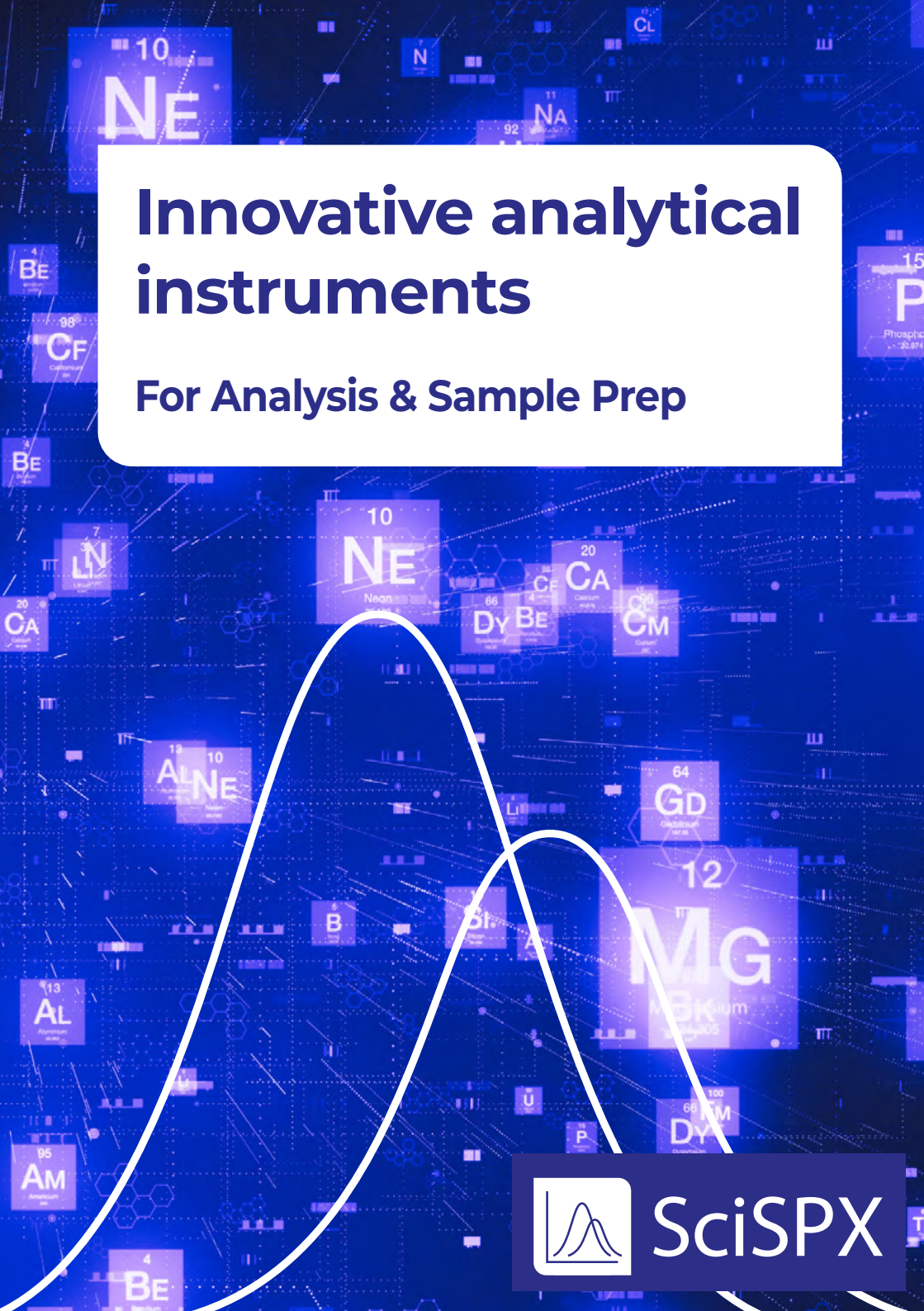
# Innovative analytical instruments

## For Analysis & Sample Prep



SciSPX

# Introduction

SciSPX is part of BRS, a leading supplier of laboratory instruments in BeLux for over 30 years. SciSPX is active in the field of Analysis and Sample Prep.

