

APPLICATION SOLUTION

LABORATORY & ANALYSIS EQUIPMENT

QATM

Qpress 40



CARBOLITE

ELTRA

Retsch

QATM

MICROTRAC

ERWEKA



ENABLING PROGRESS



**INNOVATIVE SOLUTIONS
QUALITY AND PRECISION
CUSTOMER-CENTRIC APPROACH
GLOBAL REACH
SUSTAINABILITY**

VERDER SCIENTIFIC IS A GLOBAL RELIABLE MANUFACTURER OF LABORATORY AND ANALYSIS EQUIPMENT



1300

EMPLOYEES



300

MIO. € SALES



22

SALES OFFICES



11

MANUFACTURING SITES



WE ARE WHAT WE EAT

SOLUTIONS FOR FOOD



- | **Milling** of fatty, oily, moist, grainy, large and tough, hard and fibrous samples.
- | **Mycotoxin** or **GMO** detection
- | **Mixer Mill** for **PCR** and **QUECHERS** analysis
- | **Cryogenic grinding** to preserve volatile ingredients of degradation



- | **Particle Size and Particle Shape** of raw material and final food product
- | **Dynamic Image** of **Coffee Powder**
- | **Laser Diffraction** analysis of cocoa, chocolate and liquor
- | **Stability, shelf-life** and **dispersibility** of food product such as beverages, dairy, plant protein, flavor emulsions



- | **Protein Determination** in cereals
- | **Moisture and Ash** in flour and biscuits
- | **Moisture Analysis:** from milk to cheese



- | **Extraction** of food moisture
- | **Ashing** with time/temperature optimization
- | **Ashing** cereal bar with air constant rate



WE RECYCLE FOR YOU

SOLUTIONS FOR ENVIRONMENT AND SUSTAINABILITY



- | **Cutting** recycled aluminum bar
- | **Polishing**, etching and analysis structure of aluminum
- | **Hardness Testing** and analysis structure on Al6000



- | **Humidity and Ashes** of biomass and biochar
- | **Carbon-Sulfur** determination on wood chips and biomass
- | **Organic Carbon-Nitrogen** determination on sludge and soil



- | **Cutting Mills** for textiles, wood and electronic waste materials
- | **Ball Mills** for **cryogenic grinding** of plastic materials
- | **Jaw Crushers** like BB 250 for construction or mining waste materials
- | **Ball and Knife mills** for organic waste and **biochar**
- | **Sieve Shakers** for **particle size distribution** and fractionizing sample materials



- | **CO₂ breakthrough** curve study for CO₂ capture
- | **Particle size** of battery slurries to enhance battery quality and lifetime
- | **Laser Diffraction** for characterization of activated carbon
- | **Surface area and pore distribution** in the evaluation of biochar
- | **Pore size** of activated carbon
- | **BET method** for microporous materials measurement



- | **Heat treatment** for valuable waste
- | **Heat treatments:** gasification, incineration, pyrolysis
- | **Activation in controlled atmosphere** of char



CARBOLITE
a VERDER company



carbolite-gero.com

TEMPERATURE CONTROLLER ARIESPLUS EVERYTHING UNDER CONTROL

- | **PROGRAMMING:** Manage up to 50 programs with USB/PC import/export
- | **DATA LOGGING:** View live process graphs for up to 48 hours with pinch zoom; download by batch or date/time range
- | **7 DAY TIME SCHEDULER:** Schedule daily heating or program runs at specified times
- | **THERMOTUNE:** Optimize temperature control algorithm for accurate operation across all temperatures
- | **REMOTE NETWORK CONNECTION:** Ethernet-ready with DHCP or manual connection options

SOLUTIONS FOR TECHNICAL CERAMICS



At CARBOLITE GERO, we pride ourselves on providing standard debinding and sintering solutions to our customers. Our close collaboration with R&D and industrial partners enables us to continually enhance our furnaces and offer the best possible solutions.

