

Industrial Process Analyzers



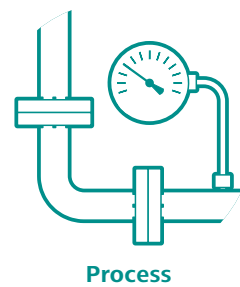
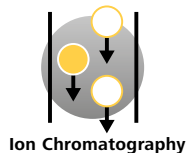
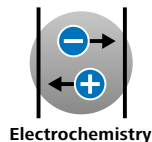
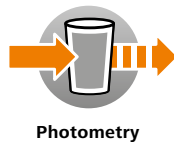
Multipurpose online, inline, and atline chemical analysis



Metrohm Process Analytics: Your partner for chemical analysis

We understand the challenges our clients face and create solutions for them. In the past 45 years we have developed and installed over 10,000 industrial process solutions all over the world, working with many Fortune 500 multinationals. We assist in decision-making and combine our extensive experience in sampling and analysis with our expertise in chemistry, software development, and engineering to create the analyzer your process needs.

The Metrohm Process Analyzers take the famous Metrohm laboratory solutions a step further. Fully automated, online, and customizable analyzers facilitate process monitoring across a wide array of industries. Drawing on our core competencies in titration, spectroscopy, ion chromatography, and electrochemistry, we leverage our applications knowledge to create reliable solutions for process analysis that optimize efficiency, decrease chemical consumption and create a safer work environment.



Pioneers in process analysis: We love customers who challenge us

Since day one, we never shied away from a challenge. We have installed customized process analyzers in the desert, on boats, and in dangerous environments, always focusing on understanding the needs of our customers and remaining close to them.

With our expertise and experience, we do not just offer process analyzers, but an integrated solution to you. This helps optimizing process efficiency while reducing operation cost. «Real-time» analysis as an integrated part of process control and automation will help you increase yields and improve production quality.

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We love to tackle analytical challenges at Metrohm Process Analytics

From monitoring a single process stream for a single parameter to monitoring multiple sample streams for multiple parameters, we plan, test, configure, and commission a turnkey solution that meets the **specific requirements of your process** and can be **seamlessly integrated** in your plant control system. We have done it all. Read more about our success stories on our website: www.metrohm.com/MPA.



Monitoring low-level moisture of chemicals in «real-time»

In the chemical industry, hazardous, flammable, and hygroscopic materials are a constant challenge as a precise measurement of low water content with short response times is necessary to avoid side reactions. By providing a single explosion-proof inline process analyzer, we enable our customers to reduce their chemical treatment programs, improve product quality, and increase company profits.



