# OENOLOGY Wine & Spirits Analysis











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#### Dear Customer,

For over 40 years we have been dedicating and committed to large and small labs in wineries, Research Institutes, winemakers and farms. We have actively participated in their development and identification of their new key role in the wine field.

In the hope of being able to be more and more at Your side, we are pleased to introduce You our new catalogue, completely dedicated to the **oenological laboratory**.

We have tried to collect everything You could need to design, equip and supply a modern oenological laboratory.

From the design to the laying of the technical furniture; From the simple manual instrument to the advanced automatic version; From the common reagent to the dedicated enzyme kit; Our skills at Your service.

Do you need an efficient and reliable after-sales service? Exacta+ Optech Labcenter is also this! Installations and training to personnel, repairs, on-site interventions, certifications and calibrations. Not only products, services too.

Enjoy the reading, with our warmest greetings Exacta+Optech Labcenter Spa



## Since 1921 "Ing. C. Bullio" quality is always at Your side.



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Since 1921, Ing. C. Bullio began his activity by designing and building up, in the historic headquarters in Milan, Ebulliometers, Acidimeters, Distillers, Alembics and Afrometers.



Since 2000, Alessandrini Strumentazione acquires Ing. C. Bullio to strengthen his presence in the oenological laboratory.

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2017

New and up-to-date portfolio for the modern oenological laboratory.

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## EXACTA+OPTECH: serving the lab world since more than 40 years.



#### 1 Electronic distiller model Dualstill Plus

IN CONFORMITY WITH CEE N° 2.676/90 "METHODS OF COMMUNITY ANALYSIS IN THE WINE SECTOR" and 2870/2000 "OFFICIAL METHODS FOR SPIRIT DRINKS ANALYSIS".

Ultra-rapid and totally automatic instrument for detection of ALCOHOL and VOLATILE ACIDITY; born and designed to automate all the pre and post-distillation steps.

Shiny stainless steel 1810 epoxy painted frame.

Analysis chamber in Pyrex and PTFE

Heating is done inside a DURAN glass chamber through a dual system: Electric (electrodes with electronic control) and Steam (electronically controlled high efficiency boiler)

The interface with the user takes place through the large graphical display and the comfortable membrane keyboard: to program very easily all the parameters of the analysis to be performed (you can enter up to 99 different types of analyzes).

Technical features

Heating system: Electric/Steam
Distillation end block: Automatic
Cooling circuit: Water automatic stop
Distillation Vessel: DURAN PTFE
Construction: stainless steel - PTFE

Power supply: 240/220 V - 50/60 Hz, 15 Amp

Distillation timing

ALCOHOL: about 3 min. 30 sec. for 100ml distillate VOLATILE ACIDITY: about 7 min. for 250 ml distillate

STANDARD EQUIPMENT INCLUDES: Instrument starting kit, consisting in n. 2  $\times$  100 cc flasks, n. 1  $\times$  200 cc flask, n. 1  $\times$  250 cc flask, antifoam dosing device, calcium hydroxide solution dispenser, n. 2  $\times$  plastic pipettes, distilled water container, chemicals for distillation, fittings, instruction manual.

DESIGNED AND CONSTRUCTED in accordance with D.P.R. 459/96, D.P.R. 24/5/98 No 224 and CEI EN 61010-1.

CE Marked.



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Dualstill Plus

#### 2 Electronic distiller model Dualstill

Designed for the oenological field and in general for alcohol solutions, for the determination of alcohol and volatile acidity. IN CONFORMITY WITH CEE N° 2.676/90 "METHODS OF COMMUNITY ANALYSIS IN THE WINE SECTOR" and 2870/2000 "OFFICIAL METHODS FOR SPIRIT DRINKS ANALYSIS".

Double heating system, steam and electric, simultaneously acting, thus ensuring at an exceptionally short time the extraction of alcohol from the matrix in which it is dissolved. The sample matrix can be of any type, being the instrument an "open distillation vessel" one, a condition greatly simplifying the sample preparation steps and the cleaning when distillation is finished.

Easy-to-use electronic keyboard that gives step-by-step instructions and allows you to select, by pressing a single button, alcohol or steam vapor distillation for volatile acidity.

All deteriorable parts are easily accessible and can also be replaced by non-specialized personnel, thus simplifying ordinary and extraordinary maintenance.

The carrying structure of the instrument, completely in stainless steel AISI 304 having 1.5 mm thickness, always keeps it in perfect functional and goodlooking conditions.

Distillation timing

- Alcohol: about 4 minutes (approximate time to distill 100 ml of alcohol solution)
- Volatile acidity: about 6 minutes (approximate time to obtain 200 ml of distillate starting from 20 ml of product)
  Technical features
- Heating system: steam current/electric, selectable
- Distillation end block: Automatic and adjustable to the values required by the user
- Cooling circuit: Water, with automatic stop at end of distillation
- Distillation vessel: open, with quick locking system
- Safety: safety devices both on door and boiler
- Power supply: 220V ±10%
- Absorption: 15A max
- Dimensions: 400x380x850 mm (LxWxH)

Standard equipment includes: Instrument starting kit, consisting in n. 2 x 100 cc flasks, n. 1 x 200 cc flask, n. 1 x 250 cc flask, n. 2 x distillation rooms, antifoam dispensers, calcium hydroxide solution dispenser,

n. 2 plastic pipettes, distilled water container, chemicals for distillation, fittings, instruction manual. DESIGNED AND CONSTRUCTED in accordance with D.P.R. 459/96, D.P.R. 24/5/98 No 224 and CEI EN 61010-1.

"CE" marked.

Description	PK	Cat. No.
Dualstill	1	A11301



Dualstill





#### 1 Unistill distiller

Designed for the oenological field and in general for alcohol solutions, for the alcohol determination in the agro-food industry.

IN ACCORDANCE WITH EEC REGULATION N° 2.676/90 "METHODS OF COMMUNITY ANALYSIS IN THE WINE SECTOR" and 2870/2000 "OFFICIAL METHODS FOR SPIRIT BEVERAGES ANALYSIS".

Heating system able to guarantee in exceptionally short time, the extraction of alcohol from the matrix in which it is dissolved. The sample matrix can be of any type, being the instrument an "open distillation vessel" one, a condition greatly simplifying the sample preparation steps and the cleaning when distillation is finished.

The instrument is equipped with a double distillation system with microprocessor and controlled by the membrane keyboard, where it is possible to select ALCOHOL I distillation for poor in ions liquid matrix (100% of the current passes through the electrodes) or ALCOL II distillation (the 70% of the current passes through the electrodes) for dense or semisolid matrix rich in ions.

All deteriorable parts are easily accessible and can also be replaced by non-specialized personnel, thus simplifying ordinary and extraordinary maintenance.

The carrying structure of the instrument, completely in stainless steel AISI 304 having 1.5 mm thickness, always keeps it in perfect functional and goodlooking conditions.

#### Distillation timing

Alcohol: about 4 minutes (approximate time to distill 100 ml of alcohol solution); about 6 minutes (approximate time to get 200 ml of alcohol solution)

#### Technical features

- Electric heating system via two electrodes
- Distillation end block: Automatic and adjustable to the values required by the user
- Cooling circuit: Water, with automatic stop at end of distillation
- Distillation vessel: open, with quick locking system
- Safety: safety devices both on door and boiler
- Power supply: 220V ±10%
- Absorption: 15A max
- Dimensions: 400x380x850 mm (LxWxH)

Standard equipment includes: instrument startup kit, consisting of n.  $2 \times 100$  cc flasks, n.  $1 \times 200$  cc flasks, n. 2 distillation compartments, antifoam dispenser, calcium hydroxide solution dispenser, n. 2 plastic pipettes, chemicals for distillation, fittings, instruction manual.

DESIGNED AND CONSTRUCTED in accordance with D.P.R. 459/96, D.P.R. 24/5/98 No 224 and CEI EN 61010-1. "CE" marked.