Our Xperts support our products for Elemental Analysis, Food Quality Control and Environmental Analysis. In the Benelux we are based in Abcoude (NL) and in Beersel (BELUX) working every day to provide service and support to each and every customer.

# Who are we?

## Support and Product Xperts

As Support and Product Xperts, we help laboratories with their analysis and research.

We introduce new technologies and developments of existing technologies to our customers to help them reach their goals.

Through our experience, versatility and organizational strength, our organization distinguishes itself as a company where every employee maximizes customer satisfaction, personal results, teamwork and communication skills. These principles help us establish a long-term relationship with our customers.

Our Support & Service Engineers and Product Specialists cover the whole process from advising, demonstrating and developing the applications, installing, maintaining and repairing the laboratory instruments.



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# Our markets

Chemical industry

Pharmaceutical industry

Food - Feed - Beverages

Agriculture

Environment

Energy resources

# Index





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## Rapid Moisture/Solids analyses in <5 minutes!

The Smart 6 is the most technologically advanced and fastest microwave moisture/solids analyzer on the market.

- Simple steps to run any sample type
- Analyze both dry and wet products in one system
- Ready-to-use preprogrammed methods
- Direct loss on drying measurement
- Combines microwaves and infrared to rapidly determine moisture content



## Rapid NMR Fat analyzer.

ORACLE is the first ever rapid fat analyzer that requires **absolutely NO method development or calibrations.**

- Rapid 30 seconds analysis
- Analyze any sample from 0.05% - 100% fat
- Direct measurement of hydrogen protons on fat molecules
- Major breakthrough in NMR technology
- **Meets ISO 16756 | IDF 259, the only fat analysis standard without calibrations or solvents.**

**Matrix independent**







## Microwave Muffle furnace.

Ash samples with speed and safety with the Phoenix BLACK.

- Ash samples up to 97% faster
- One-step ashing without need of pre-ashing
- Use any type of crucible
- Easy to use methods with automatic start and temperature ramps
- Meets industry requirements for muffle furnaces
- Is CFR 21 part 11 compliant (sulphate ashing)
- Homogene temperature inside the muffle




Phoenix Black Airwave

Phoenix Black Sulfate Ashing

## NEW: Scientific Microwave Digestion System MARSXpress 2.0

- Intuitive vessel assembly and system operation
- Advanced user interface XpressIntelligence (X.I.)
- Batch as few as 1, 2, 3… up to 40 samples
- Check digestion status from across the lab with the Visual Light Indicator (VLI) or watch your digestions through the large window
- Most cost-effective system available

## Automated Solvent Extraction System.

The EDGE® is an automated extraction system that is faster than Soxhlet, more automated than QuEChERS, and simpler than other solvent extraction systems.

- Fastest technique available
- 12 samples in an hour
- Q-Cups™ are easily assembled and cleaned
- One technology with unlimited applications

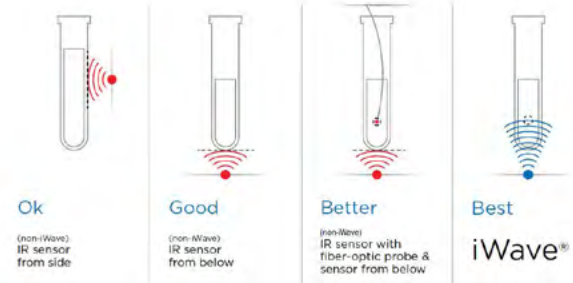
**Flexible: Get better results with one instrument.**

- Dispersive Solid Phase Extraction
- Pressurized Fluid Extraction
- Supported Liquid Extraction
- **PFAS version is available**

## Better digestions for improved metal analyses with Mars 6.

For over 45 years chemists have trusted CEM to provide the highest quality microwave digestion system for their laboratories.