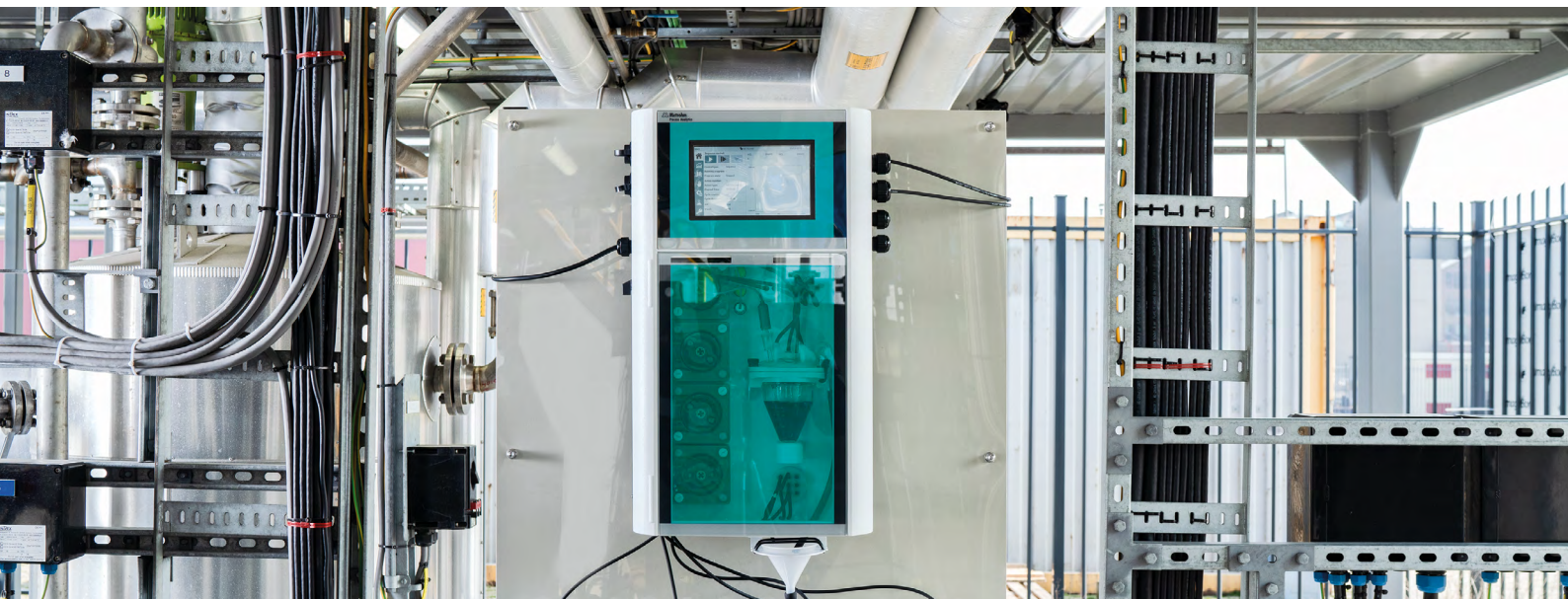
On site support in hazardous zones

To guarantee safe and efficient production of hazardous chemicals, constant monitoring of key process parameters must be implemented under extreme conditions. Explosion-proof inline/online process analyzers with robust probes protected against highly corrosive matrices are integrated to safeguard the process and your costly company assets.



«Real-time» process monitoring in remote areas

Rapid process control of treatment chemicals while monitoring water quality in remote areas is essential to comply with government regulations. Metrohm Process Analyzers optimize accurate dosing of reagents and ensure improved practices with fast analysis times.

