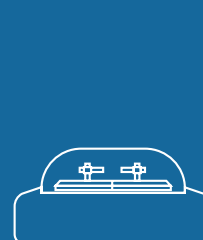
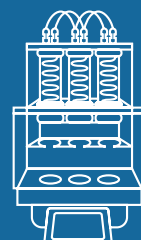
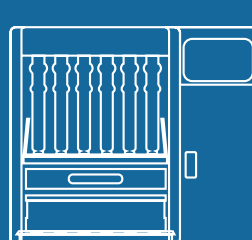
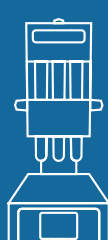
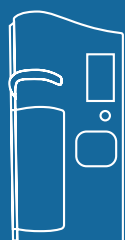
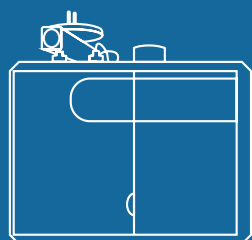


# ANALYTICAL INSTRUMENTS

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Products catalogue



## VELP Scientifica

Established in 1983, VELP Scientifica is today one of the world's leading manufacturers of analytical instruments and laboratory equipment that has made an impact on the world-wide market with Italian products renowned for innovation, design and premium connectivity.

We owe our success to a rich patrimony of ideas, significant investments in R&D and technological development aiming at maximizing productivity as well as reducing time-to-market.

VELP is a pioneer of smart lab technology. Our analytical instruments and laboratory equipment are accelerating scientific work every day giving scientists the possibility to monitor and control VELP technology from a virtual dashboard accessible from any device, everywhere and anytime!

VELP is today a global company with an expanding local focus. Our internationalization process has led us to open local subsidiaries that provide service to our customers in different parts of the world:

- **VELP Scientific, Inc.** in Long Island (USA) offering sales and technical support for the United States, Canada and Mexico.
- **VELP China Co. LTD** in Shanghai guarantees a local presence in China through commercial and technical support.

VELP has always generated value for its customers through close cooperation with its qualified distribution network which today counts more than 300 distributors in 130 countries.

# Product Overview

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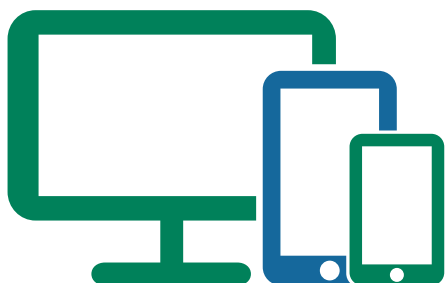
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# VELP Ermes

## ■ SMART LAB CLOUD PLATFORM

VELP Ermes creates a connected ecosystem of devices, people and data that transmit information between each other cutting down distances and expanding your scientific potential.



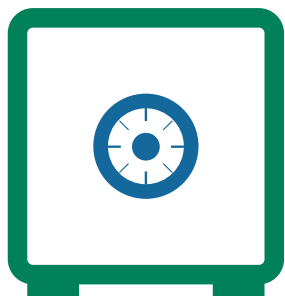
### Monitor and Control your instruments

Monitor and manage multiple instruments 24/7 from your internet devices. Real-time visualization of your analysis and of the instruments working conditions and get immediate notifications and alerts.



### Remote Service Support

Thanks to the direct contact with VELP specialists and official partners, VELP Ermes can guide you to get the maximum from your instruments.



### Safely Manage your Data

Collect and store your data with the maximum level of encryption and cyber-security standards. Generate and share reports of your analysis in multiple formats.



### Your Instruments are Always Updated

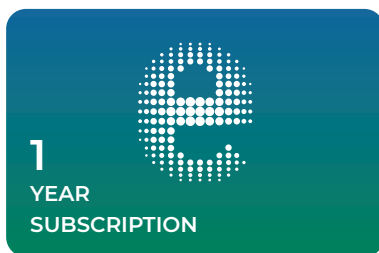
Effortlessly connect your instrument via secure Wi-Fi or cable and update the software immediately free of charge.

## ■ VELP ERMES SUBSCRIPTIONS

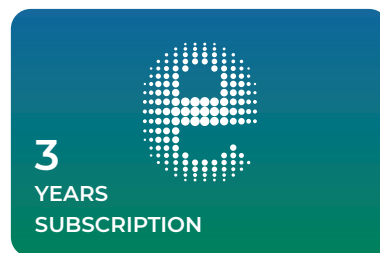
Configure your account and your instruments and start enjoying all the services and capabilities of VELP Ermes for free for 3 months. Decide later whether to extend your subscription with an Ermes Card for 1 or 3 years. Each Ermes Card allows you to connect up to 10 instruments in your company.



**FREE TRIAL**  
3 MONTHS PER INSTRUMENT



**1 YEAR / 10 INSTRUMENTS**  
Code E00010012



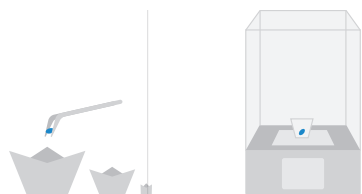
**3 YEARS / 10 INSTRUMENTS**  
Code E00010036

# Elemental Analyzers

Elemental Analyzers are state-of-the-art analytical instruments to determine the elemental composition of a sample. It finds application in various industries and fields for the determination of Nitrogen, Protein content, Carbon, Carbon-Nitrogen Ratio, Hydrogen, Sulfur and Oxygen.

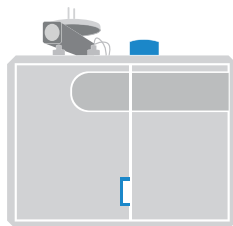
Through safe combustion and pyrolysis, VELP Elemental Analyzers enable access to a wealth of information from the sample in a few minutes. Running completely unattended, VELP Elemental Analyzers provide extremely accurate and reliable results, preventing laboratory professionals' exposure to chemicals.

## 1 SAMPLE PREPARATION & WEIGHING

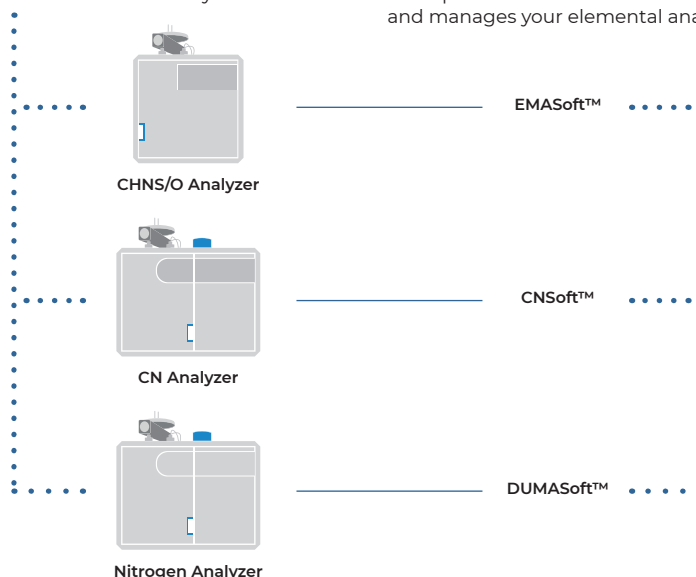


Consumables and accessories are designed to make sample preparation easy and efficient.

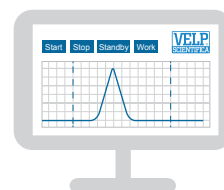
## 2 ANALYSIS



Choose the VELP solution for your needs.



## 3 SOFTWARE



VELP provide solutions that controls and manages your elemental analyzers.

