2060 IC Process Analyzer

Reliable multicomponent analysis for online process control

PUSHING THE LIMITS TOGETHER

Metrohm
Process Analytics

Monitoring your process 24/7

Maximize profitability, comply with regulations, and increase plant safety

Metrohm Process Analytics is known as a pioneer in process analysis and has become one of the global process industry's preferred solution providers for monitoring key parameters in large scale industrial manufacturing processes.

The first multipurpose process analyzer was developed by Metrohm in the 1970's, with a limited range to handle four sample streams. Since then, Metrohm Process Analytics has continued to push the limits together with our customers by providing the best customized online analytical solution on the market.

The 2060 Process Analyzers are the most versatile offering in the Metrohm Process Analytics product portfolio and on the market. They enable 24/7 online or atline monitoring of chemical industrial processes, water, wastewater, other liquids, and gases.

2060 IC Process Analyzer –

Limitless process analysis possibilities

Analyzing multiple components in a single representative measurement is one of the main objectives desired in order to guarantee optimal online process monitoring and control. Ion chromatography (IC) offers many advantages for process monitoring with a wide range of detectors, separation columns, and sample preparation options available from Metrohm. Based on the 2060 online analysis platform, the **2060 IC Process Analyzer** is a complete and flexible system for online monitoring of ionic compounds in aqueous media from ng/L to % concentrations.

APPLICATION FLEXIBILITY
Thanks to the modular architecture of the wet part and the possibility to combine multiple cabinets and even place different cabinets in different locations around a production site, a wide range of applications is possible.

FULLY REMOTE CONTROLLABLE
The analyzer human interface houses the touch screen controller, which enables users to easily check trend graphs for a clear overview of the process. Additionally, the 2060 IC Process Analyzer can be controlled remotely to evaluate results immediately, inspect diagnostics from the safety of a control room, or connect to our online support.

BUILT-IN REAGENT DETECTION
The additional cabinets can be configured in such a way that each wet part cabinet can be combined with a reagent cabinet with integrated (**non-contact**) level detection to increase analyzer uptime.