The outcome of this endeavor is our optimized HTF and HB furnaces. These front loader and top hat furnaces provide exceptional versatility, effortless handling, and an energy-efficient design that ensures optimal temperature uniformity. Standard sizes of up to 160 L are available at low lead times.

HTF & HB FURNACE RANGE

- | 1700 & 1800°C furnaces
- | HTF 5 to 165 L
- | HB 80 to 240 L
- | Frontloader or hood furnace
- | Touchpanel controller with or without PLC



HIGH VACUUM SOLDERING AND BRAZING

The fabrication of EDX detectors used in electron microscopes requires a vacuum-tight connection between different materials. This is best achieved through soldering and brazing in a high vacuum environment, which prevents oxidation and allows the use of flux-free solder.

CARBOLITE GERO'S HOOD FURNACE FOR SOLDERING AND BRAZING

- | **PROCESS OVERVIEW:** Involves connecting two dissimilar materials with a third metallic material (solder or brazing filler) at temperatures up to 1100°C
- | **VACUUM ENVIRONMENT:** Conducted in a high vacuum (HV) or ultra-high vacuum (UHV) environment to prevent oxidation
- | **RESULTING PROPERTIES:** Parts exhibit no surface oxidation and connections free of porosities and distortion
- | **QUARTZ RETORT:** Features a quartz retort that can be evacuated to a high vacuum range of less than 5×10^{-6} mbar using a turbomolecular pump
- | **OPTIMAL PART PROPERTIES:** Ensures produced parts have the best properties



V-L 180-300/10

- | Up to 1150°C
- | Touchpanel with PLC
- | Argon or Nitrogen atmosphere
- | Fine or high vacuum 10^{-2} to 10^{-5} mbar



WATCH THE VIDEO





qatm.com

QAI

THE FUTURE BELONGS TO THE PIONEERS!

- | **AI SOFTWARE** for accurate detections of Vickers, Knoop, and Brinell hardness testing
- | **EFFECTIVE** even on challenging surfaces
- | **ELIMINATES** the need for **MANUAL INTERVENTION**
- | Offers an **UNPRECEDENTED** competitive **ADVANTAGE**

FASTER THAN EVER BEFORE - NEW QPRESS

The Qpress 40 is a hot mounting press that enables very fast mounting processes with its speed-optimized heating and cooling technology and modern temperature control. The patented extraction system sets new standards in workplace safety. Its intuitive one-button operation and clear process control ensure efficient use.

QPRESS 40

- | SHORT MOUNTING TIMES: Up to 35% time savings
- | ROBUST BAYONET QUICK-RELEASE CLOSURE: Ensures secure and easy operation
- | 7" TOUCH DISPLAY: Features innovative control software and optional one-button operation
- | DUST GUARD: Patented system for extracting granule dust during filling
- | COMPACT AND HIGH-QUALITY DESIGN: Powder-coated metal housing for durability
- | HIGH SAMPLE THROUGHPUT: Achieved through double mounting



TRY QAI NOW!

QAI: AI-SUPPORTED OBJECT RECOGNITION FASTER, MORE ACCURATE, MORE INTELLIGENT

- | UNPARALLELED PRECISION AND EFFICIENCY: Designed for Vickers, Knoop, and Brinell hardness testing, QAI guarantees unmatched precision and efficiency, adhering to the QATM quality standard and enhancing performance through retraining
- | ADVANCED AUTOMATION: Our AI automatically and accurately detects hardness test impressions, even on challenging surfaces, eliminating the need for manual intervention and offering an unprecedented competitive advantage with its unmatched accuracy and success rate

ADVANCED HARDNESS TESTING COMBINED WITH MICROSCOPY

The Qness 10 / 60 series revolutionizes micro hardness testing by combining advanced hardness testing and microscopy. These high-end laboratory devices offer maximum convenience and uncompromised performance, featuring a revolutionary optical system for reliable, reproducible results.