- Contactless in-situ temperature measurement (iWAVE)
- Sensors that detect vessel type and count
- Hundreds of pre-programmed methods
- Easy to use vessels for every application



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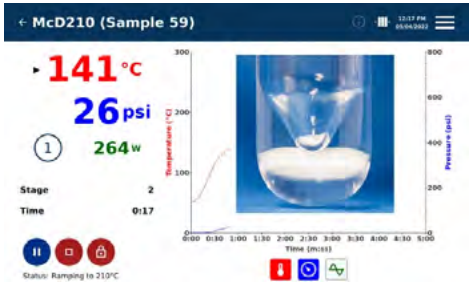
## BLADE - The future of microwave digestion... today.

BLADE™ brings speed, simplicity, performance, and flexibility to labs to increase their capabilities and drive them into the future of elemental analysis.

- Digestions in minutes
- Prepare vessel in seconds with the Easy Snap Cap
- Mix and match samples and acids
- Different sample matrixes
- Complete controlled venting
- Is CFR21 part 11 compliant

**Digest any sample with ease.**

From routine to extreme, BLADE can digest it all with ease. Mix and match samples and acids, including $HNO_3$, HCl, and HF, etc. in one batch using available methods. Even watch your digestion in real-time with the high definition **built-in camera**.




## Vario EL & UNICUBE - Golden standard in simultaneous CHNS elemental analysis.

- Little and tool-free maintenance
- Patented ball-valve for blank-free sample introduction
- Unique element separation
- Optional autosampler 60-120 positions

UNICUBE

Vario EL Cube

## Vario MAX Cube & Vario MACRO Cube the first MACRO analyzer for the simultaneous CHNS analyses.

- The Advanced Purge and Trap (APT) technology enables the instrument to measure samples with even the most challenging C:N
- Handle large sample volumes of up to 1.5g (MACRO) and up to 5g (MAX) which allows analyzing even inhomogeneous matrices
- Future proof thanks to 10-year guarantee on the high-temperature combustion furnace and the thermal conductivity detector cell

VARIO MAX CUBE

VARIO MACRO CUBE





## Rapid N exceed & Rapid Max N exceed - Nitrogen and Protein analyzers.

Maximum performance Dumas Analyzers.

Dumas is a reference and routine method for the determination of total nitrogen and protein concentration. The method is ideally suited for various food and feed manufacturers and suppliers. This nitrogen and protein analysis is highly reproducible and meets national and international standards for food and feed.

- Maximum sample flexibility due to different sample introductions
- Patented ball-valve for blank-free sample introduction
- High accuracy due to unique post-combustion technology
- Little and easy tool-free maintenance

Rapid N exceed

Rapid Max N exceed

| | Dumas | Kjeldahl |
|---|---|---|
| **Sample throughput** | >200 per day | Labor intensive: two systems |
| **Single sample** | 3-5 min per sample | Slow analysis: >100 min |
| **Precision / data quality** | Comparable repeatability, comparable data quality | |
| **Economic operation** | Lowest price per analysis<br>Fully automated operation | Expensive (waste disposal & manpower) |
| **Safety** | No boiling acids<br>No corroded fume hood! | Uses boiling acid |
| **Environment** | No hazardous chemicals to recycle | Produces hazardous waste |

## Rapid OXY cube - Rapid Oxygen analysis.

Highly accurate and precise oxygen analysis, even in the low ppm range.

To enable trace oxygen analysis, the system blank is reduced to almost non-existent levels thanks to innovative sample introduction methods and a blank-free pyrolysis reactor made from glassy carbon.

- 1450°C furnace temperatures for quantitative matrix independent pyrolysis
- An unparalleled limit of detection up to 10 ppm
- Patented blanc free sample introduction valve

### Upgrade to liquid autosampler

- Liquid autosampler injects directly into combustion zone
- Time saving
- Syringe can inject 3 µl – 25 µl with highest precision
- Better results for volatile components
- Safe

## Vario TOC Cube.

TOC/TNb analysis without limitations.