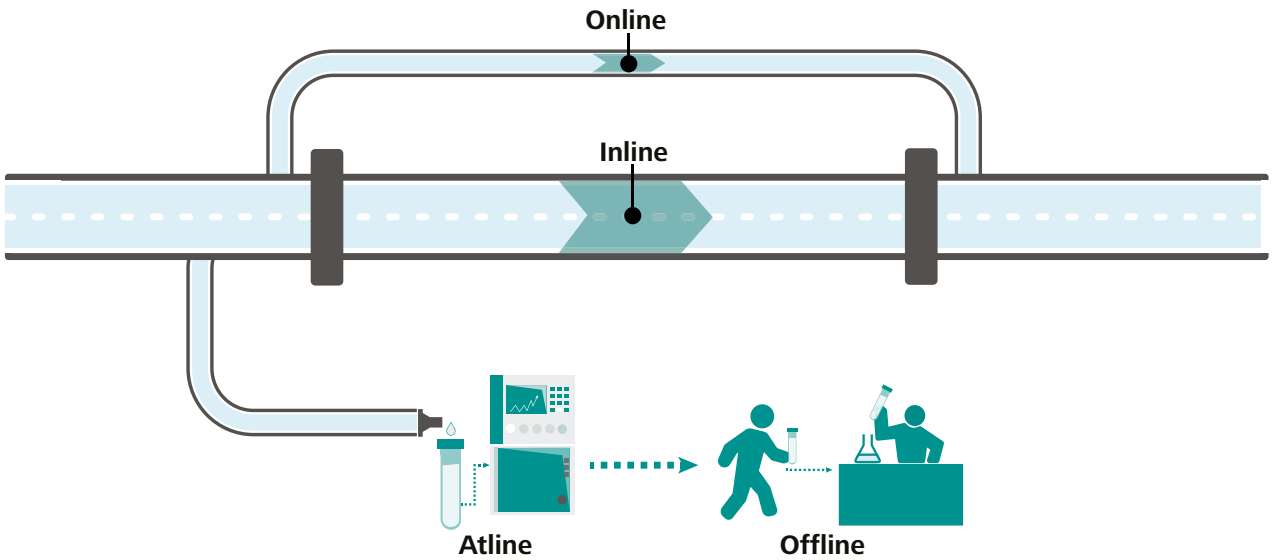


From the lab to online analysis: The best analytical solution

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Over the years, our experts have developed hundreds of applications for a comprehensive spectrum of wet chemistry methods. More recently we have added spectroscopic techniques to broaden our analytical capabilities.

Bringing these solutions atline, online, or inline eliminates time-consuming manual sampling while reducing the risks to your staff from toxic materials. «Real-time» results around the clock for key quality parameters allow you to drive your process with maximum efficiency increasing product yield and reducing costs.



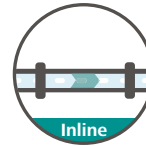
Offline



Atline



Online



Inline

Offline lab analysis

- Manual sampling
- Sample transport to the lab
- Analysis performed by qualified professional
- Sample registration

Atline analysis

- Manual sampling
- Continuous manpower needed
- Automated process analysis close to sampling point inside plant
- Ideal when multiple samples have to be taken at several sampling points along the process

Online analysis

- Automated sample preconditioning
- Automated sampling & registration
- Automated process analysis
- In-process measurement & response
- Fast feedback of results
- Very limited manpower needed
- Closed loop control

Inline analysis

- Fast, direct measurements without sample collection or product waste
- Immediate results and feedback for automatic, continuous process control instead of post-batch standardization
- Very limited manpower needed
- Closed loop control



Overview of Process Analyzers from Metrohm Process Analytics

Whatever your project requirements and budget, Metrohm Process Analytics has the right analyzer and monitoring solution for you. From our low-cost, single-stream dedicated 202X series to our multi-stream, multipurpose 2060 Process Analyzer range, we provide you with an innovative and customizable analyzer to

cover all your process monitoring needs. We also offer environmental solutions such as **MARGA** (Monitor for **Ae**Rosols and **G**ases in **A**mbient air), and nondestructive, «real-time» analysis with near-infrared spectroscopy (NIRS) analyzers.

Wet chemical systems

Customizable, multi-stream Process Analyzers*

Features	202X	2035	ADI 2045TI Ex	2060 Process Analyzer	2060 Process IC	2060 MARGA
Number of sample streams	1–2	1–10	1–10	1–10	1–20	1
Titration	✓	✓	✓	✓	-	-
Photometry	✓	✓	✓	✓	-	-
Ingress Protection (IP66/Nema 4x)	✓	✓	✓	✓	✓	IP40
Modular Configuration	✓	✓	✓	✓	✓	✓
Ex-proof Zone 1 or 2	-	-	✓	-	-	-

Reagent-free systems

NIRS – Near Infrared Spectroscopy Process Analyzers*

Features	NIRS XDS	NIRS Pro
Number of sample streams	1–9	1
Reagent-free	✓	✓
Wavelength range	NIR: 800–2200 nm vis-NIR: 400–2200 nm	1100–1650 nm
Transmittance Mode	✓	✓
Transflectance Mode	✓	✓
Reflectance Mode	✓	✓
Direct Light/Non Contact option	-	✓
Single fiber option	✓	✓
Microbundle option	✓	✓
Dedicated Sample Interfaces**	✓	✓
Ingress Protection	IP65/Nema 4x	IP69k
Sampling in Ex-proof	Zone 1 or 2	-
Instrument in Ex-proof	Zone 2	Zone 20
Acquisition Time	20–30 seconds	< 1 second

* Preconditioning systems and shelters can also be custom-built by Metrohm. See **page 13** for more information.