Human interface

Wet part cabinet

IC cabinet

Reagent cabinet
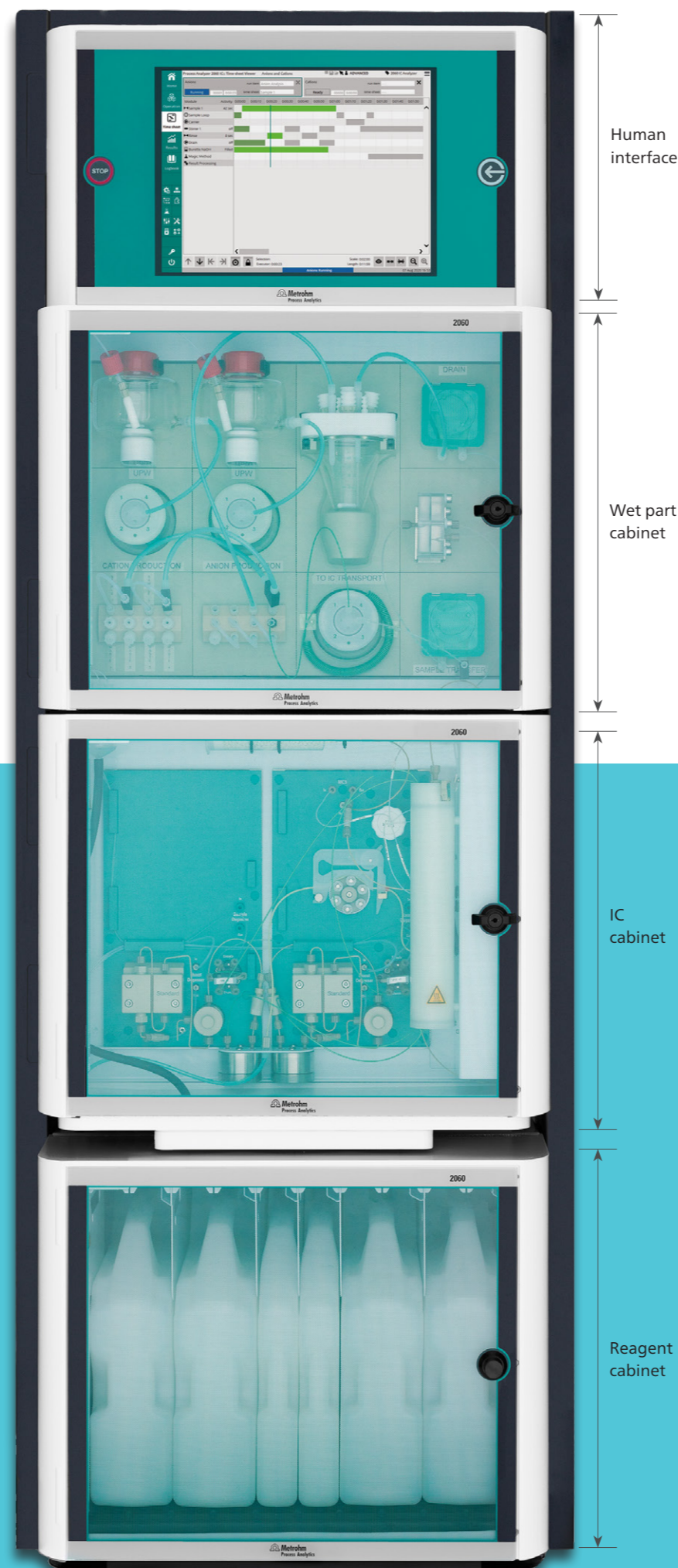
FULLY CONFIGURABLE SOFTWARE
The software of the 2060 platform has a modern and user-friendly layout, based on a «time programming sheet». The software enables users to reduce overall analysis time and conduct smart diagnosis on the complete analyzer system. Also, users can fine-tune methods to any changes in the process, and set limit conditions and alarms to control the analyzer.

MONITOR PROCESSES MORE EFFICIENTLY
With the unique Metrohm Inline Sample Preparation (MISP) techniques, sample preparation is fully automated in the 2060 IC Process Analyzer. Not only is sample throughput increased, but also both the accuracy and reproducibility of analyses and results is improved.

ROBUST DESIGN
With a dual compartment enclosure, the 2060 IC Process Analyzer ensures a complete separation between the electronics and the wet part. Hence, maintenance and daily checks are possible without the need to manipulate the electronic part, which overall increases uptime and plant safety.

BROAD WORKING RANGES
The Metrohm intelligent Partial oop injection Technique (MiPT) broadens the flexibility of the method by automatic adjustment of the injection volume to the concentration of the sample, allowing a large working range of concentrations to be determined in a single run.
- Concentrations can range from ng/L to %
- Sample injection volumes from 250 nL to 10 mL

ADDITIONAL OPTIONS
The 2060 IC Process Analyzer is configured inside of a holding frame which can be placed in any way you need it: wall mount, table stand, floorstand, and on wheels.