## Industries & Application



### FOOD & BEVERAGE

Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Oils, Fats, Brewery, Oils Seeds



### FEED

Pet food, Forages, Feedstuff, Feed ingredients



### AGRICULTURE

Soils, Plants, Fertilizers, Cannabis



### ENVIRONMENTAL

Waste, Wastewater, Water, Sludges, Sediments



### PHARMA & LIFE SCIENCE

Pharmaceutical products, Vaccines, Active ingredients



### CHEMICAL AND PETROCHEMICAL

Rubber, Plastic, Lubricants, Petroleum products, Coal fuels, Coke



### COSMETIC

Creams, Lotions, Powders, Wax stripes

# CHNS-O Analyzer

## EMA 502

The EMA 502 Elemental Analyzer CHNS-O is the accurate and reliable solution for the simultaneous determination of carbon, hydrogen, nitrogen, sulfur and oxygen in various industrial sectors such as pharma and life science, organic chemistry, petrochemistry and energy, environmental, agronomy, food & feed. Working according to the official reference standard.

### ALL-IN-ONE SOLUTION

Combustion and pyrolysis in a single analyzer avoiding the need for external modules.

### ACCURATE

EMA 502 is a flexible and robust analyzer, designed for superior reliability with high performance and accuracy.

### UNMATCHED EASE-OF-USE

Intuitive operation with the powerful EMASoft™ software. Comprehensive reporting features and pre-loaded methods of analysis.



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### INSTRUMENT - CODE

EMA 502

230 V / 50-60 Hz

F30800100

The EMA 502 Elemental Analyzer is supplied with all necessary parts to perform up to 1000 analyses CHNS.

# Carbon Nitrogen Analyzer

## CN 802

The CN 802 is a fast, versatile, and highly sensitive elemental analyzer, that works in accordance with official reference methods. It determines carbon (Total and TOC) and nitrogen in many industrial sectors such as agriculture, environment, food & feed, and chemicals.

### ROBUST AND FLEXIBLE

Fully automatic determination of TC, TOC TIC, TN and Carbon/Nitrogen Ratio on solid, semi-solid, and liquid samples.

### PRECISE

The HighSensIR (Non-Dispersive Infrared) detector and the LoGas™ TCD (Thermal Conductivity Detector) guarantee high-precision results and excellent reproducibility on both micro and macro sample weights.

### INTUITIVE

The CN 802 is easy to use thanks to the user-friendly CNSoft™ software which is equipped with maximum safety control of the instrument.



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### INSTRUMENT - CODE

CN 802

230 V / 50-60 Hz

F30800090

The CN 802 is supplied with everything necessary for the first 1000 analysis and complimentary spare parts.

# Dumas Nitrogen Analyzer

## ■ NDA 702

The NDA 702 Dumas elemental analyzer is the best solution for high throughput labs looking for a fast and safe analyzer with the possibility to choose between Helium and Argon as carrier gas.

### VERSATILE

Seamlessly choose between Helium and Argon as carrier gas without hardware modifications.

### FAST

NDA 702 produces N/Protein results in just 3 to 4 minutes totally unsupervised and cloud-enabled.

### PRECISE AND INTUITIVE

The lowest LOD of 0.001 mgN with Helium assures high precision results and excellent reproducibility. The easy-to-use DumaSoft™ software provides an intuitive user experience.



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## INSTRUMENT - CODE

NDA 702

230 V / 50-60 Hz

F30800080

*The NDA 702 is supplied with everything necessary for the first 1000 analysis and complimentary spare parts.*





## Consumables

A wide range of high-performance consumables for routine operation and maintenance of the VELP elemental analyzers. This includes high-quality quartz reactors, metallic reactors, ash collectors, capsules, reagents, catalysts of efficient performance and long life, standards for instrument calibration (EDTA, Sulphanilic Acid, Oat Meal) and seals.

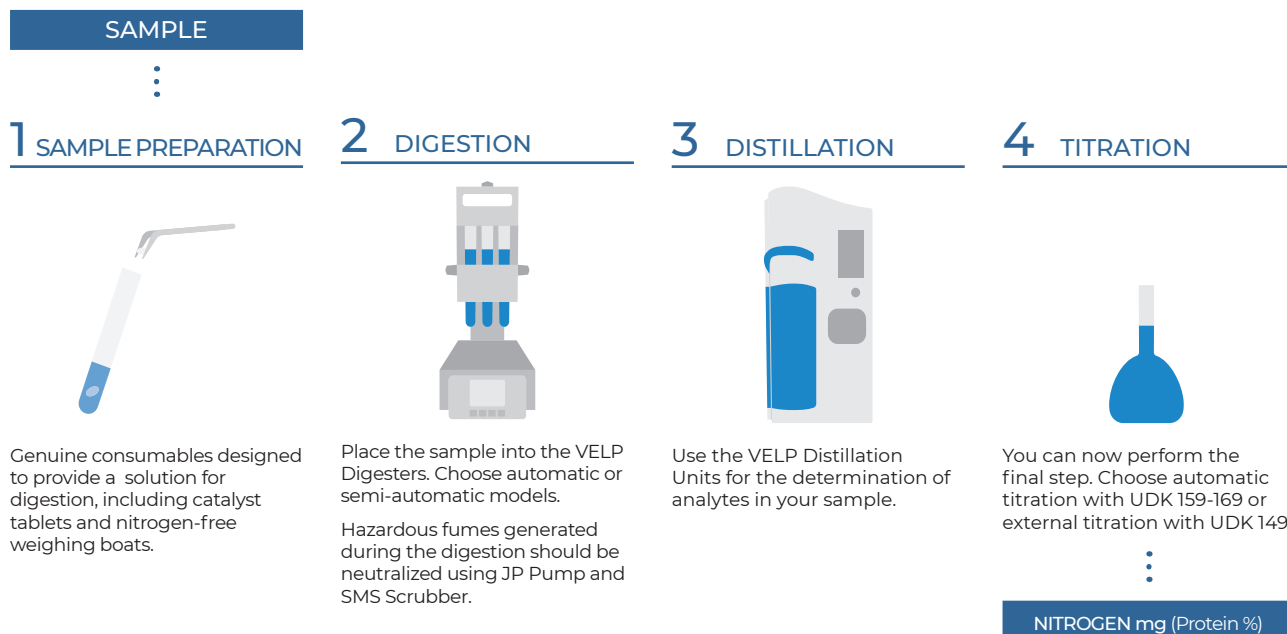
1000 analyses kit	A00000194	Metallic ash collector	A00000322
2000 analyses kit	A00000270	Anhydron, 454 g	A00000225
4000 analyses kit	A00000271	High temperature sealing grease	A00000236
Super-Absorbent Powder, 10 g	A00000317	Kit approx. 1000 analysis for CHNS	A00000432
Quartz wool, 50 g	A00000154	Kit approx. 1000 analysis for Oxygen	A00000433
Vcopper™ High Reduction Efficiency, 470 g	A00000240	Quartz reactor tube diam. 18 mm	A00000435
Copper oxide, 50 g	A00000157	Pre-packed CHNS reactor	A00000443
Velpcatalyst with inert layer, 36 g	A00000320	Pre-packed O reactor	A00000444
EDTA, 100 g	A00000149	Quartz ash collector diam. 13 mm	A00000445
Tin Foil Cups 36x36 mm, 150 pcs	A00000153	Tungsten oxide, 25 g	A00000439
Tin foils 50x50mm, 450 pcs	A00000260	Nickel wool, 2 g	A00000447
Silver foil 35x35 mm, 100 pcs	A00000371	Nickel Carbon wool, 5 g	A00000440
Tin Cups 6x18mm, 100 pcs	A00000482	Quartz Chips, 50 g	A00000441
Tin Cups 8x22mm, 100 pcs	A00000483	Tin Foil Cups, 5x9 mm 250 pcs	A00000436
Mold for tin foils 50x50 mm	A00000262	Sulphanilic acid certified, 5 g	A00000434
Quartz reactor tube	A00000162	Fluorine Absorber, 15 g	A00000456
Metallic reactor tube	A00000321	Vanadium pentoxide, 10 g	A00000457
Pre-Packed Combustion Reactor	A00000158		
Pre-Packed Reduction Reactor	A00000226		
Quartz ash insert	A00000161		
Ceramic ash insert	A00000198		



# Digestion Units

Nitrogen determination has a long history in the area of analytical chemistry. Internationally recognized and highly reliable, the Kjeldahl Method is an analytical reference for the quantitative determination of nitrogen contained in organic substances and inorganic compounds (ammonia and ammonium).