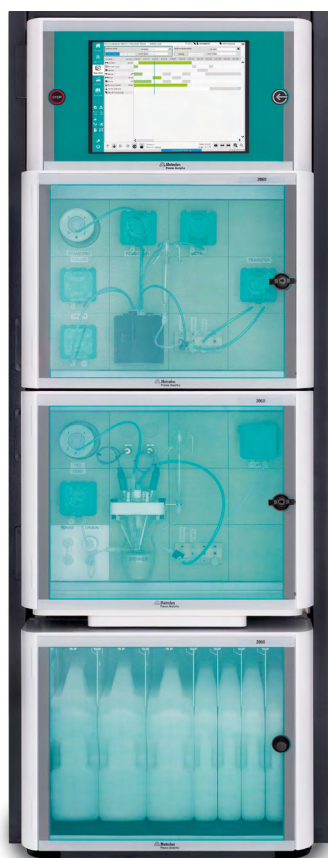
** Collection probes, probes with purging options, angled fibers, and other customizable solutions are available.

2060 Process Analyzer – Multifunctional Process Analyzers

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The 2060 Process Analyzer offers superior modularity by combining up to four cabinets to create one single analyzer platform. This series covers a variety of wet chemistry techniques such as titration and photometry.

The 2060 Process Analyzer enables 24/7 online monitoring of critical chemical parameters in industrial processes and wastewater streams.



Benefits

- Maximum modular flexibility that allows the combination of several analysis cabinets (up to four) for multiparameter measurements on multiple streams
- Implementation of multiple analysis techniques in a single instrument to cover countless challenging applications
- Intuitive software designed to efficiently program and control this top of the line product without the need to learn several other control systems

Key features

- Ethernet TCP/IP Network Communication and remote operation
- Safe shutdown in the case of power failure
- Can perform multiple wet chemistry techniques such as titration and photometry
- IP66/Nema 4x enclosure for harsh environments

Process Application Notes (PAN)

- Analysis of Free, Total & WAD Cyanide in gold leach slurry & wastewater.

[AN-PAN-1002](#)



- Analysis of Alkali, Carbonate, Hydroxide and Sulfide in Pulping Liquors.

[AN-PAN-1004](#)



- Analysis of Nickel ion & Hypophosphite content in plating baths.

[AN-PAN-1012](#)



- Monitoring Tetramethylammonium Hydroxide (TMAH) in Developer.

[AN-PAN-1028](#)



Scan QR code to get the 2060 Process Analyzer Brochure – Maximum flexibility for the toughest challenges in process analysis.



NIRS XDS Process Analyzer & NIRS Analyzer PRO – Process Analyzers for «real-time» analysis

Near-infrared spectroscopy (NIRS) is a fast, chemical-free, and non-destructive analysis technique used in many industries for in-process control of manufacturing operations and measuring product quality.

Metrohm Process Analytics offers two versions of process NIRS systems: the NIR Analyzer Pro and the NIRS XDS Process Analyzer.



Benefits

- Direct inline measurement yields «real-time» analysis and data availability in seconds
- No use of chemicals for better sustainability and cost-saving per analysis
- Increase plant and operator safety
- Increase process quality by automation

Key features

- «Real-time» analysis of any sample (liquids, solids and gases)
- VISION software (All-in-one software)
- IP65/Nema 4x enclosure for harsh environment and in plant operation
- Simultaneous qualitative and multi-constituent quantitative analysis or trend analysis
- Up to 9 independent measuring points up to a distance of 1 km (NIRS XDS Process Analyzer)

Process Application Notes (PAN)

- Inline monitoring of water content in naphtha fractions by NIRS.
[AN-PAN-1047](#)
- Inline moisture analysis in a pilot scale granulation process by NIRS.
[AN-PAN-1048](#)
- Inline process monitoring of moisture levels in a fluid bed dryer.
[AN-PAN-1050](#)
- Inline process monitoring of moisture content in propylene oxide.
[AN-PAN-1051](#)



Scan QR code to get the NIR Brochures – Next generation of process analyzers for «real-time» analysis.