QNESS 10/60 A+

- | AUTOMATION: Fully automated with precision XYZ positioning control with thousands of analysis without operator
- | INTEGRATION: Verder IoT platform for remote monitoring, live notifications, backups, and automatic updates
- | WIDE TEST FORCE RANGE: 0.25 gf – 62.5 kgf
- | READY TO TEST PACKAGE: Includes Vickers diamond and 5x/20x/50x lenses
- | VARIANT A+: Sample image camera with automatic image acquisition
- | QPIX CONTROL2 SOFTWARE: Innovative 3D operation



ELTRA®
a VERDER company



eltra.com

DUMAS PROTEIN DETERMINATION WITH ELEMENTRAC CN-r

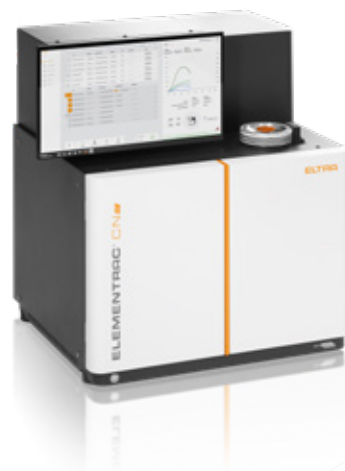
ELTRA

FAST, RELIABLE AND PRECISE NITROGEN (PROTEIN) ANALYSIS IN FOOD AND FEED

The ELEMENTRAC CN-r is the new DUMAS analyzer from ELTRA which measures nitrogen and optional carbon in predominantly organic samples like food, feed, coal and soil.

CN-r

- | RELIABLE ANALYSIS with complete combustion of the sample
- | LOW OPERATION COSTS with pure oxygen and no additional catalytic material required
- | SAFE AND STANDARD COMPLIANT ANALYSIS: DIN EN 13654-2, 16168, AOAC, AACC, AOCS, etc.
- | FAST & EFFICIENT ANALYSIS in daily practice (32 position autoloader)



ELEMENTRAC ONH-p 2 WITH OPTIONAL AUTOLOADER

The ELEMENTRAC ONH-p 2 can now be equipped with a 32 position autoloader including an autocleaner for an automated ONH analysis.

ONH-p 2

- | Automated placing and removing of crucibles
- | Easy to fill crucible magazine
- | Autocleaner included in autoloader package
- | Optional application of flux (e.g. tin) is supported

FUEL ANALYSIS WITH THE ELEMENTRAC CHS-r

The ELEMENTRAC CHS-r utilizes a resistance furnace with ceramic tube for simultaneous measurement of carbon, hydrogen and sulfur in organic samples like coal or coke and in selected inorganic samples like ores and building materials.

CHS-r

- | Ceramic tube for combustion temperatures up to 1550°C
- | Wide range analysis from low concentrations up to 100%
- | Ideally suited for analysis of fuels like coal, coke, alternative fuels
- | Precise measurements even in heterogeneous samples due to application of high sample weights





retsch.com

SMALL, YET STRONGER

- | **LARGE FEED SIZE:** Accommodates sample sizes up to 50 mm, ensuring versatility in sample preparation
- | **INTEGRATED CYCLONE:** Enhances particle separation and collection, improving overall efficiency
- | **PUSH-FIT GRINDING CHAMBER:** Available in different materials, allowing customization based on specific sample requirements
- | **TOTAL ACCESS CONCEPT:** Provides superior cleaning capabilities, ensuring minimal cross-contamination and easy maintenance

SM 50: CUTTING MILL FOR SMALL SAMPLE QUANTITIES

The new SM 50 revolutionizes laboratory workflows and solves multiple problems at once. With its innovative design featuring a removable milling chamber, the SM 50 simplifies cleaning and reassembly, saving up to 30% time. At the same time, the unrivaled powerful benchtop cutting mill with a single phase power plug guarantees almost 100% sample recovery with contamination-free sample preparation.