Description	PK Cat. No.
Unistill	1 A11308

#### Accessories and spares for automatic distillers

For all our models: Dualstill, Unistill and Dualstill Plus

Description	PK	Cat. No.
Distillation cup, 100 ml	1	F11316
Distillation cup, 200 ml	1	F11317
Flask, 100 ml complete with cap	1	F11310
Flask, 200 ml complete with cap	1	F11311
Flask, 250 ml complete with cap (art. YK0001142)	1	9141036
Sealing for distillation cup	1	X10099



## ETALAB

#### TECHNICAL LABORATORY FURNITURE



PROTECTING YOUR LIFE IN LABORATORY



#### 1 2 3 Official EEC distillers

for Alcohol detection

Туре	Description	PK	Cat. No.
1-place, with gas heating system	complete with spherical joint round bottom flask, 500 ml	1	A113301
1-place, with electric heating system	complete with collection flasks 100 - 200 cc	1	A113302
3-places, with 1350 W electric heating system	complete with installation set & glassware	1	A113304
4-places, with 1180 W electric heating system	complete with installation set & glassware	1	A113306





A113301

A1

## **AUTOMATIC TITRATORS AT 1000 SERIES**



### New generation of titrators for oenological analysis!

Titralab AT1000 series, automatic titrators. For pH, Total acidity, SO<sub>2</sub> detection.

Exacta+Optech Labcenter, worldwide official partner for Hach-Lange oenology division.







#### 1 Acidimeter Model CAZENAVE, Miconi modified

Instrument for volatile acidity detection with LPG or methane gas heating. Complete with tripods, bunsen, tubes and instruction manual.

Description	PK	Cat. No.
CAZENAVE, Miconi modified	1	A113413

#### Accessories and spares for Cazenave

Description	PK	Cat. No.
Flask 200 cc, marked at 120 cc	1	X200398
Flask 120 cc, marked at 60 cc	1	X200404
Distillation round bottom flask	1	X200598
Cooling element	1	X200599
Bunsen Poligas lamp, complete with thermocouple and tap	1	YL0084000



#### 2 3 Acidimeter model Jozzi

Steam current distiller, complete with glassware and reagents, for volatile and total acidity detection. According to EEC norms.

Description	PK	Cat. No.
1-place, electric heating system 400 W	1	A113421
3-places, electric heating system 1200 W	1	A113422







JOZZI, 1-place

#### 4 Accessories and spares for Jozzi

Description	PK	Cat. No.
Glass boiler	1	X200731
Glass boiling tube	1	X200732
Flask 250 ml, with spherical joint	1	X200736
Beaker 250 ml, for distillation collection	1	X200737
Cooling element, spherical joints	1	X200075
Junction for multi-position Jozzi, having electrical heating system	1	X200076
Junction for multi-position Jozzi, having gas heating system	1	X200096
Junction for multi-position Jozzi, both heating systems	1	X200097
Clamp for spherical joint 29/15	1	X200070
Clamp for spherical joint 18/9	1	X200088
Heating element for 1-place Jozzi	1	X200232
Heating element for multi-position Jozzi	1	X200738





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#### **Acidimeters**



Juffmann

#### 1 Acidimeter model Juffmann

Rapid steam vapour distillator, for volatile acidity detection.

Extremely fast and effective method.

RAL 7035 epoxy painted sheet metal frame. The base is complete with cast iron heating furnace for distilled water tank, main switch, operating lamp, and fuses; on the left side of the instrument a plastic bottle is placed for the air vent; in the middle part the distilled water containment bottle, cap and control valve.

The bubbler is placed on a heating mantle fixed to the base through a chrome support bar.

The instrument ends with a serpentine glass refrigerant supported by the same chrome bar.

Standard equipment includes: glassware for collecting the distillate, reagents, hydraulic tubes and instruction manual. Power 220/240 V - 780 W.

CE marked.

Description	PK	Cat. No.
Juffmann, electric 780W heating system	1	A113404

#### Accessories and spares for Juffmann

Description	PK	Cat. No.
Oval distillation round bottom flask	1	X200127
Flask, 40 cc	1	X200128
Power and safety tube	1	X200102
Cico small hotplate for titration	1	X200114
Electric hotplate	1	X200576
Mobile hotplate	1	X200107
Cooling element	1	X200101
Spike tube with cap	1	X200108
Automatic burette, 10 ml	1	X200109
Flask, 500 ml	1	9141044



#### 2 Acidimeter, Model Velox

Gas heating system.

Complete with glassware and reagents for the titration of volatile acidity, reduced by SO2 and total acidity.

Description	PK	Cat. No.
Model Velox, 1-place	1	A113401

#### Accessories for Velox

Description	PK	Cat. No.
Round bottom flask, 100 ml	1	X200025
Collecting flask, 20 - 23 ml	1	X200028
Pipette for volatile acidity, 40 ml	1	9273117
Pipette for total acidity, 7,5 ml	1	X200032
Pipette for water	1	X200033
Automatic burette (clamp art. 9180060 + cap art. YK0001138)	1	X200034

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#### 1 2 3 4 5 Afrometers

for CO<sub>2</sub> detection

Description	PK	Cat. No.
PIN AFROMETER, for cork caps, 0-6 bar pressure gauge	1	A113501
PIN AFROMETER with tap, for cork caps, 0-6 bar pressure gauge	1	A113502
PIN VACUUM GAUGE with tap, for cork caps, -1+5 bar pressure gauge	1	A113502/V
"UNIVERSAL" AFROMETER with case, for any cap, 0-6 bar pressure gauge	1	A113503
DIGITAL "UNIVERSAL" AFROMETER with case, for any cap, 0-6 bar pressure gauge	1	A113504
AFROMETER for pressure check in TANKS	1	A11349
AFROMETER for pressure measurement during the fermentation in bottle	1	A113506







A113501



A113502

#### Accessories and spares for afrometers

Description	PK	Cat. No.
Spare pin	1	X200196
Ejecting tip	1	X200197
Pressure gauge 0 - 6 Bar	1	X200194
Pressure gauge - 1 / 5 Bar	1	X200542
Digital pressure gauge 0 - 6.000, Division 0.001 Bar	1	X200781
Pressure gauge 0 - 6 Bar, with S.I.T. Certificate	1	X200194C
Pressure gauge - 1 / 5 Bar, with S.I.T. Certificate	1	X200542C
Silicon seal for Universal Afrometer	1	X200137

#### 6 WITHDRAWING DEVICE and AFROMETER for sparkling wine

Device that allows bottiles to be filled with sparkling wine in order to directly sample on the autoclave under pressure.

Description	PK Cat. No.
WITHDRAWING DEVICE and AFROMETER for sparkling wine	1 A11348



#### 7 CARBODOSEUR for CO<sub>2</sub> detection

100ml cylinder with sealed screw cap and vent hose.

Description	PK	Cat. No.
Carbodoseur	1	A13001





### **Optech refractometers**



#### Bench & Portable



#### 1 Dissolved oxygen detection

Dissolved oxygen analysis: high precision and easy functionality.

This analyzer requires only one calibration every 4 years. The sturdy LDO diode and the optimized software strongly extend the operating life of the instrument. LDO technology allows not to use traditional membranes and electrolytes and makes electrochemical sensors to be maintenance-free. Precise results and fast response time are possible thanks to the optimized electronic technologies, a minimized sampling path, and extremely fast temperature measurements. ORBISPHERE 3100 is capable of measuring in less than a minute and integrates all components into an IP66 protective housing.

ORBISPHERE 3100 is intuitive and easy to use:

Wide Color Display, Fast and Resistant Optical Keyboard, Flow Visual Control which can be adjusted and locked, Storage up to 5700 with direct transfer to PC via USB key.