2035 Process Analyzer – Customized online monitoring of industrial processes

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The 2035 Process Analyzer is designed with versatility in mind. This series comes in three different configurations: potentiometric, photometric, and thermometric. Also, additional measuring techniques such as pH and

conductivity can be combined. Modularity of the wet part of the 2035 Process Analyzer means there is an analyzer configuration for any challenge.



Benefits

- Multi-stream single technology
- Robust process design (with strict separation of the wet part from the electronics)
- Freely programmable alarms to inform you about relevant events (such as result limit, low reagents, and maintenance)

Key features

- Ethernet TCP/IP Network Communication and remote operation
- Three basic configurations (Potentiometric titration, thermometric titration, and photometry)
- IP66/Nema 4x: protection in harsh environments

Process Application Notes (PAN)

- Chlor-alkali industry: Analysis of Calcium, Magnesium in Brine.

[AN-PAN-1005](#)



- Analysis of Bayer Aluminate Liquors Using Thermometric Titration.

[AN-PAN-1035](#)



- ASTM D8045: Online measurement of the acid number (AN) in oils with thermometric titration. [AN-PAN-1037](#)



- Ortho- and total phosphate phosphorus analysis online according to DIN EN ISO 6878:2004-09 (formerly DIN 38405-D11). [AN-PAN-1039](#)



Scan QR code to get the 2035 Process Analyzer Brochure – Customized online monitoring of industrial processes and wastewater



Hazardous areas – Play it safe with our Ex-proof Process Analyzers

In hazardous environments, where concentrations of flammable gases, harmful vapors, or dust occur, it is vital that instruments are safe to operate and do not initiate an explosion. Explosion-proof Process Analyzers are configured to comply with explosion-proof electrical

area classifications. (ATEX, Classl Div2/ Classl Div1...) For these environments, Metrohm Process Analytics has developed the 2045 Ex-Proof Analyzer for wet chemistry applications and NIRS XDS Process Analyzer for spectroscopic applications.



NIRS XDS Process Analyzer



Benefits

- No «Hot work permits» needed for servicing
- Proven safety and reliability
- Smart design avoids the need for purging large analyzer shelters (small footprint)
- Certified Ex-Proof Zone 1 and 2 "in accordance with EU Directive 2014/34/EU and Classl Div2/ Classl Div 1 in accordance with NEC"







ADI 2045TI Ex-proof Analyzer



Key features

- Intrinsic safety electronic devices (ADI 2045TI Ex-Proof Analyzer)
- Purge/pressurization system
- Made of Stainless steel
- IP65/Nema 4x enclosure for harsh environments

Process Application Notes (PAN)

- Online analysis of peroxide in HPPO process. [AN-PAN-1007](#) 
- Desalting Crude Oil Analysis of Salt in Crude Oil. [AN-PAN-1014](#) 
- Mercaptans and Hydrogen Sulfide Derived from Crude Oil According to ASTM D3227 and UOP163. [AN-PAN-1026](#) 
- Inline process monitoring of moisture content in propylene oxide. [AN-PAN-1051](#) 