The software for modern ion chromatography

Intuitive software for process analytics

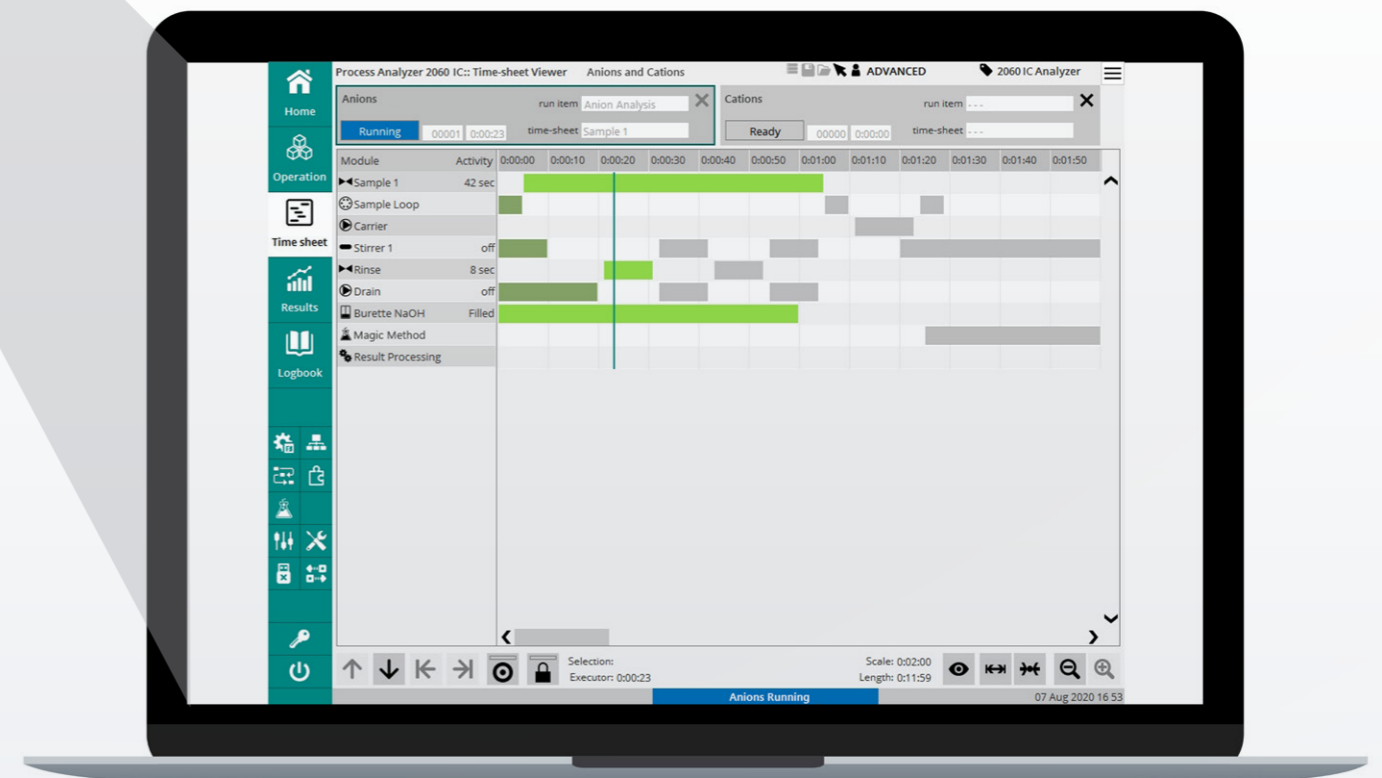**FREELY PROGRAMMABLE AND USER-DEFINED SOFTWARE**

The intuitive 2060 software is designed to efficiently program and control the analyzer for 24/7 analysis. Using a feature called «time programming sheets», the analyzer program execution is displayed in a clear graphical timeline representation to make it easier for operators to see what is happening at any given time of their analysis. Thus, operators can ensure that the analyzer is performing correctly and according to specifications, as well as they can know when an analysis is finished to prepare for maintenance.

INTELLIGENT SOFTWARE FOR IC

The proven **MagIC Net** ion chromatography software contributes to the flexibility of the 2060 IC Process Analyzer. MagIC Net controls the IC hardware of the analyzer. The software collects all relevant information generated by the system and offers the convenience of modern data management along with the ability to produce customized reports.

FULLY AUTOMATED ANALYSIS

Automate your process analysis completely by programming, connecting to sensors, and activating pumps or valves using our software. When the analyzer detects an erroneous result, the 2060 software has been designed to send automatic feedback to the industrial control system (e.g., DCS or PLC) and take action (e.g., repeat analysis or start a cleaning cycle if necessary).