The Kjeldahl analysis is extremely versatile, as it can handle a very wide range of samples from food & feed (grain, meat, fish, milk, dairy, seeds, vegetables), beverages, environmental (agriculture, oilseeds, soil, fertilizers, water, wastewater, sludge) to chemical and pharmaceutical industries (paper, textiles, rubber, plastic, polymer).



The Kjeldahl method consists in a procedure of catalytically supported mineralization of organic material in a boiling mixture of sulfuric acid and sulfate salt at digestion temperatures higher than 400 °C. During the process the organically bonded nitrogen is converted into ammonium sulfate. Alkalizing the digested solution liberates ammonia which is quantitatively steam distilled and determined by titration.

Digesters are widely used in laboratories performing analysis for diversified applications in food&feed, beverage (nitrogen, protein, Total Kjeldahl Nitrogen), environmental (COD, Total Kjeldahl Nitrogen, Heavy Metal Trace), chemical and pharmaceutical (organic nitrogen) industries.

## Industries & Application



### FOOD & BEVERAGE

Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Fats, Brewery, Wine, Spirits



### FEED

Pet food, Forages, Feedstuff, Feed ingredients



### AGRICULTURE

Soils, Plants, Fertilizers



### ENVIRONMENTAL

Sludges, Sediments, Water, Wastewater



### PHARMA & LIFE SCIENCE

Pharmaceutical products, Vaccines, Active ingredients



### CHEMICAL AND PETROCHEMICAL

Rubber, Plastic, Lubricants, Cellulose nitrates, Oils, Coal, Coke Paper



### COSMETIC

Creams, Lotions, Powders, Wax stripes

# Automatic Digestion

## DKL Series

The DKL Series digesters are fully automatic units where manual operations have been drastically reduced: lowering and lifting of the samples takes place automatically. DKL digesters work in accordance with a variety of Standards such as AOAC, ISO, EPA, DIN etc.

### FULLY AUTOMATIC

The auto-lift facilitates the operator by reducing strain and time spent in manual tasks. The customizable programs allow for repeatable processes to run fully unattended.

### SAFE AND ROBUST

The separated control panel is protected from heat and spills ensuring reliability and a long lifespan. The innovative microprocessor controls the temperature of the block and is supported by a safety thermostat.

### USER FRIENDLY

The intuitive control panel makes operating and monitoring every stage of the analysis effortless. Many standard methods are pre-loaded and more can be customized and saved.



### CONFIGURATIONS - DKL Series



### INSTRUMENT - CODE

DKL 8	230 V / 50-60 Hz	S30100200
	115 V / 50-60 Hz	S30110200
DKL 12	230 V / 50-60 Hz	S30100190
	115 V / 50-60 Hz	S30110190
DKL 20	230 V / 50-60 Hz	S30100210
DKL 42/26	230 V / 50-60 Hz	S30100180

The DKL Series are supplied with lift, suction cap and drip tray, sample rack and test tubes



# Semi-automatic Digestion

## ■ DK Series

The DK Series consists of basic digestion blocks providing accuracy, high thermal homogeneity and minimum energy consumption. These digester are suitable for Kjeldahl digestion and selected models can be combined with accessories in order to perform COD and Trace Metal Determination applications.

### EXCELLENT ACCURACY AND REPEATABILITY

The aluminum heating block ensures high thermal homogeneity heating up to 450°C.

- Temperature selection with 1°C steps and a precision of  $\pm 0.2^\circ\text{C}$ .
- Heating block temperature stability of  $\pm 0.5^\circ\text{C}$ .

### INTUITIVE INTERFACE

The bright digital display provides maximum visibility and easy reading of the information.

- Supports the recording of up to 20 methods with 4 temperature ramps.
- Easy to use interface with 4 buttons.



## CONFIGURATIONS - DK Series



## INSTRUMENT - CODE

		SYSTEM	HEATING BLOCK
DK 6	230 V / 50-60 Hz	S30100400	F30100400
	115 V / 50-60 Hz	S30110400	F30110400
DK 6/48	230 V / 50-60 Hz	S30100410	F30100410
	115 V / 50-60 Hz	S30110410	F30110410
DK 8	230 V / 50-60 Hz	S30100420	F30100420
	115 V / 50-60 Hz	S30110420	F30110420
DK 18/26	230 V / 50-60 Hz	S30100430	F30100430
	115 V / 50-60 Hz	S30110430	F30110430
DK 20	230 V / 50-60 Hz	S30100440	F30100440
DK 42/26	230 V / 50-60 Hz	S30100450	F30100450

The DK Digester System are supplied with support system, suction cap and drip tray, sample rack and test tubes

## Fumes Neutralization

### ■ KS 1000 Scrubber

Designed to neutralize toxic fumes produced during mineralization and safeguard lab operators without requiring any connection to tap water.

#### HIGHLY EFFICIENT

A wide contact surface between gas and liquid guarantees maximum neutralization efficiency.

#### SPACE SAVING

A small footprint makes it easy to place the KS 1000 with VELP's compact digestors under the fume hood.

#### REDUCED CONSUMPTIONS

Minimized water consumption and no need for a dedicated water supply.

#### EASY-TO-USE

Intuitive interface to adjust 4 suction power levels.



#### INSTRUMENT - CODE

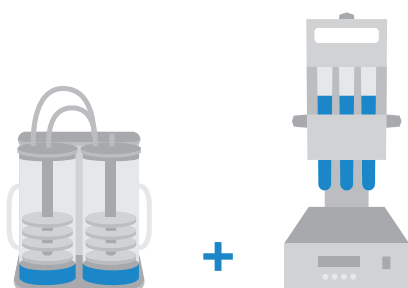
KS 1000 Scrubber

100-240 V / 50-60 Hz

F307A0660

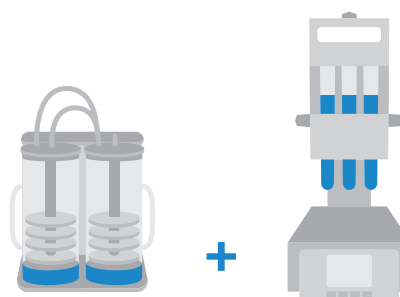
## ENHANCING SAFETY IN YOUR LABORATORY

Gas scrubbing is a critical component of Kjeldahl analysis, safeguarding laboratory personnel and maintaining a protected working environment. It should always be used in combination with digestion units.



#### KS 1000 Scrubber + DK Series

Combine the DK Series of Semi-automatic digestion units with the KS 1000 to neutralize toxic fumes produced during oxidative mineralization.



