# Keeping you safe

High precision chemical analysis for defense & security

Metrohm

# We are global leaders

Maximum reliability of materials and equipment. Dependable performance of sophisticated technology under extreme conditions. Effective defense against immediate threats. These requirements demand precise analytics.

We are a leading supplier of technical solutions and application know-how for chemical analysis. Using our instruments, you can analyze the elemental composition of all kinds of substances in any condition – quickly, reliably, and with the highest precision.

## You can rely on us

**Our offer to procurement agencies, armed forces, and the defence industry is comprehensive. With our precision instruments and our application expertise you can ...**

- check water for chemical contaminants down to ultra and even ultra-trace level concentrations
- analyze incendiary devices, explosives, and hazardous materials in the field (Counter-IED, CBRN-Defense)
- determine the quality and effectiveness of pharmaceuticals and identify counterfeits
- analyze oils and lubricants to ensure efficient maintenance and availability of equipment and systems
- measure ageing (corrosion) of infrastructure and material to improve preventive maintenance
- monitor plating processes for the functional coating of metallic surfaces of any kind
- determine moisture in propellants and explosives
- check numerous other parameters – in the laboratory or directly in the process

**Find out more about the solutions we offer in the following pages.**

# Counter IED and CBRN defense – quickly, reliably, right in the field

We are a leading supplier of handheld material identification systems designed for armed forces and first responders. Our Mira DS Raman system is a standoff detector that allows you to identify hundreds of explosives and hazardous materials from a safe distance – anywhere and within seconds. Mira DS is barely larger than a smartphone, weighing just 700 grams, and meeting the specifications of MIL STD 810G.

**Flexible sampling:** Various sampling attachments enable fast, straightforward sample identification. E.g., the Standoff Attachment allows you to identify hazardous substances and explosives from a safe distance of up to 1.5 meters.

# Quality control of propellants and explosives – fast, simple and reliable

Also in the field of quality control for propellants and explosives, we provide complete solutions including the know-how of our application specialists. A key application here is the highly sensitive determination of moisture. With our proven solutions for Karl Fischer titration, we offer a primary method with which you can easily determine water concentrations in the ppm range – fully automated.

Our automation solutions enable high sample throughput, for example, in the determination of water content by Karl Fischer titration.

# Quality control of fuels and lubricants

Fuels such as kerosine, diesel, and gasoline must be of the highest quality. They can not be stored indefinitely since they are subject to ageing. The same applies to high performance lubricants and oils. Numerous parameters need to be analyzed in order to safeguard the quality of these products.

We offer state-of-the-art measuring instruments for the analysis of fuels and lubricants providing precise and reproducible results. One application example is the precision determination of water content in hydraulic oils using Karl Fischer titration.

**Kerosine:** Using our Near-Infrared Spectroscopy (NIRS) instruments, you can determine several quality parameters simultaneously (e.g., cetane index, density, aromatics, etc.) in real time. No sample preparation, solvents, and reagents are are required.

# Health and safety – quality control of pharmaceuticals

We have been a trusted supplier to the pharmaceutical industry, public authorities and medical services of armed forces for decades.

Our expertise includes hundreds of applications that can be used to determine the identity and concentration of active ingredients, excipients, and contaminants. The methods used to carry out these applications are often standardized (USP, EN, ISO) and range from pH measurement, titration and ion chromatography to spectroscopic methods for real-time analysis in the field.

Our Mira P handheld Raman system, on the other hand, allows you to verify counterfeits quickly and reliably in the field – at the touch of a screen.

# Safeguarding water quality

Armed forces depend on clean drinking water – always and everywhere. In addition to solutions for determining standard parameters such as calcium, magnesium, pH, chloride etc. in water, we also offer complete solutions for the highly sensitive trace analysis of toxic heavy metals (uranium, chromium, mercury, arsenic, etc.) as well as other contaminants.

With our instruments for ion chromatography, voltammetry, and titration, we provide robust solutions that are easy to use and produce accurate results in minutes.

We are leaders in water analysis and can offer you everything from a single source – from mobile voltammetric measuring instruments for heavy metal analysis to integrated, fully automated measuring stands for the complete range of critical inorganic parameters.

# Corrosion monitoring and other electrochemical applications

Corrosion is an electrochemical process destroying metallic materials and threatening technical infrastructure, equipment, and systems. We offer complete solutions that enable you to monitor corrosion in order to assess the condition and availability of the relevant infrastructure or systems.

Battery research, the development of high-performance capacitors, and the monitoring of plating baths and baths for functional coating of surfaces (e.g. in the automotive and aerospace industries) are additional fields in which our electrochemical measuring instruments are used and provide precise measurement results.

An electrochemical measuring stand from Metrohm Autolab as used in corrosion research. The acquisition and evaluation of the results is carried out using dedicated software.

Surface finishing of an aircraft landing gear in a coating bath: We offer measuring solutions needed to monitor all critical parameters.

# We are there for you wherever you are in the world

Metrohm was founded 75 years ago in Herisau, Switzerland, where we have kept our headquaters, R&D, and production ever since. We are not listed on the stock exchange and put our focus on technical innovation.

We have more than 40 subsidiaries all over the world, through which we supply our customers and support them with professional service and application know-how. In a number of countries we work together with selected exclusive distributors; overall, we are present in more than 120 countries.

Metrohm
Swiss Quality

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