UNLIMITED POSSIBILITIES FOR YOUR PROCESS

With our online process analyzers, the analysis is performed directly at the process point, guaranteeing the most representative results. Remote control options also ensure a safer working environment and «real-time» monitoring of the system. That way, the analyzer can be monitored from any location.

PREVENT ISSUES BEFORE THEY ARISE

Thanks to a variety of process communication protocols (e.g., Modbus or Discrete I/O), the data can be communicated to the industrial control system and is accessible 24/7 if requested. Our certified Service Engineers provide fast, efficient, and guaranteed maintenance of your analyzers and even access remotely for diagnostics.

TIMESHEET CONTROL PROGRAM

The 2060 software is more than your average instrument software for process analyzers. This modern software was designed to efficiently program and control the process analyzer for any industrial application. Alarms can be programmed to monitor the current status of the analyzer and prevent unexpected downtime.

Customized solutions depending on your needs

APPLICATION ADAPTABILITY

Translating and configuring a laboratory application to an online application is an almost daily routine for us, as we have knowledge and experience in both fields. Furthermore, our significant history in industrial sampling and sample preconditioning plays an important role in adapting a laboratory method to an online process.

MODULAR ANALYZER PLATFORM FOR ULTIMATE FLEXIBILITY

A LIMITLESS PLATFORM

The 2060 IC Process Analyzer is based on the 2060 online analysis platform from Metrohm Process Analytics. This flexible concept offers modularity, allowing up to four cabinets to create one single analyzer platform. Therefore, separate analysis cabinets can be placed in different parts of the process to measure multiple parameters in parallel in a single analysis.

EVERY MINUTE COUNTS – ADVANTAGES OF ONLINE PROCESS ANALYZERS

In laboratories, sample analysis are mostly carried out offline. However, this is not applicable in industrial process environment. Since such offline sample analysis do not necessary represent the current process conditions. Any necessary process adjustments could take place hours or even days after an out-of-specification reading, causing losses of raw material, final product, and even company assets (e.g. corrosion due to ion exchanger breakthrough).

Online analysis with industrial process analyzers lessens the need for highly-skilled technical employees and saves time by automating measurements directly at the sample point. Reducing manual sampling **lowers costs, increases the safety** of plant operations, and much more:

– High analysis frequency leads to high quality products
– Protection of your company assets
– Increase your company profits
– Avoid incidents with process automation
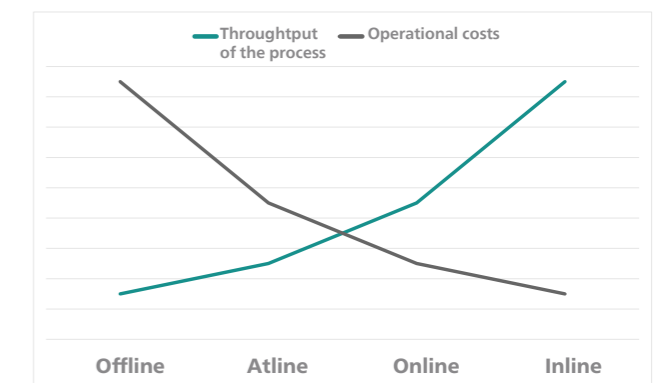
Product and process optimization differences between offline, atline, online, and inline analysis

Process analyzers from Metrohm are designed to offer fast, reliable, accurate measurements in a rugged housing, 24/7 to ensure processes are always running within specifications.

Save time and money –
Through automated sample preparation and analysis

FULLY AUTOMATED SAMPLE HANDLING

Samples can rarely be analyzed directly without any preparation. With the Metrohm Inline Sample Preparation techniques «MISP», sample preparation can be completely automated and integrated into the 2060 IC Process Analyzer. The high precision and accuracy of liquid handling are based on the outstanding properties of the dosing units in the analyzer. MISP is the key to fully automated sample analysis by ion chromatography, saving you time and effort.