Technical features:

Response Time: (90%, t90) < 15 seconds

Accuracy: ±0.8 ppb or ±2% Range: 0-2000 ppb Detection limit: 0.6 ppb

Units of measurement: ppb, ppm, wt%, mg/l, O2%, mbar and more

Sample temperature range: -5 to 45 °C Sample pressure range: 0-10 bar abs

Housing: Stainless steel with polycarbonate sides

Protection class: IP66

Display: TFT, colour, 72x54 mm

Weight: <3.5 kg

Dimensions: (L×D×H) 200x170x190 mm

The equipment includes power cable, 3 meter inlet tube and sample outlets, tools kit and sample filter.

Description	PK	Cat. No.
Orbisphere 3100, general applications for the industry	1	E000347
Orbisphere 3100, for beverage industry	1	3998749

#### 2 3 Oxygen meters

Instruments for measuring oxygen dissolved (and other parameters) in wines.

Description	PK	Cat. No.
HQ30d - Digital portable instrument, 1 channel	1	39987101
LDO luminescent probe for standard oxygen analysis, with 3m cable	1	3998763
Kit for dissolved oxygen detection in bottles	1	A11385

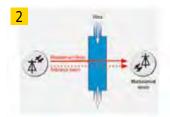






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#### 1 2 Alcogamma

Alcohol measuring device on the raw sample.

Fully automatic system for alcohol detection in musts and its derivatives.

The instrument provides ethanol concentration through a NIR (Near Infrared) system, in less than 60 seconds and uses only 40ml of sample.

The NIR system uses a patented spectroscopic analytical technique with multiple wavelengths of the infrared spectrum. The software interface allows the user to perform the analysis in a very simple way, allowing at the same time the machine to run automatic washing and calibration cycles.

- High accuracy and precision in the analysis
- Response speed (< 60 seconds)
- Easy to use
- Reduced sample volume (40 ml)
- No analytical reagent

#### **Detected Data:**

- Alcohol
- Density of the sample (in the NIR + DENSITY version)
- Total dry extract (net)
- Potential Alcoholic Degree

#### Technical features:

Main Measure: Opto Electric Measurement range: 0 - 18% Vol. Accuracy: 0.1% Vol.

Reproducibility: + 0.05% Vol. Reading time: 60 seconds Sample Volume: 40 ml

Operating system: Windows Powery: 100 - 240 V

Frequency - Power: 220-240 V - 40/60 Hz - 30 W Dimensions and weight: 24,5x14,5x28,5 cm - 7 kg

Description	PK	Cat. No.
NIR. Reading range 0.00 % - 25.00 % V/V; Risolution 0.1 % V/V	1	A11380
NIR + DENSITY: Density - Dry extract - Potential Degree	1	A11381



#### 1 2 Ebulliometers

for alcoholic degree measurement.

Description	PK	Cat. No.
Malligand, chrome, long scale. Range 0-18%. With case	1	A113102P
Malligand, chrome, long scale. Range 0-18% O.I.V. With case	1	A113102/O
Salleron, 125W electric heating system. With case	1	A113104

#### Accessories and spares for ebulliometers

for Malligand and Salleron.

Description	PK	Cat. No.
Wick for alcohol lamp. Length 5cm	1	X200188
Chromed alcohol lamp	1	X200004
Clip thermometer, for cooling element	1	X200159
Water-Wine tube for Salleron	1	X200023



Malligand



#### 3 Alcofast

ALCOFAST electroebulliometer is an automatic tool designed and manufactured to determine alcoholic concentration in wines, musts and derivatives.

The instrument frame is made in epoxy painted laminate while the front is made of glossy stainless steel.

The boiling chamber is Duran glass so that the user can inspect the conditions of the sample at any time.

The working process is fully automatic: once the START is activated, the instrument will automatically boil the sample and directly detect the value of the VOLUME ALCOHOLOMETRIC TITLE (V/V%) on the LCD display. Compared to manual ebulliometric systems, ALCOFAST is equipped with a microprocessor that automatically compensates

the barometric pressure and can store and display the boiling temperature only when it is stable for (x) time. At the end of the analysis, the instrument automatically deactivates the boiler heating resistance and stops the cooling water in the cooling unit. Sample loading and unloading is manual. To operate, the instrument only needs cooling water and a power outlet.

TECHNICAL DETAILS:

- Anti-acid membrane keypad
- LCD display
- Pt100 stainless steel probe
- Water electrovalve
- Electronic Barometric Pressure Detector

SUPPLIED BY:

- Power cable
- Hydraulic fittings
- Instruction manual

TECHNICAL FEATURES:

AISI 304 stainless steel 20/10 construction Dimensions: mm. 210x240x480 (LxPxH)

Power: 220/240 V 50 - 60 Hz. Absorption: 1.5 A Max

Fuses: 2 x 2 A

"CE" MARK DESIGNED ACCORDING TO DPR 459/96 - DPR 24/5 $N^{\circ}$ 224 - CEI 61010-1.		
Description	PK	Cat. No.
Alcofast	1	A11316



#### 4 Accessories and spares for Alcofast

Description	PK	Cat. No.
Thermometer for water	1	X200177
Thermometer for wine, complete with column	1	X200176
Heating element, 125 W	1	X200018
Loading funnel	1	X200263
Water - wine cylinder	1	X200162
Boiler, complete with tap and waste tube	1	X200260
Boiler tap	1	X200261
Hydroalcoholic solution 10%	1	F11319
Hydroalcoholic solution 12%	1	F11320
Hydroalcoholic solution 14%	1	F11321
Hydroalcoholic calibration solution 10.00%, 500 ml	1	X13042
Hydroalcoholic calibration solution 14.00%, 500 ml	1	X13041





#### 1



Cylinder

#### 1 Alcoholometers and mostimeters

Description	PK	Cat. No.
Tralles alcoholometer, range 0 - 100%. WITH thermometer	1	K71502
Tralles alcoholometer, range 0 - 100%. WITHOUT thermometer	1	X71111
"Official" alcoholometer, range 0/45, div. 1/2°. WITH thermometer	1	X71212
"Official" alcoholometer, range 45/75, div. 1/2°. WITHOUT thermometer	1	X71213
"Official" alcoholometer, range 75/100. WITH thermometer	1	X71214
"Official" alcoholometer 3pcs, ranges: 0-45 / 45-75 / 75-100. WITH thermometer	1	X71215
BABO mostimeter, range 0-35. WITHOUT thermometer	1	K71501
BABO mostimeter, range 0-36. WITH thermometer	1	K71500
Glass cylinder, diam. 34x550 h, with foot	1	X71198
Glass cylinder, diam. 40x450 h, with foot	1	X71199
Cylinder for "Prof" alcoholometer, diam. 33x453h, with foot	1	X71196
PP cylinder, 500ml, diam. 50x350 h	1	9004900



#### Mettler densimeter, Densito 30PX

Portable instrument to detect the specific gravity.

Wide application range.

Easy to use: Take a sample and read in a few seconds the final result in the chosen measuring unit.

Possibility to choose the temperature correction coefficient before each measurement.

Clearly visible measuring cell.

External connection for sample syringe for viscous substances.

Intuitive user guide and simple language display.

Supplied with: safety case, density standard, cleaning cloths, instruction manual, cleaning solution flask, batteries,  $LabX^{\otimes}$  direct DE/RE data transfer and data processing software.

**Technical features:** 

Density measuring range: 0 to 2 g/cm³ Resolution: 0.0001 g/cm³

Measuring units: Density, relative density, density with Tocompensation, Tocompensation, Brix %,

Alcohol (Gravity %, Volume %, US and UK test), °Baumé, °Plato, API (scale A, B and D),

% sulphuric acid (% gravity), other units set by the user

Temperature: 0 to 40 °C Measuring range: 0.1 °C Resolution: °C or °F

Calibration: with dry air and pure water or other densitometric standards

Data storage: memory for storage up to 1100 results

Display: backlit Matrix-LCD

Interface: Infrared, selectable protocol (IrDA or RS232C)

Description	PK	Cat. No.
Densito 30PX	1	9947550

#### M5 - ALCOWEIGHT

System for detection of the alcoholic volumetric title, the dry extract and for the evaluation

of the musts in accordance with the OIV method and according to Regulations 2870/2000 and 128/2004.