#### KS 1000 Scrubber + DKL Series

Combine the DKL Series of Automatic digestion units with the KS 1000 to neutralize toxic fumes produced during oxidative mineralization.

## Consumables

Genuine catalyst tablets KJTabs™ and nitrogen-free weighing boats for reliable Kjeldahl analysis.

### KJTabs™ catalyst and antifoaming tablets

The KJTabs™ consist of accurately pre-dosed tablets composed of sulfate, to increase the boiling point of sulphuric acid, plus a metal salt such as Copper (Cu), Selenium (Se) or Titanium (Ti) to improve the speed and efficiency of the mineralization process.

#### SAMPLE

- Easy to use with all Kjeldahl Digesters
- Wide choice of catalysts for the majority of samples
- Effective foam reduction tablets
- Environmentally friendly and safe

VELP KJTABS MODEL	CODE	COMPOSITION	TYPICAL APPLICATIONS
KJTabs™ VCM Catalyst Tablets	A00000274	3,5g K <sub>2</sub> SO <sub>4</sub> + 0,1 g CuSO <sub>4</sub> x 5 H <sub>2</sub> O	Milk, animal feed, wheat, meat, wastewater
KJTabs™ VKPC Catalyst Tablets	A00000275	4,5g K <sub>2</sub> SO <sub>4</sub> + 0,5 g CuSO <sub>4</sub> x 5 H <sub>2</sub> O	Bread and baked products
KJTabs™ VCT Catalyst Tablets	A00000276	5g K <sub>2</sub> SO <sub>4</sub> + 0,15g CuSO <sub>4</sub> x 5 H <sub>2</sub> O + 0,15g TiO <sub>2</sub>	Milk and dairy products
KJTabs™ VST Catalyst Tablets	A00000277	3,5g K <sub>2</sub> SO <sub>4</sub> + 3,5mg Se	Beer, barley malt, plant
KJTabs™ VTCT Catalyst Tablets	A00000281	3,5g K <sub>2</sub> SO <sub>4</sub> + 0,105g CuSO <sub>4</sub> x 5 H <sub>2</sub> O + 0,105g TiO <sub>2</sub>	Milk and dairy products
KJTabs™ VW Catalyst Tablets	A00000282	4,875g K <sub>2</sub> SO <sub>4</sub> + 0,075g CuSO <sub>4</sub> x 5 H <sub>2</sub> O + 0,050g Se	Animal feed and pet food, forage and feedstuffs, grain, and oilseeds
KJTabs™ VS Antifoaming Tablets	A00000283	0,97g K <sub>2</sub> SO <sub>4</sub> + 0,03g Silicone	Added in combination with KJTabs™ catalyst tablets

### Nitrogen-free Weighing Boats

VELP weighing boats are the perfect solution for challenging transfer operations of powders or syrupy samples to mineralization test tubes.

Weighing boats 70x23x15 mm, 100 pcs/box

CM0486001

Weighing boats 58x10x10 mm, 100 pcs/box

CM0486000





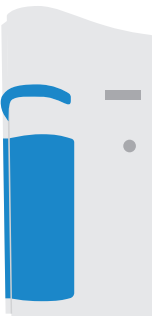

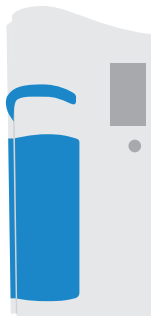

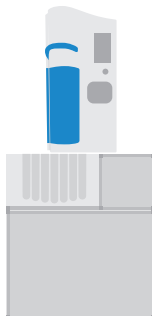





# Distillation Units

## UDK Series


The UDK Series Distillation Units are designed to meet the most challenging demands and requirements for diverse applications, according to international standards: Kjeldahl nitrogen TKN, proteins, ammoniacal nitrogen, nitric nitrogen, (Devarda), phenols, TVBN and volatile acids, cyanides, and alcohol content. Five different UDK models are available with different automation levels to match any laboratory requirements.

### SEMI-AUTOMATIC DISTILLATION

### AUTOMATIC DISTILLATION AND TITRATION

UDK 129	UDK 139	UDK 149	UDK 159	UDK 169
				
<ul style="list-style-type: none"> <li>Automatic NaOH addition</li> </ul>	<ul style="list-style-type: none"> <li>Automatic NaOH addition</li> <li>Automatic H<sub>2</sub>O addition</li> </ul>	<ul style="list-style-type: none"> <li>Automatic NaOH addition</li> <li>Automatic H<sub>2</sub>O addition</li> <li>Automatic H<sub>3</sub>BO<sub>3</sub> addition</li> </ul>	<ul style="list-style-type: none"> <li>Automatic NaOH addition</li> <li>Automatic H<sub>2</sub>O addition</li> <li>Automatic H<sub>3</sub>BO<sub>3</sub> addition</li> </ul>	<ul style="list-style-type: none"> <li>Automatic sample feeding with Autokjel Autosampler</li> <li>Automatic NaOH addition</li> <li>Automatic H<sub>2</sub>O addition</li> <li>Automatic H<sub>3</sub>BO<sub>3</sub> addition</li> </ul>
 <p>MANUAL TITRATION</p>	 <p>MANUAL TITRATION</p>	 <p>EXTERNAL TITRATION</p>	 <p>AUTOMATIC TITRATION</p>	 <p>AUTOMATIC TITRATION</p>

## Industries & Application

 <p><b>FOOD &amp; BEVERAGE</b> Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Fats, Brewery, Wine, Spirits</p>	 <p><b>FEED</b> Pet food, Forages, Feedstuff, Feed ingredients</p>
 <p><b>AGRICULTURE</b> Soils, Plants, Fertilizers</p>	 <p><b>ENVIRONMENTAL</b> Sludges, Sediments, Water, Wastewater</p>
 <p><b>PHARMA &amp; LIFE SCIENCE</b> Pharmaceutical products, Vaccines, Active ingredients</p>	 <p><b>CHEMICAL AND PETROCHEMICAL</b> Rubber, Plastic, Lubricants, Cellulose nitrates, Oils, Coal, Coke Paper</p>
 <p><b>COSMETIC</b> Creams, Lotions, Powders, Wax stripes</p>	

## ■ UDK 169

The UDK 169 is a fully automated distiller with an integrated colorimetric titrator for premium performance and continuous operation. It offers the highest sample throughput available when connected to the AutoKjel autosampler. Just load your samples and walk away: the system will analyze all the samples unattended and store the results.

### FULLY AUTOMATED ANALYSIS

Reagents addition, steam output setting, automatic distillation and titration ensuring the best performance.

### AUTOKJEL AUTOSAMPLER

For a highly productive system capable of autonomously processing up to 24 samples.

### EXCELLENT USABILITY

7" high resolution color touch screen and easy to use multitasking software.

### EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR

Two systems developed to ensure high performance and to guarantee safe working conditions.



ermes enabled

### INSTRUMENT - CODE

UDK 169	230 V / 50-60 Hz	F30200165
AutoKjel	230 V / 50-60 Hz	F30200430
UDK 169 with AutoKjel	230 V / 50-60 Hz	S30200165



## ■ UDK 159

The UDK 159 combines all the advantages of a fully automatic distillation with the added benefits of integrated colorimetric titration (AOAC approved) for a high-performance all-in-one system.

### FULLY AUTOMATED ANALYSIS

Reagents addition, steam output setting, automatic distillation and titration ensuring the best performance.

### EXCELLENT USABILITY

7" high resolution color touch screen and easy to use multitasking software.

### EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR

Two systems developed to ensure high performance and to guarantee safe working conditions.



ermes enabled

### INSTRUMENT - CODE

UDK 159	230 V / 50-60 Hz	F30200155
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## ■ UDK 149

The UDK 149 is an automatic distillation unit with external potentiometric titrator connection that ensures higher sample throughput, flexibility and premium precision.

### EXTERNAL POTENTIOMETRIC TITRATOR

The combination with an external potentiometric titrator offers a very convenient automatization of the Kjeldahl method and ensures versatility, accuracy and precision.

### EXCELLENT USABILITY

7" high resolution color touch screen and easy to use multitasking software.

### EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR

Two systems developed to ensure high performance and to guarantee safe working conditions.



ermes enabled

### INSTRUMENT - CODE

UDK 149

230 V / 50-60 Hz

F30200145



## External Potentiometric Titrator

The UDK 149 connectivity is optimized for the most common potentiometric titrators to guarantee fully automated operations.

The optional TITROLINE 5000 Automatic Titrator is very compact for simple routine titrations. GLP compliant results can be documented on a connected printer or USB-memory stick.

### TITRATION FEATURES

- Automatic Titration
- Real time volume dosing of the titrant
- Automatic cleaning and washing of the titrant solution vessel
- Titrations to pH, mV - endpoint (2 EP)
- Titrations with dynamic or linear titration solution additions
- Maximum versatility



## ■ UDK 139

Semi-automatic distillation for Kjeldahl protein determination, Non-Protein Nitrogen (NPN), volatiles and more. Excellent value for money with high reliability and advanced performance.

### HIGH RELIABILITY

The semi-automatic process ensures efficient and advanced performance.

### EXCELLENT USABILITY

7" high resolution color touch screen and easy to use multitasking software.

### EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR

Two systems developed to ensure high performance and to guarantee safe working conditions.



ermes enabled

### INSTRUMENT - CODE

UDK 139

230 V / 50-60 Hz

F30200135



## ■ UDK 129

Entry-level distillation for Kjeldahl protein determination, Non-Protein Nitrogen (NPN), volatiles and more. Simple and reliable solution with unique features.

### HIGH PRECISION PUMPS

To ensure constant accurate dosing of reagents.

### EASY-TO-USE

The bright LCD display and easy-to-use menu, guide the operator in setting the instrument working conditions.

### EXCLUSIVE TITANIUM CONDENSER AND PATENTED STEAM GENERATOR

Two systems developed to ensure high performance and to guarantee safe working conditions.



### INSTRUMENT - CODE

UDK 129

230 V / 50-60 Hz

F30200125

115 V / 50-60 Hz

F30210125



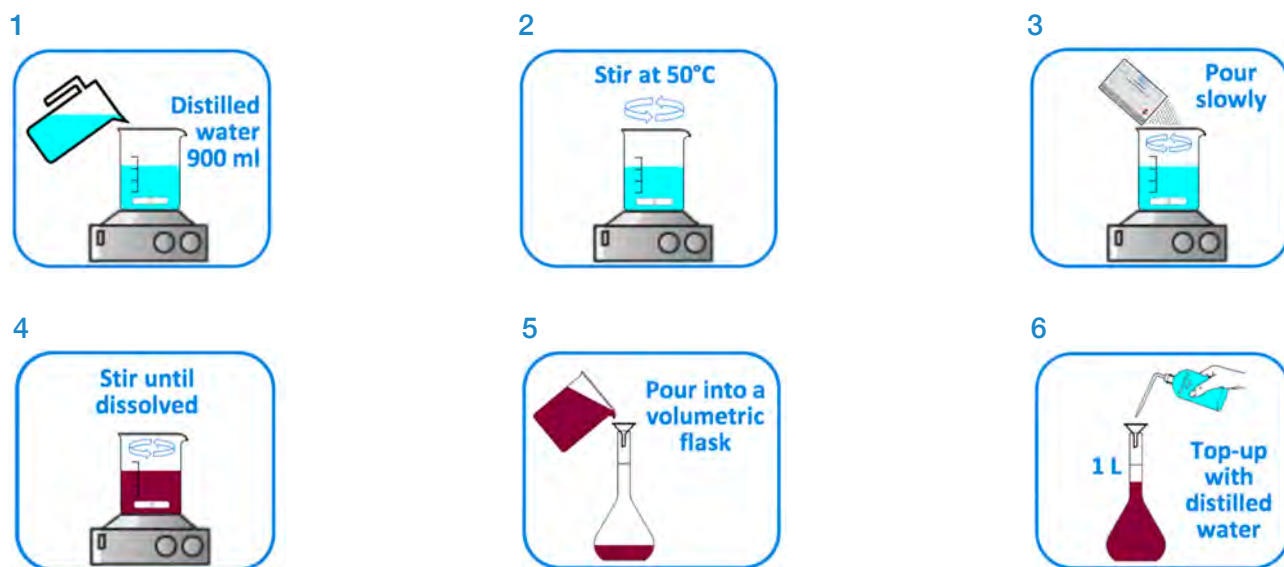
## Vreceiver

During the Kjeldahl distillation process, the ammonia content is condensed and collected in a boric acid solution to avoid loss of gaseous  $\text{NH}_3$ . VELP unique Vreceiver™ is a certified formula composed of Boric Acid powder and a mixture of indicators mentioned by AOAC methods (Bromocresol green and Methyl red). It allows fast and standardized receiving solution preparation for colorimetric titration.

Vreceiver TKN formula for 1L, 10 pcs/pack

A00000411

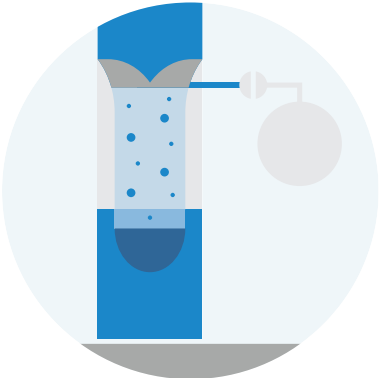
## How to prepare 1L boric acid solution with indicators



# Solvent Extraction

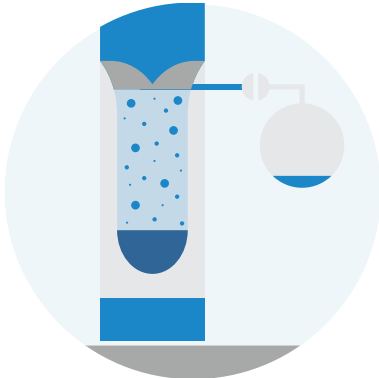
## Solid - Liquid Solvent extraction

Solvent extraction is a method for the separation of mixtures by using the differences in the solubility of the components. A sample is immersed in a solvent, then it is washed off with fresh solvent and the extract collected.



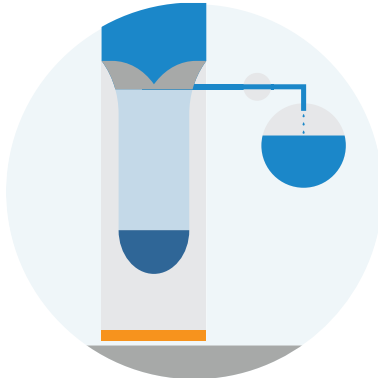
### 1 IMMERSION

The sample is immersed in boiling solvent for an effective defatting action.



### 2 WASHING

The condensed solvent flows over the sample and through the thimble to complete the extraction process.



### 3 RECOVERY

More than 90% of the solvent is recovered in the internal recovery tank (SER 158). The glass cup contains the extracted matter.