«MISP» OPTIONS:

- Inline Ultrafiltration
- Inline Dialysis
- Inline Dilution
- Intelligent Partial Loop Injection Technique
- Intelligent Pick-up Injection Technique
- Inline Extraction
- Inline Matrix Elimination
- Inline Calibration
- Inline Preconcentration
- Inline Neutralization
- Inline Cation Removal
- Inline Eluent Preparation
- Inline Spiking
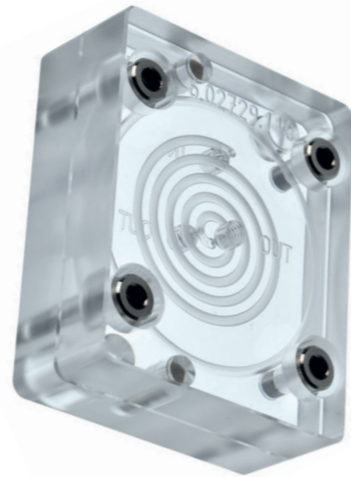
Metrohm Inline Ultrafiltration, one of the many MISP options.

MULTIPLE ANALYSIS OPTIONS

The 2060 IC Process Analyzer is available in three IC configurations to measure anions and/or cations in one system. Combining the ion chromatograph with one of the three available detection techniques, the 2060 IC Process Analyzer can handle almost any challenging process application.

The analyzer can be configured using wet part modules to prepare samples before analysis and measure several sample streams for easy process monitoring around the production plant.

STABLE MEASUREMENTS – GUARANTEED

The integrated eluent production module – which automatically monitors all reagents – guarantees smooth unattended operation and stable baselines. The reagents are diluted automatically from concentrated eluents with ultrapure water, easily allowing for one to six months of autonomy. Eluent concentrates can be purchased directly from **various chemical suppliers**, or created with chemicals on site by the operator.

Continuous eluent generator.

NEVER RUN DRY

For secure operation and convenience during IC analysis, ultrapure water can be continuously generated inline with a water purification system (e.g. PURELAB® flex 5/6 from ELGA®). This is the only instrument on the market with a pressureless water feed, meaning less wear and less replacement of the purification packs, saving you money.

Optionally, ultrapure water can be stored for use in 10 L containers with contactless level sensors inside the reagent cabinet.

Comprehensive options for detection

Several detectors are available for the 2060 IC Process Analyzer, depending on the application requirements. Choices include conductivity detection, UV/VIS detection, or amperometric detection – each has its particular benefits regarding selectivity and sensitivity.

CONDUCTIVITY DETECTOR

This is the most commonly applied detector, used for a wide selection of analytes ranging from anions and cations to organic acids and amines. This detection is based on changes in the electrical conductivity of the eluent exiting the column which passes through the temperature-stabilized cell block. This detector can be combined with chemical suppression and CO_2 removal for more sensitive analysis of ions.
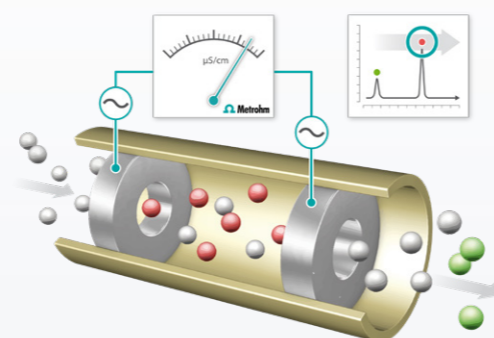
UV/VIS DETECTOR

UV/VIS detection enables straightforward quantification for substances that absorb light in the ultraviolet or visible range. Detection takes place via a diode array. Combined with post-column reactions, UV/VIS detection makes it possible to detect a number of ions in very low concentrations and/or also in the presence of high salinity.
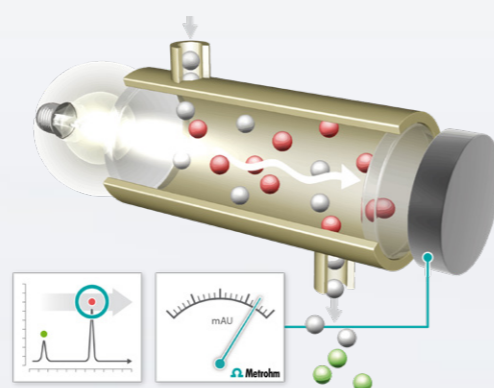
PULSED AMPEROMETRIC DETECTOR