The large Touch-Screen display allows the selection of parameters to be analyzed.

Automatic calibration programmed with internal motor weight.

Possibility of verification and calibration with SIT-DKD certified masses

Relative density range from 0.00 to 2.30g/cm3

Reading precision D = 0.00001

Accuracy: 0.00005 Repeatability: +/- 0.00005

Temperature compensation: 10-30 °C

Thermocouple: PT100 1/3 DIN Sensitivity: 0.01 °C

Accuracy and repeatability: +/- 0.05 °C

Reading: 0.1 °C

THE BALANCE INCLUDES AN INTERNAL SOFTWARE to manage:

- Volume alcoholic strength: 0-100% V/V

- Density reading at 20 °C

- Readability: 0.01% V/V

- Accuracy and repeatability: 0.02% V/V

- Recommended working conditions between 10 and 30 °C

- Total dry extract from 0.0 to 505.8 gr/l

- Evaluation of musts in: Baumè, Babo, Volumetric mass, theoric alcohol.

- Data storage via USB

THE SOFTWARE also allows:

- Correction of the float's volume in distilled water and in known solutions - Calibration and zero

- Update of time, minutes, date, etc ..

- Print of reading data - Customized users creation

THE SUPPLY includes:

- N. 2 x 20 ml floaters (code F11315)

- N. 2 x double-walled glass cylinders (code F11313)

- USB data output RS232

- Instruction manual

OPTIONAL ACCESSORIES:

- Cylinder for continuous measurements

- RS232 printer

External dimensions: 200x360x480(h)mm

Weight: 5Kg Power: 220V - 50Hz Power consumption: 12VA

Designed according to current regulations

"CE" marked

Description	PK	Cat. No.
M5 - Alcoweight	1	A1460

#### Accessories and spares for M5 - Alcoweight Description PK Cat. No. Double wall cylinder F11313 Cylinder complete with installation kit F11314 Calibrated floater X10093 PT100 probe F11324 Thermal printer model PLUS-SA A11508 Hydroalcoholic solution 10% F11319 Hydroalcoholic solution 12% F11320 Hydroalcoholic solution 14% F11321

#### Waterbath

Electronic regulation with digital P.I.D. thermoregulator

Range: - 5 °C to + 70 °C Precision: ±0.1 °C

Manual safety thermostat (with screw adjustment).

Stainless steel tank, 25 lt with holes for glassware; dimensions: 380x250x250 mm

Support TROLLEY with wheels.

Description	PK	Cat. No.
IF25	1	A11302



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#### 1 Solfotech, with glassware

Automatic instrument for detection of sulphur dioxide in musts, wines and its derivatives. It has been designed according to EC norm N° 2.676/90 concerning Official Analysis Methods in wine field. Free and total sulphur dioxide can be easily detected respecting times and methods stated in the norm.

The extraction processes stop is totally automatic, thanks to a programmable digital timer.

To work properly, the instrument just needs cooling water and a power socket.

The Gas flow adjustment is driven by a flow meter, visible on the stainless steel front part of the instrument.

- Electrical heating system, with heating mantle
- Automatic stop when distillation is finished
- Automatic cooling system with electro-valve

The instrument is supplied with power cable, hydraulic fittings/joints, instruction manual.

The glass  $SO_2$  distiller (art. A11314) is part of the instrument

CE marked.

Description	PK	Cat. No.
SOLFOTECH Extractor, complete with glassare	1	A11312



#### 2 Solfotech S, official EEC extractor

Instrument for the extraction of Free and Total SO<sub>2</sub> in wines and its derivatives.

It is made of a boiler with automatic drain through a PTFE tap, and a glass frame designed to meet exactly the requirements of EEC legislation.

The extraction air is automatically blown into the sample through a controlled flow pump.

The heating is done by means of an infrared lamp which allows to reach the desired temperature in few seconds.

Cooling water is driven by a solenoid valve, which activates the flow only during the analysis cycle.

Dimensions/Weight: WxDxH 230x270x570 mm/4 kg

Power: 600 W.

Description	PK Cat. No.
Solfotech S, complete with glassware	1 A11379

#### Instruments for SO<sub>2</sub> detection

Description	PK	Cat. No.
Official distiller, gas heating system	1	A11313
Official distiller, electric heating system	1	A11313/E
Glassware for Official distiller	1	A11314
SO <sub>2</sub> detection device, only glassware	1	G02112

#### ING. C. BULLIO

#### Accessories and spares

for Solfotech and other SO<sub>2</sub> detection devices

Description		PK	Cat. No.
Bunsen Poligas lamp, with thermocouple and tap	for art. A11313	1	YL0084000
250 cc heating element	for Solfotech (art. A11312)	1	X12008
Vacuum pump: water tube external Ø 11,85 cm; vacuum tube external Ø 9 cm; 191,50 mm Hg	for art. A11313 and A11313/E	1	YK0001395
Bubbler, 29/32 cone	all models	1	X12011
Glass frame	for Solfotech (art. A11312)	1	X12012
Glass frame	for Solfotech S (art. A11379)	1	X12051
Bottle with capillary tube	for art. A11313 and A11313/E	1	X12013
250 ml round bottom flask	all models	1	X12014
100 ml round bottom flask	all models	1	X12015
Bubbler attachment, frame with spherical joint	for Solfotech S (art. A11379)	1	X12067
Bubbler attachment, frame with spherical joint	for Solfotech (art. A11312)	1	X12041
Glass frame with emery cone	all models	1	X12042



#### 3 4 Ripper methods

Manual titration of free and total SO2 through Ripper method

Description	PK	Cat. No.
KIT for Sulfur dioxide detection, 40 tests	1	A113KP.07
Lighting base	1	A11309L



#### portable pH-meter, Hach Lange PH 1

Portable instrument with universal pH probe. For generic applications in aqueous samples.

The all-in-one system with navigation menu facilitates and speeds electrochemical measurements.

Each system is designed to be used in a wide range of applications and is supplied complete with everything you need to start the analysis (including solutions to work afield).

Sension+ Kit: Provided with everything you need to carry out the measurements, it ensures excellent versatility afield

ORP Accuracy: 1 mV

Temperature Accuracy: 0.2 °C (±1 digit)

mV Accuracy: 1 mV Power: 3, AA

Certification of conformity: CE

Temperature compensation: with Pt 1000 sensor or via keypad

Environmental conditions: \_ Temperature: 0 - 50 °C

Relative humidity (non-condensing): < 80%

Display: Backlit LCD with pictograms

CA and USB operation: No Housing IP protection degree: IP67

Inlets: MP-5

Interface: Icon-based, no language required

Operating Interface: Keyboard Instruction manual in 20 languages Temperature measurement: -20 to 150 °C Parameters: pH, mV, temperature PH Accuracy: 0.02 pH (±1 digit) PH resolution: 0.01 pH

PH electrode calibration: 1 - 3 points PH measurement: - 2/19.99 pH Stable reading pH measure Water resistance: IP67

Automatic buffer recognition: pH 2.01, 4.01, 7.00, 9.21, 10.01

Temperature resolution: 0.1 °C

MV resolution: 0.1 mV (0 to 200 mV)/1 mV (in the rest of the range)

Display type: 128x64 pixels, simultaneous readings

Display calibration curves: gradient and potential asymmetry

Precise and economic-efficient system.