Accessories as the extraction thimbles and cups, available in different sizes optimize the cost per analysis by reducing the amount of solvent required. VELP Solvent Extractors work with the majority of solvents thanks to the Vaflon, Viton and Butyl seals.

## Industries & Application



### FOOD & BEVERAGE

Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Oils, Fats



### FEED

Pet food, Forages, Feedstuff, Feed ingredients



### AGRICULTURE

Soils, Plants, Fertilizers, Cannabis



### ENVIRONMENTAL

Sludges, Sediments, Water, Wastewater



### COSMETIC

Creams, Lotions, Powders, Wax stripes



### CHEMICAL AND PETROCHEMICAL

Rubber, Plastic, Lubricants, Cellulose nitrates, Oils



### TEXTILE

Fabrics, Textile fibers



### PULP AND PAPER

# Automatic Extraction

## ■ SER 158 3/6

Fully automatic and cloud-enabled extractor, available in 3 and 6 positions that guarantees safety, accuracy and precision. The solid-liquid extraction process removes the soluble components from solids using a liquid solvent in 5 steps.

### MINIMUM EXPOSURE TO SOLVENTS

The safe SolventXpress™ technology enables smart solvent dispensing for solvent addition.

### SMART AND EASY TO USE

The exclusive 7" ControlPad™ facilitates the set-up and interaction with the extractor.

### UNPARALLELED VERSATILITY AND SCALABILITY

SER 158 can work with all sample types and sizes thanks to a wide range of accessories and consumables.



ermes enabled

## CONFIGURATIONS - SER 158 Series



## INSTRUMENT - CODE

SER 158/3	115-230 V / 50-60 Hz	S303A0390
SER 158/6	115-230 V / 50-60 Hz	S303A0380
SER 158/3 without ControlPad	115-230 V / 50-60 Hz	F303A0390
SER 158/6 without ControlPad	115-230 V / 50-60 Hz	F303A0380

The SER 158 is supplied with Grey butyl seal, Green viton seal, Extraction cup STD Ø 56x120mm, Extraction thimbles holder Ø 33mm, Boiling stones, 30g, Cellulose thimbles 33x80mm, Inlet water tube, Teflon tube Ø 4x6mm, Connection 1/8 NPT - tube 6x4





# Semi-automatic Extraction

## ■ SER 148 3/6

Solvent extraction system suitable for the separation of a substance or a group of elements from solid and semi-solid samples according to the Randall technique. The SER 148 Series is a semi-automatic solution with no compromises on operator safety (IP55) and solvent consumption.

### RAPID ANALYSIS

The fast solubilization enabled by hot solvent determines a considerable reduction of the extraction time.

### INCREASED FLEXIBILITY

SER 148 Series can be used with a wide range of sample types and with a variety of solvents.



## CONFIGURATIONS - SER 148 Series



## INSTRUMENT - CODE

SER 148/3	230 V / 50-60 Hz	F30300240
	115 V / 50-60 Hz	F30310240
SER 148/6	230 V / 50-60 Hz	F30300242
	115 V / 50-60 Hz	F30310242

*The SER 148 is supplied with Extractions cups, Extraction thimbles 33x80 mm, Extractions thimbles holders, Butyl Seals, Viton Seals, Inlet tube, Heat shield*

# Hydrolysis Unit

## ■ HU 6

The HU 6 performs hydrolysis in complete safety and handles six samples at the same time in order to maximize productivity. Optimum solution for the acid/basic hydrolysis of food and feed samples prior to solvent extraction for total fat analysis, and free the fat molecules.

### EXCELLENT THERMAL HOMOGENEITY

The samples are heated in test-tubes in an aluminum heating block.

### SAFE HYDROLYSIS

HU 6 is supplied with a vacuum pump which guarantees a premium level of safety thanks to the reduction of acid fumes.

### AVOID SAMPLE LOSS

The crucible can be transferred directly to the Solvent Extraction Unit avoiding any possible sample loss.



### INSTRUMENT - CODE

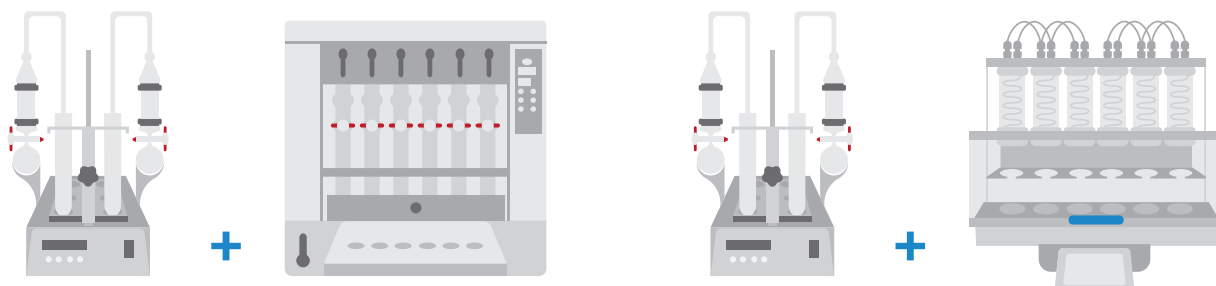
HU 6	230 V / 50-60 Hz	F30300150
	115 V / 50-60 Hz	F30310150

The HU6 includes the following accessories: Glass sand, Cellite 545

## Sample preparation procedure prior to fat extraction for total fat determination

For the majority of food and feed samples, the fats are chemically bonded with other components. In order to determine the total fat for these samples, preliminary hydrolysis followed by filtration and washing is required to free the fat molecules prior to extraction.

The analysis with HU 6 complies with official regulations for the declaration of the total fat content of food and feed samples such as meat, cheese, seafood, chocolate, cereal flours, etc.



### HU 6 + SER 148

Use the HU 6 for sample defatting before the extraction with the SER 148 Semi-automatic Solvent Extractor.

### HU 6 + SER 158

Use the HU 6 for sample defatting before the extraction with the SER 158 Automatic Solvent Extractor.

## Consumables

A complete set of cups, thimbles and gaskets guaranteeing maximum performance to solvent extractors. Choose your preferred size of glasses and thimbles as well as gaskets made of high-quality materials that can be adapted to any application, as in the case of the high-quality Vaflon, which is suitable for a very wide range of solvents and solvent mixtures.

Viton seals 3 pcs/box	A00000307	Glass fiber thimbles 25x80mm, 25pcs/box	A00000314
Vaflon seals 3 pcs/box	A00000061	Glass fiber thimbles 33x80mm, 25pcs/box	A00000313
Cellulose thimbles 25x80mm, 25pcs/box	A00000294	Grey butyl seal 3pcs/box	A00000298
Butyl seals 3 pcs/box	A00000308	Green viton seal 3pcs/box	A00000297
Cellulose thimbles 33x80mm, 25pcs	A00000295	White vaflon seal 3pcs/box	A00000288
Cellulose thimbles 40x80mm, 25pcs/box	A00000296	Boiling stones, 30g	A00000305





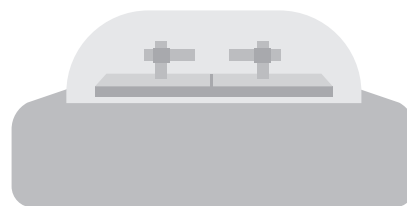
# Oxidation Stability Reactor

## The OXITEST Method

The OXITEST Method is an internationally recognized analytical technique for the determination of the oxidation stability of food, fats and oils.