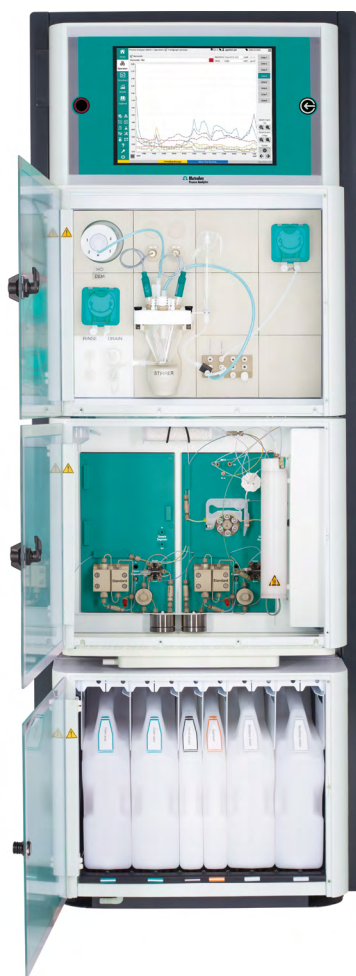
Scan QR code to get the ADI 2045TI Ex-proof Process Analyzer Brochure – State-of-the-art protection for online process analysis



2060 IC Analyzer– Reliable multicomponent analysis

The 2060 IC is based on the Metrohm Process Analytics 2060 platform. This system offers unattended, high precision online analyses for a wide spectrum of ionic species in aqueous media. System modularity, combined

with Metrohm's decades of experience in ion chromatography, makes the 2060 IC invaluable for process monitoring and optimization.



Benefits

- Broad detection range (ng/L to %) for a wide variety of applications and changing conditions
- Multiple components (ions) in one analysis, which saves time and money over separate techniques and multiple analyses
- Informative process monitoring – with one injection, analyze multiple components with automated, intelligent inline sample preparation and injection techniques

Key features

- Conductivity detection method
- Built-in Metrohm ion analysis excellence with latest hardware and MagIC Net software
- Safe shutdown in the case of power failure
- High precision analyses for a wide spectrum of analytes with multiple types of detectors
- Inline eluent preparation ensures consistent baselines, saving you time and effort

Process Application Notes (PAN)

- Online trace analysis of anions in the primary circuit of nuclear power plants.

[AN-PAN-1042](#)



- Online monitoring of copper corrosion inhibitors in cooling water.

[AN-PAN-1045](#)



- Online Determination of Anions in 50% NaOH and 50% KOH by Ion Chromatography According to ASTM E1787-16. [AN-PAN-1046](#)



- Online determination of bromate and other disinfection byproducts in drinking & bottled water with IC. [AN-PAN-1049](#)



Scan QR code to get the Metrohm Process IC System Brochure – reliable, multi-component analysis for online process controls.



2060 MARGA – Ambient Air Monitoring

The **MARGA** (**M**onitor for **AeR**osols and **G**ases in **A**mbient air) is based on the Metrohm Process Analytics 2060 platform. This analyzer is an online ion-chromatograph that measures the concentration of

water soluble inorganic species in aerosols and their related gas phase components in ambient air.



Benefits

- More than 10 years of experience in air monitoring (more than 100 units sold)
- Simultaneous sampling of aerosols and gases, with results given every hour, 24/7
- Low detection limits for the most sensitive determinations
- High time resolution (crucial for modelling)
- Collection of water soluble gas and aerosol components which allows further analysis of significant periods of pollution

Key features

- Built-in Metrohm ion analysis excellence with latest hardware and MagIC Net software
- No need to calibrate as an internal standard is measured with every sample
- Safe shutdown in the case of power failure
- All versions supplied with standard validated application for ambient air monitoring
- Detection limits (without pre-concentration) of $0.1 \mu\text{g}/\text{m}^3$ achievable
- Analysis method can be adapted to determine MSA, oxalate, amines, or organic acids

Applications

- Air Monitoring by Ion Chromatography – a literature reference review



Scan QR code to get the 2060 MARGA Process Analyzer Brochure – Monitor for AeRosols and Gases in ambient Air – Continuous Measurements of Aerosols and Gases.