CYCLONE SOLUTIONS

The Cyclone System for Jaw Crushers (BB 50 | BB 250 | BB 400), Disc Mill (DM 200) and Rotor Mills (SM 200 | SM 300 | SR 300 | SK 300) is exclusively available, offering a groundbreaking addition to laboratory applications. The Cyclone System delivers unparalleled efficiency, precision, and safety. Collection receptacles are available from 0.5 – 30 L.

CYCLONE SYSTEM

- | **TOTAL SAMPLE RECOVERY:** The Cyclone System prevents sample loss during the crushing process, ensuring accurate and reproducible analysis results
- | **ENHANCED OPERATOR SAFETY:** By significantly reducing dust exposure, the system creates a safer and cleaner working environment



COMBINATION JAW CRUSHER - DISC MILL: SAFE AND DUST-FREE PROCESS

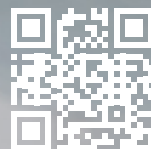
The combination of BB 250 with DM 200 enables grinding large chunks of material to required fine particle sizes. Finally samples are collected automatically in a receptacle 0.5 – 30 L using a Cyclone System.

COMBINATION OF BB 250 & DM 200

- | **DUST-FREE OPERATION:** Designed to be dust-free, ensuring a cleaner and safer working environment
- | **THOROUGH REDUCTION PROCESS:** The combination ensures a thorough and efficient reduction process
- | **IMPROVED THROUGHPUT:** Using both machines in tandem improves throughput and reduces processing time



MICROTRAC
a VERDER company



microtrac.com

EXPERTS IN PARTICLE CHARACTERIZATION

MATERIALS CHARACTERIZATION



SURFACE AREA & PORE SIZE MEASUREMENT

Understanding the roles of surface area and pore size is crucial for enhancing material performance in applications like filtration, adsorption, and storage. These elements significantly influence the efficiency and capacity of processes, making them foundational to advancing materials science and industrial application.

BELSORP SERIES

- | Unmatched precision & quality
- | Fast analysis with multiple ports and gas dosing optimization
- | Wide adsorption temperature range from 50 to 823 K (-223 to 550°C)



CATALYSIS

Understanding catalysis is essential for enhancing reactions' efficiency, a key factor in developments across energy generation, environmental remediation, and industrial production. By facilitating faster chemical reactions while remaining unchanged, catalysis underpins advancements in both materials' science and industrial methodologies.



DENSITY

Density measurement is vital for quality control, material identification, and process optimization, impacting product design, cost management, and regulatory compliance. Accurate density analysis enhances product quality, optimizes manufacturing, and ensures industry standards are met, driving efficiency and performance.



PARTICLE ANALYSIS



PARTICLE SIZE & DISTRIBUTION

Determining particle size is vital for improving product efficacy, advancing quality assurance and maintaining uniformity across production. It significantly impacts material characteristics, durability, and performance, underscoring its importance for industrial progress and innovative solutions.

- Innovative technology combining particle size (laser diffraction) with shape (dynamic image analysis)
- Best combination of advanced technology and data quality
- User-friendly design with easy switch between wet and dry measurement

SYNC

- | Light scattering and HD camera
- | From 0.01 μm to 4000 μm
- | 2 in 1: wet and dry



PARTICLE SHAPE & MORPHOLOGY

Particle size analysis focuses on measuring dimensions and distribution, critical for process consistency and material performance. In contrast, particle shape and morphology analysis delves into the geometry and surface characteristics, influencing behavior and functionality in applications. Together, they provide a comprehensive understanding of material properties, each offering unique insights critical for optimizing product quality and innovation.

CAMSIZER SERIES

- | Particle size & Shape
- | Unmatched performance
- | A complete range to cover your needs from 0.8 μm to 135 mm

NEW CAMSIZER S1

Reliable, user-friendly, and perfect for routine particle size and shape analysis, featuring the most dependable technology at a highly competitive price. Designed with essential technology for rapid, efficient analysis, it offers unmatched reliability and ease of use for precise particle measurements, ideal for quality and production control.