Every food, feed and other product containing lipids (creams, lip balms, body lotions, wax etc.) undergoes oxidation of the contained fat portion, which causes unpleasant flavor, bad smell and the loss of its natural sensorial qualities.

The stability tests performed with the OXITEST reactor accelerate the oxidation process that in normal conditions can last weeks or months and provide fast, accurate and reliable results for Food & Feed, Cosmetic, Pharma and Petrochemical industries.

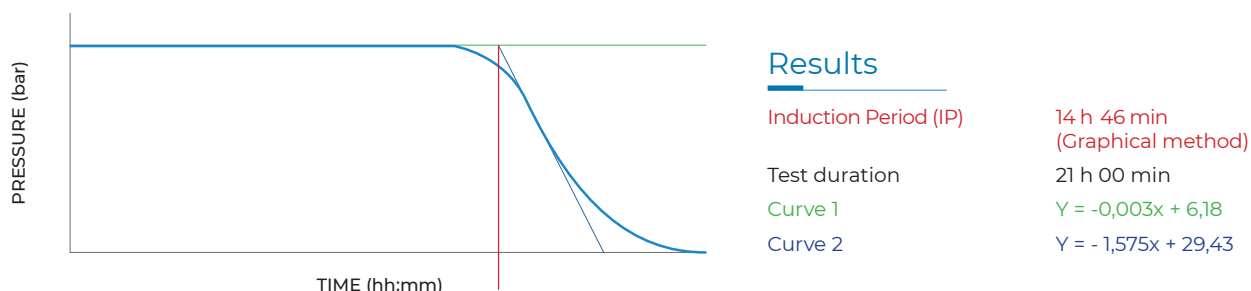


The OXITEST method has been recognized as the AOCS International Standard Procedure:

AOCS Standard Procedure Cd 12c-16
Determination of the Oxidation Stability of Foods, Oils and Fats Using the Oxitest Oxidation Test Reactor

## How it works

OXITEST speeds up the oxidation process because of the two accelerating factors, temperature and oxygen pressure. The instrument measures the absolute pressure change inside the two chambers, monitoring the oxygen uptake by reactive components in the sample and automatically generates an IP value.



The Induction Period (IP) is the time required to reach the starting point of oxidation, corresponding to either a level of detectable rancidity or a sudden change in the rate of oxidation. The longer the Induction Period, the higher the stability against oxidation over time. The operator can create test reports for a single test or compare different analyses for a better interpretation of the data.

## Industries & Application



### FOOD & BEVERAGE

Meat, Fish, Poultry, Cereals, Bakery products, Milk, Dairy, Fats, Oils



### FEED

Pet food, Forages, Feedstuff, Feed ingredients



### COSMETIC

Creams, Lotions, Powders, Wax stripes



### CHEMICAL AND PETROCHEMICAL

Plastic, Lubricants

## OXITEST

The OXITEST Oxidation Stability Reactor is the innovative and reliable solution to investigate the oxidation stability of various types of samples, from food and feed to creams and lotions.

Working on the whole sample, without requiring preliminary fat extraction, the OXITEST enables to create test reports for a single test or compare different analyses thanks to the OXIsoft™ software.

### REPRESENTATIVE RESULTS

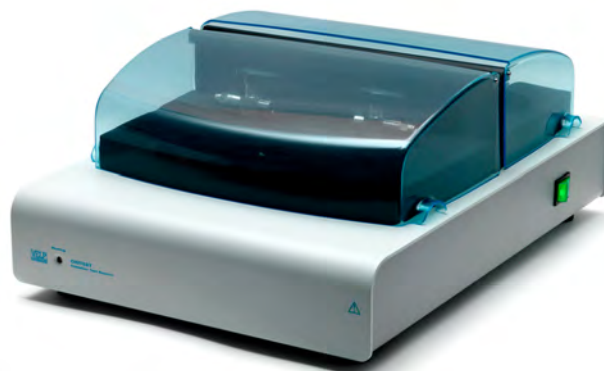
The stability test is performed directly on the sample as it is to provide reliable and reproducible results in a short period of time.

### POWERFUL AND INTUITIVE SOFTWARE

OXIsoft™ is quick and easy to use. Program parameters, working conditions and results always at a glance.

### RESISTANCE AND RELIABILITY

The oxidation chambers, sample holders and covers are made of titanium to guarantee resistance, compatibility, easy cleaning and cost savings.



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### INSTRUMENT - CODE

OXITEST	230 V / 50-60 Hz	F30900248
	115 V / 60 Hz	F30910248

## OXIsoft™ Applications

### REPEATABILITY TEST

A series of tests run on the same sample or standard to verify its IP period and calculate accuracy and repeatability of the data.

### FRESHNESS TEST

To verify the quality of different lots, for example of the same raw material, and compare them.

### FORMULA COMPARISON

To identify the most stable formula of a finished product, under the same conditions.

### PACKAGING COMPARISON

For testing which packaging maintains the product in the freshest condition.

### IP DURING AGEING

To have a prediction of oxidation stability during the shelf life.

### ESTIMATED SHELF LIFE TEST

To have an estimation of the shelf life of the product, extrapolated at room temperature.



# Fiber Analyzers

## Fiber Determination in Feed Stuff

### Crude Fiber (Weende Method)

The crude fiber is a method of analysis based on the estimation of the amount of fiber or plant cell walls. Crude fiber is also known as Weende method and is widely spread for the determination of fiber content for monogastrics.

The method is based on the solubilization (digestion) of non-cellulosic compounds by sulfuric acid and potassium hydroxide solutions. Crude fiber is the loss on ignition of the dried residue remaining after digestion of the sample and is determined by weight difference.

This method is applicable to grains, meals, flours, feeds, and fiber-bearing material from which fat can be extracted to leave workable residue.



### Detergent Fiber (Van Soest Method)

Van Soest method is based on the concept that plant cell can be divided into less digestible cell walls consisting of hemicellulose, cellulose and lignin. As a result it is possible to fraction fiber in NDF, ADF and ADL that are used to estimate the energy intake from feed and particularly for ruminants.

#### Neutral Detergent Fiber, NDF

The sample is digested in the Neutral Detergent Solution (NDS) with heat-stable-amylase-treated enzyme to separate the neutral detergent soluble fraction (sugars, starches and pectin soluble, filtered) from the neutral detergent insoluble fraction (cell walls substances, hemicellulose, cellulose and lignin, residues).

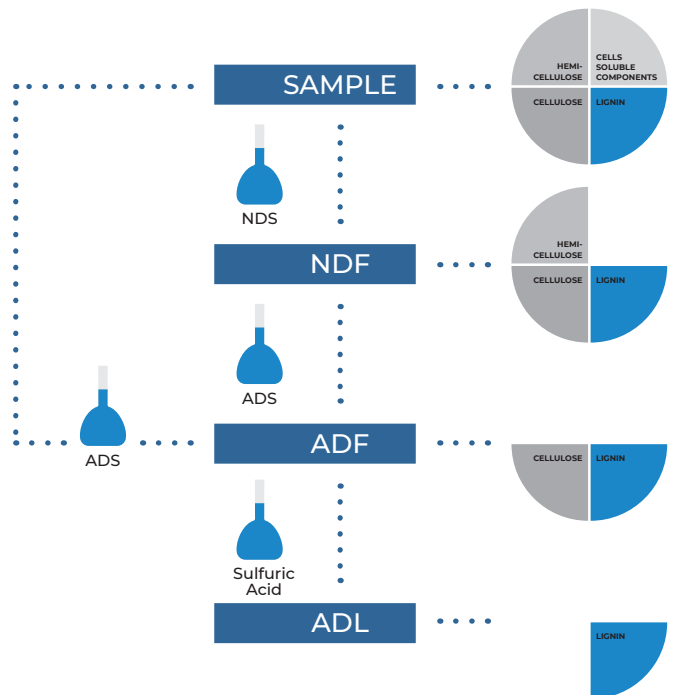
The remaining dry matter is estimated and the proportion gives the neutral detergent fiber (NDF).