202X Series— Single method Process Analyzers

The 202X series is based on a single-method Process Analyzer especially suitable for monitoring chemicals in water and wastewater for several sectors. This series can monitor up to 2 sample streams, and is available in three

versions, the 2026 Titrolyzer, 2026 pH Analyzer, and 2029 Process Photometer.



Benefits

- Wide range of straightforward field-proven applications in several markets
- Compact footprint for tight industrial spaces: 326 x 273 mm
- High resolution dosing system for accurate and reproducible results.



Key features

- Ethernet TCP/IP Network Communication and remote operation
- Dual compartment enclosure. Complete separation between the electronics and the wet part, therefore no leakages possible into the electronics part
- IP66/Nema 4x enclosure for harsh environment
- Three basic configurations (2026 Titrolyzer, 2026 pH Analyzer, and 2029 Process Photometer)

Process Application Notes (PAN)

- Cumene process: Analysis of Sulfuric Acid in Acetone and Phenol.

[AN-PAN-1008](#)



- Wastewater Treatment Plants: Nitrogen Removal Simultaneous analysis of Ammonia, Nitrate and Nitrite. [AN-PAN-1009](#)



- Viscose / Rayon production: Analysis of Sulfuric Acid and Zinc Sulfate.

[AN-PAN-1010](#)



- Detecting Chromate (Cr(VI)) in Waste Water Streams.

[AN-PAN-1030](#)



Scan QR code to get the 202X Series Brochure – Powerful and compact single method online analyzers.



Problem solver – Preconditioning and integrated systems

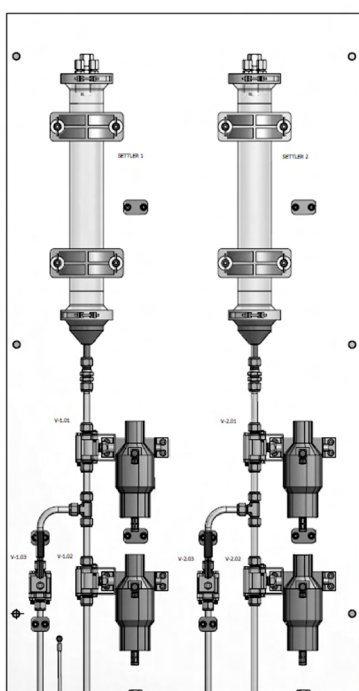
Besides the chemical analysis, sample preparation, preconditioning, and location of the analyzer are deciding factors for the success of inline, online, and atline analysis. We can provide a full solution for almost any application: an analyzer in combination with sample preparation or even a complete package with a shelter, piping, wiring, and interfacing. This allows seamless startup and integration of the instrument on site.

Metrohm Process Analytics can engineer and supply virtually any «unit operation» for sample preconditioning. With more than 45 years of experience, Metrohm Process Analytics can provide a complete and exact solution for almost any application. Projects range from one analyzer in combination with simple sample panel preparation to complete complex turn-key packages. On site, only the necessary utilities and the sample stream need to be connected, saving significant time and energy in the start up phase of the instrument.

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- Pressure reduction
- Cooling
- Heating, heat tracing
- (Ultra) filtration
- Precipitation and settling

- Dilution (to avoid crystallization)
- Degassing
- Homogenizing
- Flow metering
- Phase separation