Pulsed amperometric detection (PAD) is an alternative method mainly used to determine electroactive, i.e., oxidizable or reducible compounds. This detector offers outstanding selectivity. The excellent signal/noise ratio and the very fast start-up guarantee the highest in measurement precision.
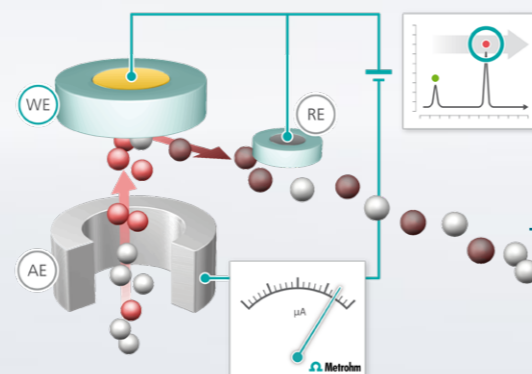
Ideal solution for the most challenging analytical tasks

No challenge is too difficult for us

BEST SOLUTIONS FOR CHALLENGING SAMPLE STREAMS

Besides the chemical analysis, sample preparation, preconditioning, and location of the analyzer are deciding factors for the success of inline, online, and atline analysis. Metrohm Process Analytics can provide a comprehensive solution for almost any application, allowing seamless startup and integration of your instrument on site. We can provide any sample preconditioning system, such as cooling or heating, pressure reduction and degassing, filtration, and many more.

RELIABLE PRECONDITIONING BEFORE ANALYSIS

In online and inline analysis, where the most representative analytical data is collected right at the process point, sampling and sample preparation are at least as important as the analyzer itself. Metrohm Process Analytics has vast experience in this area, capable of offering custom-made sampling systems.

Benefits of sampling preconditioning panels:
- Possible IP66 enclosure for harsh environments and in plant operation if necessary
- Ability to monitor multiple sample streams from any part along the process
- Automatic temperature control to avoid fluctuations in the results and maintain safe temperatures in the sample stream
- Closed system for added safety
- Stainless steel materials to ensure chemical resistance to harsh sample streams

Experience you can trust – Solutions for all major industries

The 2060 IC Process Analyzer is capable of performing a wide variety of applications, be it monitoring of amines during synthesis or the determination of anions and cations in a waste water stream. Even applications which are already used in the laboratory can be transferred directly to the 2060 IC Process Analyzer without any problem.

CORROSION IN POWER PLANTS

Measuring corrosion indicators or the presence of the corroding ions themselves can save a plant significant costs with early warning and mitigation to solve the issue before a shutdown is necessary. A spiked anion sample from the water-steam circuit of a boiling water reactor is shown below.
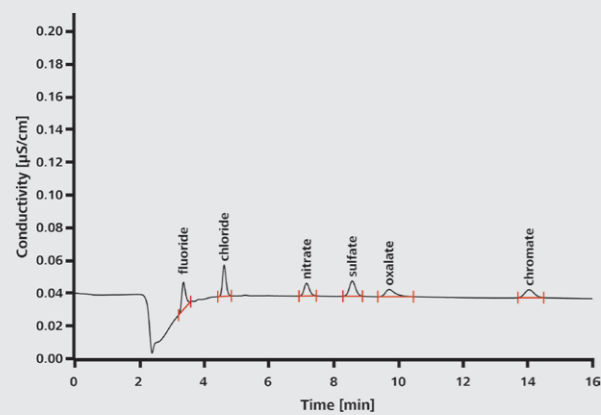
QUALITY OF ION EXCHANGERS