- For the determination of organically and inorganically bound carbon in liquids, slurries and solids
- Measuring modes for TC/TIC, TOC/NPOC, POC and DOC ($TN_b$)
- Modular concept for liquid and solid analysis
- Software with high performance and maximum flexibility
- Real matrix separation with SALTTRAP
- Meets **ISO20236**

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## ISOPRIME visION a compact, benchtop stable isotope analyzer which offers complete automation of almost all routine tasks.

Isotope ratio mass spectrometry (IRMS) is a specialization of mass spectrometry that allows the precise measurement of the relative abundance of stable isotopes in a given sample.

**Analysis of:** δ2H, δ13C, δ15N, δ18O, δ34S

**Applications:**

- **ANTHROVISION**: A complete solution for sports doping, archaeology, and criminal forensics
- **AROMAVISION**: Advanced performance for flavour and fragrance analysis
- **BIOVISION**: A comprehensive solution for stable isotope analysis in the food industry

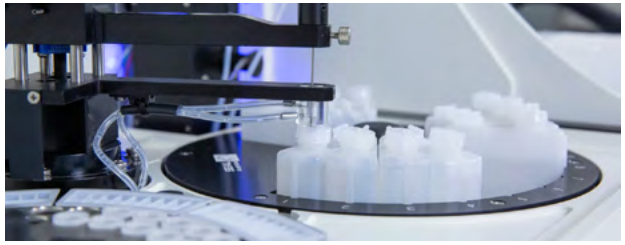
Want to know more? Scan the QR code, or go to:
www.elementar.com/en/products/stable-isotope-analyzers/mass-spectrometers



## Discrete Analyzers (DA)

For automated environmental and nutrient testing.

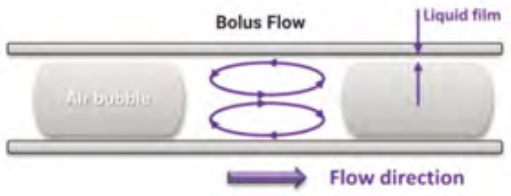
- Depending on your throughput, select the right model:
  - **AQ300**: up to 97 sample positions; 18 reagent positions; 180 reaction positions
  - **AQ400**: up to 120 sample positions; 26 reagent positions; 216 reaction positions
  - **AQ700**: up to 424 sample positions, 24 reagent positions; 848 reaction positions
- All DA analysers offer auto inline dilution capabilities
- All DA analysers come standard with a 10 mm quartz flow-through cuvette
- We offer ready to use reagents for every method
- Methods for environmental, agriculture, food, beverage and pharmaceutical analysis available (EPA and ISO compliant)





## Automated Segmented Continuous flow analyzers (SFA)

- Segmented Flow Analysis (SFA): The reaction stream is segmented with bubbles of air or nitrogen, creating "Bolus Flow" and reducing inter-sample dispersion.
- In-line sample pretreatment for SFA: Gas Diffusion, UV Digestion & more
- Explore our SFA models:
  - **AA500** stands for total automation,ultra-low detection, multitest manifolds and highest throughput
  - **AA100** is the compact dual channel autoanalyser dedicated for environmental labs
  - **QuAAtro 39** is the high performer micro and macro flow analyser
- Safe, fully unattended shutdown is possible with the use of reagent valves, automated pump platen, and other software-controlled components








## CALCIS Automated Total Inorganic Carbon (TIC)

Calcite /Dolomite Analyzer.

Calcis is developed for the rapid and automated analysis of total inorganic carbon, carbonates and calcite/dolomite ratio in solid samples such as soil, geological samples, graphite, cement, solid waste etc.

- Complements existing combustion-based elemental analyzers measuring TOC and organic matter (TOC = TC-IC)
- Full automation including acid addition, stirring, sampling
- Analyze for %TIC and %$CCO_3$ in solid samples



## BioDeg

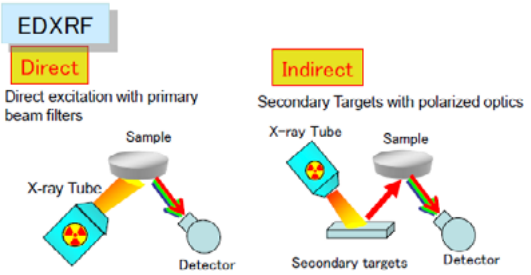
Biodegradation / Soil Respiratoin Test System.