Consultation and design of a customized preconditioning system



Customized preconditioning system on site



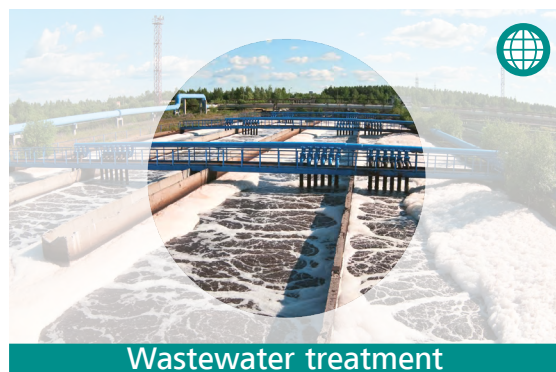
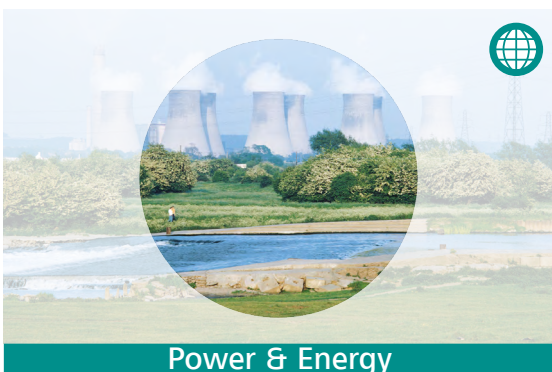
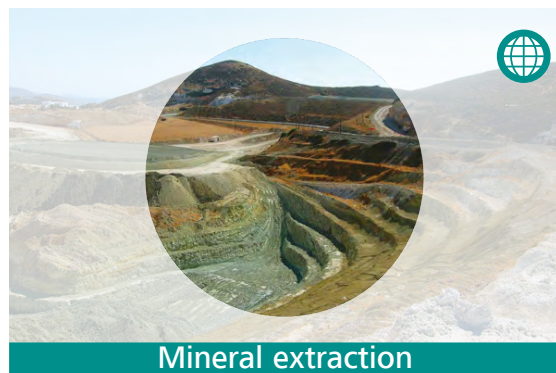
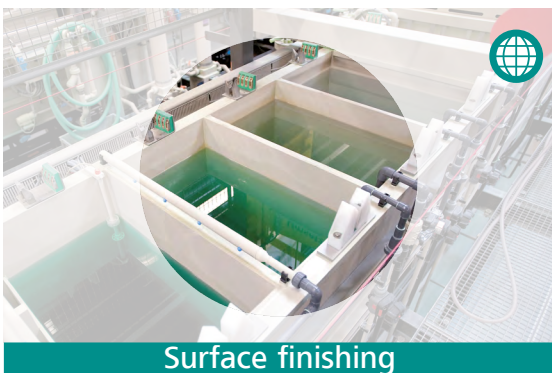
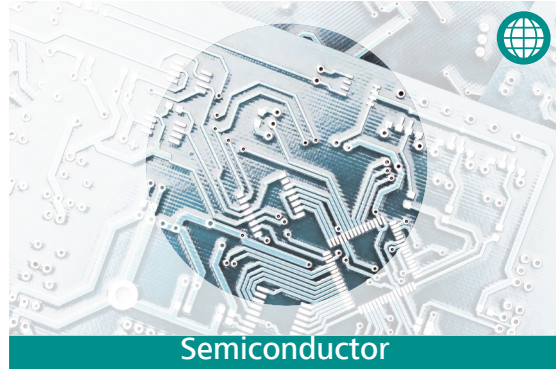
Sample preconditioning with shelter on site

Experience you can trust – Solutions for all major industries

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Take a look at any of the major manufacturing industries and even beyond at power generation, mineral extraction, and wastewater treatment. World-leading companies rely on our robust process analyzers across many industries.

Our solutions for process control and process monitoring are trusted by leading companies from all industries, e.g.:





Local offices worldwide – The Metrohm Service organization

Metrohm Quality Service is available 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.

Wherever you need us, we're there to help.



A high standard for us – and a promise to you

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. The core elements of our global service promise are:

- Clearly defined system maintenance
- Implementation with specially developed diagnostic instruments
- Uniform maintenance agreement with clearly defined services tailored to customers' needs
- Training and courses with customized user-specific content
- Uniform documentation of all services executed

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