#### Acid Detergent Fiber, ADF

The Acid detergent solution (ADS) solubilizes the hemicellulose while lignin and cellulose remain insoluble. The residue is weighed for the determination of ADF. It includes cellulose and lignin.

#### Acid Detergent Lignin, ADL

The remaining residue from the ADF analysis, is solubilized by 72% sulfuric acid, leaving the lignin (ADL) which is determined gravimetrically.



## Industries & Application



**AGRICULTURE**  
Fruits, Vegetables, Tea



**FEED**  
Pet food, Forages, Feedstuff, Feed ingredients, Oil seeds

# Automatic Fiber Analyzer

## ■ FIWE Advance

The FIWE Advance automates the digestion, washing and filtration steps guaranteeing consistency with Weende Method and Van Soest Method. The fully automatic analyzer for crude and detergent fiber determination requiring minimum operator time with unique user interface and cloud connectivity.

### FULL AUTOMATION

FIWE Advance pre-heats, dispenses and collects hot chemicals automatically.

### IMPROVED LAB PRODUCTIVITY

FIWE advance requires only 2 minutes for manual operations, saving valuable time and reducing costs.

### SMART AND EASY TO USE

The 7-inch touchscreen display and the User Interface make operations simple and smart.



ermes enabled

## INSTRUMENT - CODE

FIWE Advance

230 V / 50-60 Hz

F30500500

The FIWE Advance includes the following accessories: Pincer for test tubes Glass crucible P2, 6pcs/box and Calibration pump device



## Premium technology

Fiber determination with the FIWE Advance is absolutely safe. All the reagents required are contained in dedicated glass tanks and bottles located inside the instrument.

The VELP Nozzle automatically dispenses the reagents into each column

The 7" LCD touch display and VELP User Interface ensure smart operations

Bright LED illumination of the active positions

Multiple USB port and LAN to connect the balance, Wi-Fi Adapter, Barcode scanner



Advanced filtration system ensuring consistency and repeatability

The transparent tanks enable an immediate visualization of the reagents level

# Semi-automatic Extractor

## ■ FIWE 3/6

Fiber Analyzers that use pre-heated reagents for fiber analysis according to Weende, Van Soest and other official methods. Rapid analysis, reliable results and high reproducibility are some of the most relevant benefits. Instrument available in 3 or 6 positions.

### NO SAMPLE TRANSFER

prevent any possible sample loss, as crucibles can also be used as sample vessels during weighing, drying and washing.

### RAPID HEATING ELEMENT

An extremely efficient heating element and pre-heated reagents, speed up the analysis.

### HIGH RELIABILITY

Perform single or multiple extractions with the maximum reproducibility available.



## CONFIGURATIONS - FIWE Series



## INSTRUMENT - CODE

FIWE 3	230 V / 50 Hz	SA30520201
	230 V / 60 Hz	SA30530201
	115 V / 60 Hz	SA30540201
FIWE 6	230 V / 50 Hz	SA30520200
	230 V / 60 Hz	SA30530200
	115 V / 60 Hz	SA30540200

The FIWE includes the following accessories: RC Series Hot Plate, Pincer for test tubes and Glass crucible P2, 6pcs/box

# Cold Extractor

## ■ COEX

The COEX guarantees maximum reliability and is a mandatory step for all the samples with high fat content. Cold extractor that performs rapid preliminary fat extraction on feed samples directly in the FIWE Advance and FIWE glass crucibles.

### EASY TO USE AND CONVENIENT

All the reagents can be added through the same channel directly on the sample.

### AVOID SAMPLE LOSS

The crucible containing the defatted sample is transferred directly to the FIWE and FIWE Advance analyzers.

### HIGHLY EFFICIENT PUMP

The pump aspirates and removes the fatty component, collected in a dedicated waste tank.



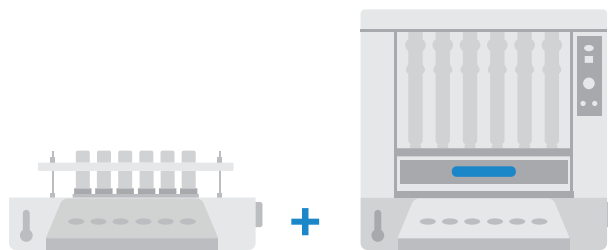
## INSTRUMENT - CODE

COEX	230 V / 50 Hz	F30520204
	230 V / 60 Hz	F30530204
	115 V / 60 Hz	F30540204

The COEX includes the following accessories: Glass crucible P2, 6pcs/box

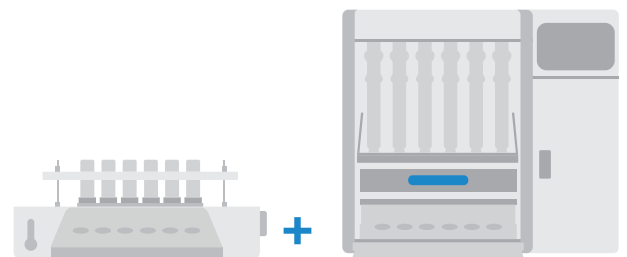
## Preliminary fat extraction procedure

If the fatty matter content is between 5 and 10%, extraction is recommended, but if it is more than 10% extraction is mandatory. With the COEX, the fat extraction on feed samples is performed using the FIWE Advance or FIWE glass crucibles, avoiding any possible loss of sample during transfer.



### COEX + FIWE

Use the COEX for sample defatting before the extraction with the FIWE Semi-automatic Fiber Extractor.



### COEX + FIWE ADVANCE

Use the COEX for sample defatting before the analysis with the FIWE Advance Fully Automatic Fiber Analyzer.



# Dietary Fiber Analyzers

## ■ GDE

Enzymatic digestion for dietary fiber analysis by enzymes heating. The analytical procedure for the determination of dietary fiber involves a series of digestions of the sample by thermostable enzymes in accordance with the official method.

### RELIABLE AND ACCURATE

The multiposition magnetic stirrer ensures homogeneity thanks to a continuous and constant stirring.

### TEMPERATURE REGULATION

Through an intuitive digital display, it is possible to set the desired temperature with excellent accuracy.

### TOTAL VISIBILITY

The transparent polycarbonate tank ensures visibility of the whole process.



## INSTRUMENT - CODE

GDE

230 V / 50-60 Hz

SA30400209

115 V / 50-60 Hz

SA30410209

## ■ CSF6

Filtration unit for dietary fiber extraction. CSF6 is optimal for efficient filtration, after the samples have been processed with the Enzymatic Digester GDE.

### RAPID

This VELP solution allows a drastic reduction in the time required compared to the manual procedure.

### EFFICIENT

CSF6 is able to perform filtration on single or multiple samples at the same time in less than 20 minutes.

### RELIABLE

The highly efficient pump enables to speed-up the filtration step and the final washing.



## INSTRUMENT - CODE

CSF6

230 V / 50 Hz

F30420210

230 V / 60 Hz

F30430210

115 V / 60 Hz

F30440210

*The CSF6 includes the following accessories: Glass crucible P2, 6pcs/box*

## Industries & Application



### FOOD & BEVERAGE

Cereals, Food ingredients, Bakery products



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