BioDeg is developed for the determination of biodegradation degree of organic compounds under controlled conditions (temperature, moisture etc.). In this process, evolved CO2 is measured by sensitive NDIR detector. BioDeg is fully software-controlled and generates reports including all important data.

- Up to 60 channels
- Temperature and pressure compensated NDIR-$CO_2$ detection
- Upgradable for other gasses such as $CH_4$, $H_2S$, $O_2$ etc.
- Automated and precise humidification
- 2-stage moisture removal

# Energy Dispersive X-ray Fluorescence (EDXRF)

A non-destructive analytical technique that provides quick, multi-element analysis in a wide range of matrices. All elements in the range of sodium through uranium can be measured.




## Nex CG II Series

High-performance indirect excitation EDXRF for complex applications with trace elements and variable base matrices.

- Quick elemental analyses of solids, liquids, powders, coatings, and thin films
- Indirect excitation for exceptionally low detection limits
- Large-area high-throughput silicon drift detector (SDD)
- Analysis in air, helium, or vacuum
- Powerful and easy-to-use QuantEZ software
- Advanced RPF-SQX Fundamental Parameters software featuring Scattering FP
- Compliance with CFR 21Part 11
- Various automatic sample changers accommodating up to 52 mm samples

## NEX DE Series

60 kV EDXRF for high-performance results when analysis time or sample throughput is critical or when small spot analysis is required.

- Quick elemental analyses of solids, liquids, alloys, powders and thin films
- High-performance SDD for superior data
- 60 kV X-ray tube for wide elemental coverage
- Multiple automated tube filters for enhanced sensitivity
- Advanced RPF-SQX Fundamental Parameters software featuring Rigaku Scattering FP
- Compliance with CFR 21Part 11
- High-res camera and automated collimators for accurate sample positioning (NEX DE VS)
- Analyze 1 mm, 3 mm, and 10 mm spot sizes (NEX DE VS)



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# Wavelength Dispersive X-ray Fluorescence (WDXRF)

Exceptional precision and accuracy in measuring the thickness and composition of materials, particularly with light elements.

## Supermini200

High-Power Benchtop Sequential WDXRF Spectrometer.

A versatile instrument that is widely used in industrial- and research environments. It can be used for quality control of almost any type of material, as well as covering many areas of research. The Rigaku Supermini200 delivers high resolution and excellent lower limits-of-detection (LLD) at low cost-of-ownership.

- Compact and lightweight benchtop WDXRF spectrometer
- Air-cooled 200 W Pd X-ray tube
- Primary beam filter
- Three analyzer crystals
- Standard flow proportional- and scintillation detector
- Optional: sealed proportional detector
- 10- or 12-position sample carousel, for samples up to 52mm in diameter

## ZSX Primus IV

Tube-Above high End Sequential WDXRF Spectrometer.

- 4000 W Rh X-ray tube with a 30 um Be window
- 6-position sample mask changer (35 mm to 0,5 mm)
- Up to 10 analyzer crystals
- 3 collimator slits
- Attenuator for optimal excitation
- Auto Pressure Control (APC) of the vacuum for best light element performance
- Digital Multi Channel Analyzers (D-MCA) for increased detector linearity
- Helium partition for liquids and loose powder samples
- Guided quantitative application set-up



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## **PeCOD -** Fast and Portable COD (Chemical Oxygen Demand) Analyzer.