Measuring low concentrations of cations in a process stream and monitoring the resulting trend graphs can indicate a breakthrough of the ion exchanger upstream in the process, which means contaminant filtration into the stream and eventually causing scaling and corrosion of company assets. An alarm can be programmed to alert the operator immediately if warning limits are reached.
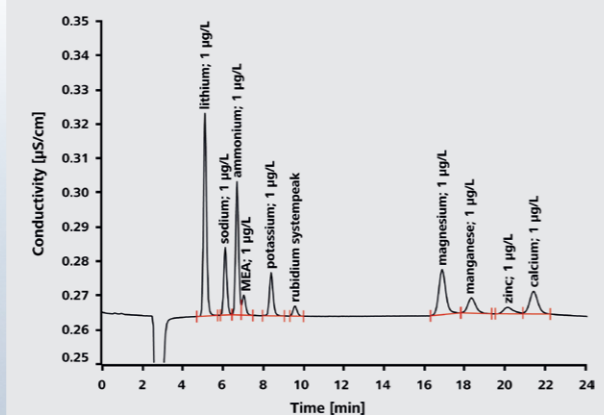
SURFACE FINISHING ANALYSIS

The coating and finishing of surfaces using electroplating techniques is a highly sophisticated process. Rising costs of raw materials and energy make it absolutely essential to drive production as efficiently as possible. Frequent monitoring of the baths ensures a quality etch without waste. Below is a high concentration anion analysis of an etching solution.
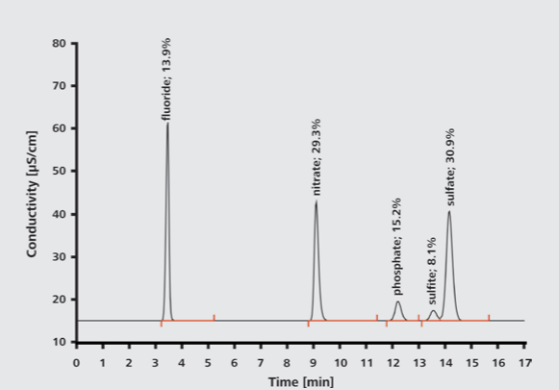
FOOD AND BEVERAGES

It is important to monitor and verify the amount of different sugars and other components in food and drinks to ensure the correct amounts of ingredients are present as well as for compliance with federal regulations. Here, an isocratic separation of 16 sugar compounds is acheived within 40 minutes using the amperometric detector.
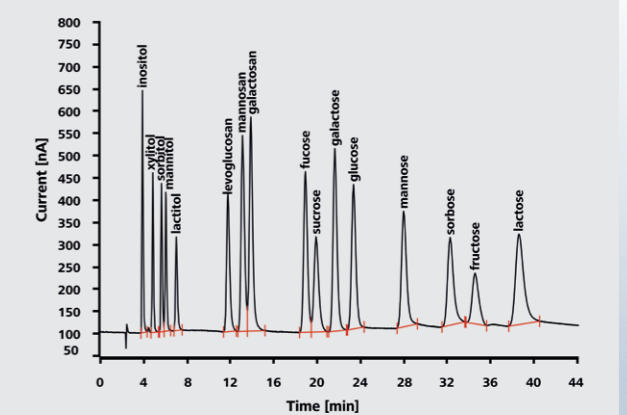
We are here for you worldwide

Metrohm Process Analytics is present in more than 50 countries. Every subsidiary has its own service organization, spare parts warehouse, and trained Service Engineers. Distributors are either equipped with the same infrastructure or receive service and repair support from our Regional Support Centers (RSC), or directly at our headquarters in the Netherlands.

The high standards we maintain are also a promise to you. Regardless of when or where in the world you rely on our services, these services are performed to the same exacting standards.

