drinking water
ONLINE water quality monitoring solutions for upstream and downstream purification processes.

Ensure the optimal quality all along the manufacturing and distribution network.

Process water
Integrated solutions for real-time water quality measurements suited to industrial processes.

ENVIRONMENT
Environmental protection and pollution control.

Surface water
REALTIME Monitoring stations or mobile laboratories, for the protection of surface water, spring water, rivers and groundwater.

Sea water
Prevention of sea water by hydrocarbon wastes: Oil tankers, Oil Rigs, Refinery wastes.

WATER QUALITY
MEASURED COMPOUNDS
Aluminium, Ammonium, Total nitrogen, Total phosphorus, Bromine, Free Chlorine, Chlorides, Chromium, Colour, Copper, Cyanides, Iron, Fluoride, Manganese, Morpholine, Nickel, Nitrites, Phenols, Phosphates, Silica, Sulphates, Sulphites, Total alkalinity, Total Hardness, TA / TAC, Zinc, Uranium ...

ONLINE WATER QUALITY ANALYSERS

The **ONYX** is a new generation of water monitor for the measurement of chemical parameters in a wide range of samples and applications.

Online analyser by colorimetry, titrimetry or potentiometry for the automatic monitoring of water quality, Single parameter / single stream.

**CRISTALLITE** is an analyser for your basic measurements needs (single stream, single parameter) for reduced capital costs & operating expenses, for many parameters / pollutants in water.

Various chemical compounds monitored by colorimetry, titrimetry or potentiometry.

The **TURBISONDE** is the solution for the continuous measurement of strong turbidity in water. Its outstanding performances are the result of the well known Nephelometry method combined with an submersible probe using a patented ultrasonic cleaning system. This means : no wearing part, no maintenance of the sensor.

**TURBILIGHT II** is the latest generation of turbidity meter dedicated to automatic, online measurement, of low & medium loads in water. Measurement method by Nephelometry using IR light source, pressurized vessel to prevent interference of occasional air

Ranges : 0-2 to 0-1000 NTU

The **OPAL** is a new generation detector: on line, real time, infra-red back scattering measurement, reagent free, to monitor suspended hydrocarbon in water.

Wide range of fields
Onshore : refineries, oil drilling stations, energy, petrochemical and other industries
Offshore : oil platforms & ships

The **PAUTBAC II** is designed to automate the drainage of water accumulating in the lower part of petroleum products storage tanks. The main advantages of the PAUTBAC II in its various applications (slap stations, petroleum & petrochemical industries, tank farms, oil storage bases...) are : increased safety, improvement of nominal tank capacity, decrease of the hydrocarbons loss, protection of petroleum products from water bacterial degradation.

**PAUTBAC II**
Tank Dewatering

**TURBISONDE**
Turbidity

**TURBILIGHT II**
Turbidity

**CRIS-**
Single Parameter

**ONYX**
Single parameter

**OPAL**
Hydrocarbons - Oils in water
AQUAGAS SYSTEM INTEGRATION

More than 14 years of experience in environmental monitoring. AquaGas commitment in implementing innovative, reliable and cost effective solutions is undeniable. Our main focus is to meet your application requirements in due time while maintaining high quality service and relationship.

We have the skills, products and services in house with a full dedication to your monitoring needs, so please contact us when it comes to environmental monitoring and industrial analysis.

SERES Environnement analysers

SERES Environnement (FRANCE) is one of the major actors in the field of online analysis dedicated to Water Quality Monitoring in the industry and the environment. Outstanding experience, attentiveness, innovative and effective solutions are the strengths of SERES while meeting everyday challenges.

The ideal partner for Australian water quality monitoring.

50 years of expertise in online monitoring