- Safe, green chemistry: no use of acid solvents and chromates
- Strong correlation to BOD5
- One technology, multiple configurations: benchtop, online and automated
- Results are available in only 10 minutes


## **PC-BOD -** Automated Biochemical Oxygen Demand (BOD) Analysis Solutions.

- Automates the 5-day and 7-day BOD and CBOD standard analysis methods.
- Conforms to ASTM Standard Methods 5210B 23rd Edition, ISO EN 5815, ISO EN 1899-1, -2
- Automated DO probe calibrations and calibration checks either on rack or at a separate side position, with automated recalibration and re-reading of previous samples when required
- Customizable user interface to simplify operation
- Easily manage and prioritize samples during analysis
- Quickly identify results with barcoded labels
- Upgradable and modular




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Multi-Parameter and Titration Analyzers
MANTECH

## **MT Series of Automated Environmental Titration and Multi-Parameter Analyzers.**

Mantech can deliver analysis systems that perform the following functions between 1 parameter and up to 8 parameters can be automated.

- pH
- Chloride by Titration or direct measurement
- Oxygen
- Turbidity
- Alkalinity by Titration
- Fluoride
- Oxidation-Reduction Potential (ORP)
- Nitrate
- Electrical Conductivity (EC)
- Color
- Salinity
- Total Hardness
- Acidity by Titration
- Ammonia by standard addition or direct measurement
- Temperature
- Soil pH & Conductivity
- Permanganate Index (PI) for Oxidizability

- Automates 32-720 samples in a single batch
- Customizable user interface for simplified operation
- IntelliRinse™ prevents cross contamination between samples
- Eliminates potential for human error with automated pipetting using MANTECH's Titrasip™
- Non-destructive sample preparation allows for up to 5 parameters on a single sample




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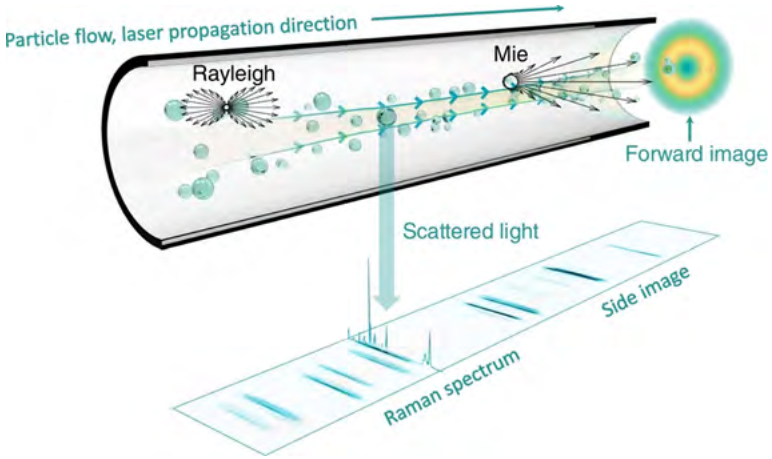
## Automating (nano)particle characterization and analytics for fast and accurate results in quality control for production and R&D based on the patented OF2i technique.

**Optofluidic Force Induction (OF2i®)** is a non-destructive, parameter-free measuring method for particle counting, particle sizing and determination of particle concentration in liquid samples. Results are based on detection and counting of up to 1000 particles per minute in a continuous flow of sample through a measuring cell. It can also be used to monitor changes in the sample, e.g. reactions, agglomeration, sedimentation.






**What Brave can do for you:**

### Real-Time process control
With a fully automated and integrable system for QC in liquid (nano)particle production (e.g. emulsions, LNPs)

### Enabling new insights & discoveries
and satisfying intrinsic curiosity in basic research and R&D (formation of e.g. LLPS, degradation processes of e.g. microplastics)

### Aggregation detection
For R&D and production and for QC (e.g. monoclonal antibodies, proteins)

### Quantification & Analysis
of nano- and micro pollutants (e.g. degradation processes) for water injection, microplastics in liquids





## B-Curious & B-Continuous: Particle count
Monitor (nano)particle behavior in real-time .

- Benchtop nanoparticle analyzer for particle concentration measurement and continuous, time-resolved nanoparticle characterization for the laboratory
- Quicker than conventional methods
- Proven throughput up to 1000 particles/minute
- Exact size and size distribution / concentration: ~100nm to 3µm (sample dependent)