Description	PK	Cat. No.
Kit Sension+ PH1, with accessories & case + LZW5050T electrode (for generic Low Cost applications, with temperature sensor)	1	3126076
Kit Sension+ PH1, with accessories & case + LZW5053T electrode (stainless steel + temperature sensor).	1	3126077
Portable ph-meter HI 83141. pH, mV and °C measures. Complete with electrode with plastic body HI1230B	1	9773953
pH electrode, general applications, plastic body, pH 014, 080 °C with S7 screw head	1	3126038
pH electrode, general applications, plastic body, pH 014, 080 °C with S7 screw head & temperature sensor	1	3126058

#### 2 LLG-pH Pen, pH tester

Economical pH tester, perfect for small volume measurements in tight containers.

3-points calibration, ATC from 0°C to 50°C. Supplied with storage container to prevent the electrode from drying.

#### **Technical features:**

0.00 to 14.00 pH Measure range: Accuracy: ±0.1 pH

210 x 36 x 20 mm Electrode dimensions (L x P x H): Electrode dimensions (diam. x L): 12 x 110 mm

72 g Weight:

2 x 3 V CR2032, button Battery:

Protection class: IP 65 Warranty: 2 years

Description	PK	Cat. No.
LLG-pH Pen	1	6263690





2



#### 1 Bench pH-meter, Hach Lange Sension + Ph3

Quick results: Ideal choice of quick response electrodes for desired applications.

Maximum simplicity: supplied complete with everything needed for your measurements.

Technical specifications:

ORP accuracy: 1 mV Temperature Accuracy: 0.2 °C

mV accuracy: 1 mV

Data storage: date and time, instrument ID and sample

Result internal storage capacity: No

GPL Features: No

Certification of conformity: CE

Temperature compensation: with Pt1000 probe or via keypad

Environmental conditions:
\_ Temperature: 5 - 40 °C

Relative humidity (non-condensing): < 80% Dimensions (HxWxD): 110x350x201 mm Display: backlit graphical LCD, 128x64 pixels

Data export: No

CA and USB operation: Yes Inlets: BNC, ref, Pt 1000 Operating Interface: Keypad

Temperature measurement: -20 to 150 °C Measure mV: -1999 to 1999 mV Parameters: pH, mV, Temperature

PH Accuracy: 0.02 pH

PH electrode calibration: 1 - 3 points

pH measure: -2 to 16 Optional pH printer

Measuring range ORP: -1999 to 1999 mV

Automatic buffer recognition: IUPAC standards (DIN 19266) or Technical buffer (DIN 19267)

Temperature resolution: 0.1 °C

mV resolution: 1 mV ORP resolution: 1 mV

PH resolution: between 0.01 and 0.1 pH

Calibration Intervals/Alerts/Reminder: Reminder 1 hour for 7 days.

Measurement details:

Range Resolution
-2 ... 16 pH 0.01 pH
±2000 mV 1 mV
-20 ... 150 °C 0.1 °C

Measure error (1 digit) Reproducibility (1 digit)

 $\leq$  0.01 pH  $\pm$  0.01 pH  $\leq$  1 mV  $\pm$  1 mV  $\leq$  0.2 °C  $\pm$  0.1 °C

Description	PK	Cat. No.
Complete Kit Sension+ PH3, with accessories and 5010T electrode (Universal, plastic body, with To sensor).	1	3126050
Complete Kit Sension+ PH3, with accessories and LZW5012T electrode (Universal, glass body, with To sensor).	1	3126057



#### Electrodes for Hach Lange bench pH-meters

Description	PK	Cat. No.
Electrode, plastic body, low maintenance, gel electrolyte pH 0-14 0-80 °C	1	3126030
pH electrode 5010T, low Cost, plastic body, gel electrolyte, pH 0-14, 0-80 °C with T° sensor	1	3126092
pH electrode 5011T. With T° sensor, plastic body, gel electrolyte 0-14 ph, 0-60 °C	1	3126061
pH electrode 5021 for hard samples. Frosted glass diaphragm, crisolyt electrolyte, glass body 0-14 ph,0-60 °C	1	3126069
pH electrode 5021T for hard samples. Same as art. 3126069 + T° sensor	1	3126070
pH electrode for hard samples, pH 0-12, 0-60 °C	1	3126278
pH electrode LE 420. Frosted glass diaphragm, with 1mt cable and BNC connector	1	9041622

#### 1 2 Waterbath, Memmert

A combination of high level stainless steel grade 1.4301 (ASTM 304), anti-corrosion and top-technology. Inside:

- easy to clean, grade 1.4301 (ASTM 304), laser welding, stainless steel frame reinforced by deep ribs
- heating surface extended on 3 tanks walls, corrosion-proof.

#### Control:

- microprocessor PID controller, Fuzzy supported with integrated self-diagnosis system and error code signaling.
- solid-state switching unit
- 2 x Pt 100 class A sensors, 4-pin, mutual performance control and lead at the same temperature value
- Digital timer from 1 minute to 999 hours for: On (continuous operation)/On delayed

Memory, or temperature-dependent memory adjustment, with pre-set stop time.

Triple protection against overheating.

T° range: +10 °C (however at least 5°C above ambient T°) to + 95 °C; Resolution: 0.1 °C.

Temperature range adjustment: from +10 °C to + 95 °C and boiling mode

Power: 230 V, 50/60 Hz; 115V, 50/60 Hz at no extra cost.

Туре	Description	PK	Cat. No.
WNE 7	Capacity: 7 lt power: 1200 W	1	9906591
Gabled lid	for WNE 7	1	9906550
WNE 14	Capacity: 14 litri Power: 1800W	1	9906593
Gabled lid	for WNE 14	1	9906552
W7 tube holder	24 holes (3x8), Ø 18 mm	1	6201919
Tube 18x100 mm	screw cap, SVL Pyrex	1	YA0315700





WNE 14

#### 3 Waterbath, Polyscience

Easy-to-use display, high precision, easy operation and excellent price-performance ratio.

The inclined display makes it easy to read and use.

Easy-to-use digital temperature controller, with three pre-selected temperatures to choose one-touch the most used setpoints, plus a high user-configurable alarm limit that warns if the bath temperature is above the set limits.

It shows both the actual and the set temperature at the same time.

Integrated timer

Five tank sizes from 2 to 28 liters

Drain Tank (for 10, 20 and 28 liters bath)

Primary and automatic safety thermostats.

Stainless steel tank with inclined hinged lid

Illuminated LCD display 3.25"

Maximum ambient temperature: 40 °C

Sample tray included

Temperature range: from + 5 °C to 99 °C

Uniformity Temperature ±0.2 °C Temperature stability: ±0.1 °C

A high optional lid allows positioning without interference of bottles or sample bottles in the bathroom.

For example: 4 1 liter beads fit into a 10-liter bath with the lid completely closed. These lids are available on request.

	Working space W x D x H	Int. dimensions (W x D x H)	Rating	PK	Cat. No.
L	mm	mm	W		
5	368 x 305 x 267	274 x 127 x 152	360	1	6267597
10	393 x 432 x 305	269 x 295 x 152	1000	1	6267598
20	572 x 445 x 305	432 x 241 x 152	1400	1	6267599





AT1102 - 1 syringe



AT1122 - 1 syringe and 2 pumps



AT1222 - 2 syringes and 2 pumps

#### 1 2 3 Titrators, Hach Lange AT1000 series

The TITRALAB AT1000 HACH LANGE system uses pre-set features that eliminate the need for complex programming and provide accurate results. Reliable results with titration. Simple titraton configuration. Applications:

- Drinking water
- Waste water
- Food and drink
- Petrochemical industry

#### IMPORTANT!

It is necessary to match the titrator with the appropriate kit (pH acidity or free and total  $SO_2$  - see "Sampler & Kit for AT1000 titrator"), depending on the analysis to be carried out. The sampler plate (called "Sampler") is optional.