Wherever you need us, we're there to help.
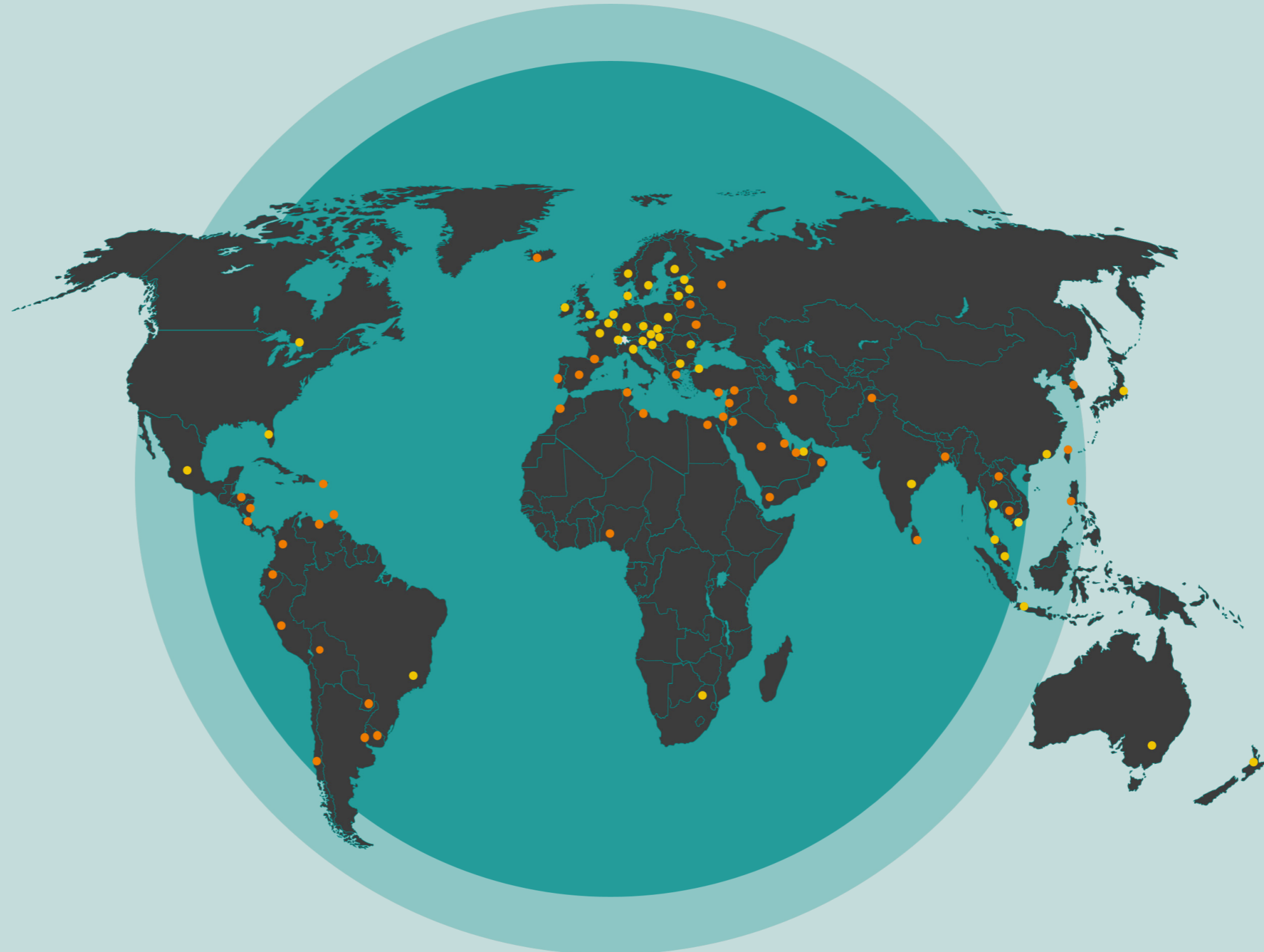
Local service and support – worldwide

- ● Subsidiaries
- ● Exclusive distributor

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Repair Service

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