- | Reliable and user-friendly ensuring accurate results with ease of use
- | Best combination of advances technology and data quality at an unbeatable price
- | Efficient and fast: provides results in just 2-5 minutes



COLLOIDS AND FORMULATIONS



PARTICLE SIZE & DISTRIBUTION IN LIQUIDS

Measuring particle size and distribution in colloids and formulations is of high importance for ensuring uniformity and stability. It directly influences product performance, efficacy, and consumer satisfaction. This precise analysis allows for optimized process control and product quality, essential in various industry like pharmaceuticals, paints, food, chemistry.

NANOTRAC FLEX

- | From 0.3 nm to 10 μm
- | High conc. up to 40% v/v
- | Probe: dip & measure



ZETA POTENTIAL

Understanding zeta potential is key for assessing the stability of colloids and formulations. It provides insight into particle charge, which influences dispersion stability and aggregation tendencies. This critical parameter helps in tailoring product properties, optimizing formulation processes, and enhancing product performance across various applications.

STABINO

- | No dilution measurement
- | Fast (couple of minutes)
- | Automatic titration for Isoelectric point determination



STABILITY & SHELF-LIFE

Analyzing stability and shelf-life is fundamental for predicting product durability and maintaining quality over time. It involves understanding how formulations respond under different conditions, ensuring consistency, safety, and efficacy. This analysis supports informed decision-making in formulation adjustments and packaging, crucial across industries like food, pharmaceuticals, and cosmetics, to meet consumer expectations and regulatory standards.

TURBISCAN

- | Up to 1000x faster than visual observation
- | Detect and quantify destabilizations
- | No dilution, no additional forces



ERWEKA
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erweka.com

POSITION 1	POSITION 2	POSITION 3	POSITION 4	POSITION 5	POSITION 6	POSITION 7	POSITION 8
V	V	V	V	V	V	V	V
B	B	B	B	B	B	B	B
P	P	P	P	P	P	P	P
V	V	V	V	V	V	V	V
B	B	B	B	B	B	B	B
P	P	P	P	P	P	P	P

DISSOLUTION TEST

FOR PHARMACEUTICAL
AND LIFE SCIENCE INDUSTRY

ADVANCED, DIGITAL TECHNOLOGY FOR 100% COMPLIANT DISSOLUTION TESTING

The ERWEKA DT 950 Series is our first digital dissolution tester on the market, equipped with advanced technology for the requirements of today and the challenges of tomorrow. Its intelligent features and modern user interface enable focused, 100% USP/EP/JP conform dissolution testing for the USP methods 1, 2, 5 and 6.

DT 950 SERIES

- | 100% USP/EP/JP compliant
- | USP methods 1, 2, 5 and 6
- | Intuitive user interface
- | Upgradable at any time
- | Intelligent testing assistant
- | 6 to 8 and 12 to 14 test stations available



OBLONGNAVIGATOR® ENABLES FULLY AUTOMATED, 5-PARAMETER COMBINATION TESTING

The fully automatic combination tester MultiCheck 6 is packed with innovative technology: The intuitive touch display, the capsule weight measurement system and the patented OblongNavigator® are only some of the innovative features. It enables high-volume, fully automated combination testing with measurements of up to 5 parameters! It can be customized with a multitude of options to suit a variety of needs.

MULTICHECK 6

- | OblongNavigator® aligns all kinds of tablets for hardness measurement
- | Control with touch display or connect the MC.NET PC software
- | High-volume with rotary magazine
- | Silent and fast operation





GLOBAL REACH, LOCAL EXPERTISE



**HEAT
TREATMENT**



**ELEMENTAL
ANALYSIS**



**MATERIALOGRAPHY
& HARDNESS TESTING**



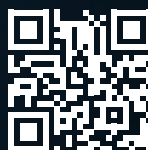
**MILLING
& SIEVING**



**PARTICLE
CHARACTERIZATION**



**PHARMACEUTICAL
TESTING**



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