Description	PK	Cat. No.
model AT1102, including: 1 syringe for pH and Total Acidity	1	AT1102.98
model AT1122, including: 1 syringe and 2 pumps for Free, Total & Combined SO2	1	AT1122.98
model AT1222, including: 2 syringes and 2 pumps for Free, Total & Combined SO2, pH and Total Acidity	1	AT1222.98

#### 4 5 Sampler & Kit for AT1000 titrator

Description	PK	Cat. No.
Sampler TitraLab, 12 beakers x 50 ml, complete with software	1	AS1000.98.12
Sampler TitraLab, 30 beakers x 50 ml, complete with software	1	AS1000.98.30
Sampler TitraLab, 20 beakers x 90 ml, complete with software	1	AS1000.98.20
Sampler TitraLab: shaking from both above and below. Complete with palette stirrer and disposable beakers	1	AS1000.98.20B
Sampler TitraLab, 20 reusable beakers x 90ml. Standard plate; shaking from both above and below	1	AS1000.98.20C
Kit pH & Total Acidity in food and wine	1	39987209
Kit Free & Total SO₂ in food and wine	1	39987211
Kit Free & Total SO <sub>2</sub> + pH & Total Acidity in food and wine	1	39987212

#### Accessories for AT1000 titrators

Description	PK	Cat. No.
DPU-S445 USB: Kit including printer and thermal paper	1	39987000
Thermal paper for printer 8201. Rolls	5	3126119
TITRAMASTER 1000, Software for PC with Ethernet cable	1	39987002
External pump (sample auto-level)	1	39987197
Motor stirrer, with 70 mm shaft	1	39987003

#### Spare parts for AT1000 titrator

Description	PK	Cat. No.
10 ml glass syringe	1	39987004
O-ring for 10 ml glass syringe	1	39987005
Kit beakers, 150 ml	10	39987006
Kit beakers, 50 ml	10	39987007
Kit tubes (2x) for syringe (suction and outlet)	1	39987008
Kit tubes (2x) for pump (suction and outlet)	1	39987009
Cap for bottle (GL25)	1	39987010
Cap for bottle (GL45 )	1	39987011
Drying tube with cotton	1	39987012
Conical NS 14/23 transparent adapter, electrode holder	1	39987013
Teflon stirring bar 20x6	10	39987014
4-position tube support	1	39987015
2x tube adapter	1	39987016
Spare box for pump	1	39987017
USB key for food and drink applications	1	39987018
Complete kit for 10 ml syringe	1	39987019
Power supply (cable not included)	1	39987020
RS-232 adapter cable	1	39987021
Protection cover for syringe	1	39987022
Electrovalve connector and block	1	39987023

#### Electrodes and accessorie for AT1000

Description	PK	Cat. No.
Pt-Pt electrode. 1 mt cable	1	39987024
Ph glass electrode, Red Rod in Kcl and PTFE ring	1	39987025
Adapter for previous models	1	39987026





#### Torbidity and protein stability

TORBIDIMETER & Portable Bentocheck

The measure of turbidity allows to objectively evaluate the effect of one clarifying treatment compared to another, so the fermentation of the "clean" must can be started according to the enologist's criteria. In addition to the clarity index, it is important to determine the wine stability in time, that is its ability to maintain its clarity during bottle storage. Several prevention systems, such as clarification (or bonding), filtration, transfusion and more, are available on the market. However, all these systems have some common problems, such as overdose risk and the cost of substances such as bentonite, silica, casein, albumin, gelatin, and tannin. To support You during these important steps, Hanna instruments developed HI 83749, a tool that is both a precise and reliable turbidimeter and a protein stability indicator

The Bentocheck system allows to accurately determine the protein stability of the product being processed and to evaluate the right amount of bentonite to be added to wine, to ensure quality and stability in time, thus achieving significant economic savings, given the less reagents waste. Thanks to the "Fast tracker" system, You can store readings at any time even performed on different types of wine, without worrying about transcribing reliefs and their location. The HI 83749 also comes with a backlit display for use even in low light conditions, a USB port for PC data transfer, AVG (average) function allowing more readings repeatability, and the GLP (Good Laboratory Practice) function.

Range: 0.00 to 9.99; 10.0 to 99.9; 100 to 1200 NTU

Accuracy: ± 2% reading; ± 0.05 NTU

Light source: tungsten lamp Sensor: silicon photocells Method: Nefelometric Calibration: 2, 3 or 4 points Storing: 200 records

Display: 60x90 mm LCD with backlight

Interfaces: RS 232, USB

Operation conditions: 0 to 50°C; Up to 95% U.R. Power supply: 4 x 1.5V AA alkaline battery or adapter Dimensions and weight: 224x87x77 mm/512 g

Description	PK	Cat. No.
Portable Torbidimeter & Bentocheck	1	G10281
Spare lamp	1	7910274
Torbidity calibration kit: 4 x cuvettes (< 0,10; 15; 100; 500 NTU)	1	3128051
Glass cuvettes for photometer	4	G03883



Hach portable Torbidimeter 2100Q



Torbidimeter & Bentocheck

#### **Torbidimeter**

PORTABLE TORBIDIMETER 2100 Q ISO, according to ISO 7027

Optical system with 2 detector ratios for accurate routine analysis, performed according to EN-DIN-ISO 7027.

Technical data:

Measurement criteria: Nephelometry Measurement method: 90° refracted light

Operating modes: Manual or automatic range selection

Measuring range: NTU

Measurement intervals: 0-1000 NTU in automatic range selection mode; 0-9.99, 0-99.9, and 0-1000 NTU in manual

range selection mode

Accuracy: ±2% of reading value; ±1 on the last significant digit in the range 0-500 NTU;

±3% of reading value between 500-1000 NTU

Resolution: 0.01 on the lowest range

Reproducibility: ±1% of reading value or ±0.01 NTU

Light source: 870nm IR LED

LCD display

Included accessories:

6x Cuvettes, 4x 100ml StabCal prima formazin standard (<0.1, 20, 100 and 800 NTU), secondary Gelex standard kit, silicone oil, cuvettes cleaning cloth, instruction manual, case.

Description	PK	Cat. No.
Hach portable Torbidimeter 2100Q	1	F12401
Bentotest, 250ml solution for white wine	1	X200714
Bentotest, 250ml solution for red wine	1	X200715
MINISART syringe filters 0,65um, diam 26mm	1	6901409

#### **Tartaric stability**





Tartarcheck, reading

#### 1 2 Tartarcheck: tartaric stability in wine

TartarCheck is an instrument for monitoring the tartaric stability which allows to evaluate how to stabilize, saving on the process and ensuring quality. TartarCheck works on the principle of accelerating the THK precipitation, by adding it in excess as fine crystals.

The precipitation kinetics is followed by measuring the sample's electrical conductivity, which depends on the ions in solution (so not yet precipitated), in a thermostated chamber whose temperature follows a pre-set time profile by a microcomputer-controlled Peltier heat pump.

The instrument is complete and compact, with LCD display and thermal printer, and can be connected to external computer via RS232C.

It does not need other external elements to work.

With its simple and intuitive software You can:

- perform isotherm precipitation kinetics (at any To between -4 and 40 oC)
- detect the TS by intersecting the thermal conductivity profiles both with and without THK crystals
- print and/or store (depending on the model) the precipitation kinetics for the isotherm test and the differential conductivity diagrams according to the temperature for the Ts calculation.

Isothermal speed: test at 0 °C in 20 min

Ts speed: complete test in 35 min

Sample volume: 25 ml/magnetic stirrer/environment To: -4 oC to 40 oC

Power: 220 - 240 V/50-60 Hz/100 W Dimensions: 42x32x23 cm; Weight: 5 kg

"CE" marked.

#### **COMMON TECHNICAL CHARACTERISTICS**

#### **Conductivity:**

Conversion from 16 Bit to D/A

Conductivity range: 0-4000  $\mu$ S/cm Sensibility:  $\pm 2\mu$ S Accuracy:  $\pm 2\mu$ S

**Thermometer:** 

Semiconductor thermal sensor

Temperature range: -5/35 °C Sensibility: 0.01 °C Accuracy: 0.01 °C



Data storage:

Tartarcheck Thermal printer releasing a receipt at the end of the analysis; No data storage.