B-Curious

B-Continuous



## B-Elementary:
Continuous in-flow Raman analysis .

- Direct and easy integration to your production plant as an online PAT (Process analytical technology) sensor
- Seamless measurement data in real-time 24/7
- Particle size, size distribution / concentration and ANALYTICS 250nm - 50µm (sample dependent)
- Identification of unsolicited material via Light Scattering signals: 50nm - 50µm+ (concentration dependent)

## The VariRef: Refractometer on the bench for fast and precise measurements.

- Liquid and solid samples
- Modular and connectable to network
- Multi-point calibration for full measurement range
- User friendly
- Fast temperature control, rapid measuring results
- Easy cleaning
- Maintenance free
- 21 CFR Part 11 conform



## In-Line Process Refractometers

All the in-line process refractometers and sensors perform industrial measurements continuously and in real time. This technology is also known as PAT (Process Analytical Technology). PAT allows you to monitor and control your process without product loss or process divergence.

- Monitoring of process fluids (determination of concentration, monitoring of mixing processes, etc.)
- Real-time measurement
- Highest accuracy over wide measuring and temperature range
- EHEDG and Atex compliant
- User friendly
- Maintenace free
- Customised scales
- Easy to implement (flexible connections)





## The VariPol: Modular Polarimeter for Pharma & Food.

- Great modularity
- Basic Polarimeter especially designed for pharmaceutical applications – 21 CFR Part 11
- Multi-user concept and remote control via internet browser
- Rapid measuring
- Peltier system for automatic temperature control
- Constant precision over the whole measuring range, space saving
- Energy saving durable LEDs



## The VariDens: Density and concentration measurement.

- Modular use, connectable to your internet browser or tablet
- Intuitive user interface, multiple users
- Fast temperature control
- Easy cleaning
- Maintenance free
- Compliant with 21 CFR Part 11

## iVisc Viscometer - Compact automatic viscometer for Newtonian liquids.

Intelligent viscosity measuring stand designed for a large spectrum of standard glass capillary viscometers.

- Easy to operate via the software
- Modular solution for maximum flexibility
- Kinematic viscosities ranging from 0.3 to 30 000 mm²/s can be measured
- ALauda Thermostat controls the sample temperature ranges from -20 to 150 °C

## Measuring stand S5 for a complete automated solution (PVS).

The S5 is the measuring part of the PVS system. Its head is comprised of the opto-electronic meniscus detectors as well as the entire control of the measuring process including miniature pump and valves.

The accuracy and resolution of the light sensor measurement system is among the best of its class. The robust micro-pump for pushing the sample up into the measuring ball as well as the chemical-resistant valves in the head of the stand allows reliable and continuous operation.

- Completely micro-processor controlled for a highly precise time measurement
- Adaptive infrared (NIR) detection
- For (Micro-) Ubbelohde, Cannon-Fenske-Routine and Micro-Ostwald capillaries
- Control can be extended with inserted cards for additional 5x S5 stands, VRM modules (automatic cleaning) and MT dosing systems.





## TD5 Tensiometer - For the precise determination of Surface and Interfacial tension.

- For standard methods such as the Du-Noüy ring or Wilhelmy plate method
- Besides surface and interfacial tension in liquids to characterize surfactant solutions and oils. it can measure drop adhesion force and density
- Remote control from the user-friendly software
- Surface tension resolution: 0.007 mN/m
- Temperature ranges from 5 to 80°C (with optional temperature sensor)

## LSA - Contact Angle Measuring Instruments.

LAUDA Scientific Surface Analysers cover a wide range of applications, from quality assurance to research.

- Wide range of drop calculation methods
- Innovative unique drop shape adjustments
- Fully automatic measurement
- Expandable and customizable with a wide range of dosing systems, sample stages and other accessories
- Full support of automatic interfacial tension and CMC
- Remote control from the powerful software
- High-speed video recording

## Next to SciSPX, BRS has other business units:

BioSPX
A new focus on life science

BioSPX: Life Science – www.biospx.com

ChemSPX
Chemistry connects

ChemSPX: From Synthesis to Purification
www.chemspx.com

AddSPX
Elemental & structure analysis

AddSPX: Element and structure analysis
www.addspx.com

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