Tartarcheck Plus Tablet touchscreen (no printer) with data storage; PDF analysis report, can be downloaded from the inner archive to PC or mobile via wi-fi connection.

Pannello di controllo:

Tartarcheck with buttons
Tartarcheck Plus Touchscreen tablet





Tartarcheck Plus

Tartarcheck Plus, tablet

#### Accessories and spares for Tartarcheck

Description	PK	Cat. No.
Software, Windows interface	1	X200743
level index with thermal exchanger	1	X200753
Precision Hg thermometer, range -10 to +50, div. 1/10	1	YT0102200
50ml syringe for chamber of analysis emptying	1	X200141
THK dosing syringe	1	X200143
Syringe filters 0,80 microS	50	9049103
Syringe filters 0,45 microS	50	9049102
Potassium Hydrogenated (THK), 250 gr	1	A15281-250G
Conductivity solution 1413 microS at 25°C, 500 ml	1	CL12.1110.0500
Thermal paper 57x30 mt, in rolls	10	X200722

#### 1 2 Microbiology

Description	PK	Cat. No.
Filtration system, model 16309	1	9604076
SPEED-FLOW stainless steel base ramp, 1-place, with handles, nose and closure cap	1	E0000156
SPEED-FLOW stainless steel base ramp, 3-places, with handles, nose and closure cap	1	3500031
SPEED-FLOW stainless steel base ramp, 4-places, with handles, nose and closure cap	1	247340
SPEED-FLOW stainless steel base ramp, 6-places, with handles, nose and closure cap	1	3500033
RA-S column, for Ø47mm beakers, with stainless steel disc and PTFE gasket	1	3500032
500 ml stainless steel beaker, graduated at 250 and 500 ml, complete with stainless steel cover (sealing clamp non included)	1	F5003
Blue anodized TONG for fixing glasses on membranes Ø 47/50 mm	1	F5004
Flame lamp with piezoelectric ignition	1	E000348
Spare cartridge for Flame lamp art.E000348	1	E000349
LLG-Microbio.Media Luria Bertani (Miller) Powder, 500 g	1	6271000
LLG-Microbio Media Luria Bertani Broth (Lennox) Powder, 500 g	1	6271010
LLG-Microbio.Media Terrific Broth Powder, 500 g	1	6271007
LLG-Microbio.Media 2xYT Powder, 500 g	1	6271001
LLG-Microbio.Media Europ.Bact. Agar, Powder, 500 g	1	6271003
LLG-Microbio Media Luria Bertani Agar (Miller) Powder, 500 g	1	6271009
LLG-Microbio.Media Luria Bertani Agar (Lennox) Powder, 500 g	1	6271008
LLG-Microbio.Media Bile Esculin Azide Agar, powder, 500 g	1	6271012
LLG-Microbio.Media YPD Powder, 500 g	1	6271002
LLG-Microbio.Media Yeast Extract Powder, 500 g	1	6271004
LLG-Microbio.Media Tryptone Powder, 500 g	1	6271005
LLG-Microbio.Media Casein Peptone Powder, 500 g	1	6271011
LLG-Microbio.Media Luria Bertani (Miller) Granules, 500 g	1	6271100
LLG-Microbio.Media Yeast Extract Granules, 500 g	1	6271101
LLG-Microbio.Media Terrific Broth Granules, 500 g	1	6271102
Complete kit for Yeasts & Molds. Ready to use	1	A113K.13
Sabouraud Agar plates. Ready to use	20	X200219
Memmert Oven Model UN30, natural ventilation, 32 lt. With 1 shelf	1	9869681
Mini-Incubator CULTURA® M and CULTURA® M Multirack incl. Thermometer LLG-Min / Max	1	6280596
Manual Grapes-press, with PP beaker with handle	1	A11332
Mini incubator model LLG-uniINCU 20	1	6263570



9604076





#### Microbiology



#### 1 2 Biological microscopes, for yeasts and molds

with accessories for Phase Contrast.

Description	PK	Cat. No.
B3 Binocular microscope	1	K7161
with achromatic optics 4x-10x-40x-100x; magnifications 40-1000x		
B4SP Binocular microscope	1	K71650
with semiplan optics 4x-10x-40x-100x; magnifications 40-1000x		
Planar positive phase contrast device for B4SP.	1	K71212
With objectives 10x-20x-40x-100x		
Planar positive phase contrast device for B4SP.	1	K71652
With objectives 10x-40x (for YEASTS 400 magnifications)		
B6PT ICS Trinocular microscope, with infinite optics.	1	K71474
with planar optics 4x-10x-40x-100x: magnifications 40x-1000x		
Planar positive phase contrast device for B6PT ICS.	1	K71516
With objectives 10x-20x-40x-100x (for yeasts and bacteria)		
Blood cells BURKER counting chamber with tongs	1	YA0068200



#### 3 Epifluorescence devices

for biological microscopes, for yeasts and molds

Description	PK	Cat. No.
Epifluorescence device HBO 100W,	1	K71060
complete with lamp and power supply for B4SP		
Epifluorescence device with HBO 100W lamp and complete with filters,	1	K71622
for B6PT ICS		



#### 1 2 3 4 Optech portable refractometers

Simple and precise instruments to analyse liquids and their dissolved solid content.

Except for two models, all Optech portable refractometers are equipped with an automatic temperature compensation device (ATC).

Supplied in plastic box with imitation-leather case and instruction manual.

Туре			Readability	PK	Cat. No.
RBC with ATC	Tomato, oily emulsions, etc	0-10% Brix	0.1%	1	K71900
RLC with ATC	Fruit, fruit juices, milk	0-18% Brix	0.1%	1	K71901
RCS with ATC	Salinity concentration	0-28% Brix	0.2%	1	K71905
RCZ with ATC	General purpose	0-32% Brix	0.2%	1	K71319
RFC with ATC	Jam, tomato juice or paste	28-62% Brix	0.2%	1	K71320
RMM with ATC	Honey, jam	58-90% Brix	0.5%	1	K71902
	•	12-27% Water	1%		
		38-43° Baumé	0.5°		
RPD with ATC	Jam, tomato juice or paste	45-82% Brix	0.5%	1	K71314
RPU	General purpose	0-80% Brix (2 scales)	1%	1	K7117
RTS	General purpose	0-90% Brix (3 scales)	0.2%	1	K71316
RBA	General purpose	0-90% Brix	0.5%	1	K71318
RMA with ATC	Potential alcohol in wine	0-25% Vol	0.2% Vol	1	K71907
	Sugar content in grapes	0-40% Brix	0.2%		
RMB with ATC	Potential alcohol in wine	0-25% Vol	0.2% Vol	1	K71908
	Density	0-20° Baumè	0.2°	-	2500
RBB with ATC	Potential alcohol in wine	0-25% Vol	0.2%	1	K71321
NDD Mai 711 C	Sugar content in grapes	0-40% Brix	0.2%	-	1071521
	Density	0-22° Baumè	0.2°		
RBO with ATC	Oenology	0-140° Oechsle	10	1	K71196
NBO WILLI ALC	Sugar content in grapes	0-25° Babo	0.2°	-	107 1130
	Sugar content in grupes	0-32% Brix	0.2%		
RMT		0-95 %	0,2 %	1	K7121
IX-II		nD 1,300 - 1,700	0,2 70	-	117121
RMI		0-95 %	0,2 %	1	K7135
IXI-II		nD 1,300 - 1,700	0,2 70	-	1(7133
HI 96813		0-50 % Brix		1	3128000
111 90013		0-25.0 % Potential Alcohol		1	3120000
HI 96801		0.00 - 85.00 %	0.1 %	1	9801185
PAL 1		0.0 - 53.0 % Brix	0,1 %		9801165
WM-7 with ATC		0-45 % Brix	0,1 % 0,5% Brix		9801375
WM-7 WILLI ATC				1	9001343
		0-26.0 % Potential Alcohol	±0,2%		
			±1°		
			±0,2°		
DDC000 distrib		1 2200 1 F000 - D	±0		6220204
DR6000, digital		1.3200-1.5800 nD	0.0001 nD	1	6239384
:DEED 4 CTO 4 :: 1 4TO		0-95 % Brix	0.1 % Brix		6262620
uniREFRACTO 1, with ATC		0-54% Brix	0.1 % Brix	1	6263630
		1,3300-1,4200 nD	0.0001 RI		
uniREFRACTO 2, with ATC		0-95% Brix	0.1 % Brix	1	6263631
		1,3300-1,5400 nD	0.0001 RI		
RFM712, digital		0-50% Brix	0.1 % Brix	1	6284799



models HI 96813 & HI 96801: Hanna Instruments models PAL 1 & WM-7: Atago

model DR6000: Kruss





Abbe models





3



UniRefracto1 & UniRefracto2

#### 5 6 Single-ray compact spectrophotometers

Ideal for didactic and laboratory, they have embedded microprocessor and data display on 128x64 LCD. Wavelengths with manual or automatic positioning (with digital display), depending on the model. Large sample compartment with four-position slip-cell holder. The sources can be activated separately, saving them.

They allow measurements in T%, ABS and CONC with generation of calibration curve via curve angular coefficient or through standards (max 9).

They can store calibration curves and results sets.

Bandwidth 4 nm.

Photometric Range -0.3: 3.0 ABS.

USB and parallel outputs for printer.

A Windows operating software is available as an optional accessory.

Power 220 V 50 Hz

Dimensions 470x370x180 mm - Weight 12 kg.

Туре	primary wave	PK Cat. N
	length	
UV-1600PC	190-1100 nm	1 K714
V-1200	325-1000 nm	1 K714
UV-1200D	200-1000 nm	1 K714





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#### **Optics**



#### 1 2 Accessories for spectrophotometers

Description	PK	Cat. No.
Disposable cuvettes 4,5 ml in PS, O.P. 10 mm	100	YK0001937
Semi-Micro cuvettes PS, O.P. 2,5 ml	100	YK0001940
Semi-Micro cuvettes 1,5 ml low form O.P. 10 mm	100	YK0001938
Standard cuvettes 4,5 ml, 10x10x45 UV Grade	100	YK0001939
Optech cuvettes model S/G/10, optical glass with lid, O.P. 10 mm	2	K94004
Optech cuvettes model S/Q/10, quartz with lid, O.P. 10 mm	2	K94012
Cuvettes holder in PP, 16 numbered places. Can be sterilized at 121 °C. Dimensions: 210x70x38 mm	1	K94159



Cuvettes holder







#### 1 Enzyme kits for automatic analyzers

Ready to use. SLR (Stable Liquid Reagent). For O.I.V. approved methods.

Description	Description	PK	Cat. No.
ACETIC ACID Enzymatic UV 5x19 ml (R1) + 2x10 ml (R2) + 5x1.0 ml (R3)	450	1	EN001LM15
TOTAL ACIDITY 6X339mL	530	1	EN134M15
CITRIC ACID Enzymatic UV 4x13,5 ml(R1) + 4x1,5 ml (R2) + 4x4U (R3) + 4x2,1 ml (R4)	280	1	EN003M15
D-GLUCONIC ACID Enzymatic UV 3x30 ml (R1) + 1x10 ml (R2)	410	1	EN004BM15
D-LACTIC ACID Enzymatic UV 3x30 ml (R1) + 1x10 ml (R2)	410	1	EN006BM15
L-LACTIC ACID Enzymatic UV 3x30 ml (R1) + 1x10 ml (R2)	410	1	EN005BM15
ASCORBIC ACID Enzymatic UV 2x33 ml (R)1 + 1x20 ml (R2)	302	1	EN131BM15
L-MALIC ACID Enzymatic UV 3x30 ml (R1) + 1x22,5 ml (R2)	410	1	EN007BM15
PIRAVIC ACID Enzymatic UV 3x26 ml (R1) + 1x23 ml (R2)	354	1	EN017BM15
TARTARIC ACID Enzymatic UV metavanadate ammonium 3x27.5 ml (R1) + 1x24 ml (R2)	375	1	EN021AM15
AMMINE BIOGENE 3x26 ml (R1) + 1x23 ml (R2)	354	1	EN130BM15
ANTHOCYANIS 5x29.5 ml	565	1	EN011M15
AMMONIA NITROGEN Enzymatic UV 3x30 ml (R1)+1x12 ml (R2)	410	1	EN008BM15
NITROGEN AMINO-ALPHA O-phthaldialdehyde UV 3x30 ml (R1) +1x10 (R2)	410	1	EN010BM15
IONIC CALCIUM Arsenazo III 3x26 ml (R1)+1x23 ml(R2)	355	1	EN020BM15
CATECHINS3x30ml (R1) + 1x34 ml (R2)	410	1	EN019LM15
COLOUR 420-520-620 9x27 ml	1100	1	EN024M15
IONIC IRON Feren S 3x27,5 ml (R1) + 1x24 ml (R2)	370	1	EN016M15
GLYCERINE Enzymatic Trinder 3x27,5 ml (R1) + 1x24 ml (R2)	375	1	EN015M15
GLUCOSE-FRUCTOSE Enzymatic UV 3x30 ml (R1) +1x12 ml (R2)	415	1	EN014M15
GLUCOSE Enzymatic UV 3x30 ml (R1) + 1x12 ml (R2)	410	1	EN140M15
REDUCED GLUTATION Enzymatic UV 5x9 ml (R1A) + 5x1ml (R1B) +1x5 ml (R2)	236	1	EN110M15
MAGNESIUM Xilidile blue 3x26 ml (R1) +1x23 ml (R2)	350	1	EN025BM15
MAGNESIUM Enzymatic UV 3x26 ml (R1) +1x23 ml (R2)	350	1	EN025EM15
pH 3x33 + 1x24,5 ml	425	1	EN150M15
TOTAL POLYPHENOLS Folin-Ciocalteus 3x30 ml (R1) + 1x12 ml (R2) - TILL SOLDOUT, THEN PLS.SEE EN018BM15	410	1	EN018M15
TOTAL POLYPHENOLS Folin-Ciocalteus 3x30 ml (R1) +1x12 ml (R2)	410	1	EN018BM15
TURBIDIMETRIC POTASSIUM 2x33,5 ml (R1) + 2x33,5 ml (R2)	305	1	EN026M15
COPPER 3x30 ml (R1) + 1x10 ml (R2)	335	1	EN013BM15
SACCAROSE 4x10 ml (R1) + 4x0.5 ml (R1B) + 1x3 ml (R2)	195	1	EN0149M15
FREE SO2 3x15 ml (R1) + 3x15 ml (R2) + 6x1,5 ml (R3) + 6x1,5 ml (R4) + 3x0,15 ml (R5)	210	1	EN022M15
FREE SO2 2x35 ml (R1) + 1x9.5 ml (R2)	325	1	EN022BM15
TOTAL SO2 3x30 ml (R1) + 1x12 ml (R2)	410	1	EN023AM15
TOTAL SO2 2x35,5 ml (R1)	325	1	EN023BM15
UREA Enzymatic UV 3x26 ml (R1) + 1x23 ml (R2)	350	1	EN055M15

#### 1 Enzyme standards for automatic analyzers

Ready to use.

For O.I.V. approved methods.

Description	PK	Cat. No.
ENOCAL LD 1x10 ml Calibrator	1	EN050STD-LD
L-ASCORBIC 500 g/L 1x10 ml	1	EN131-STD-FL
D-LACTIC ACID 0,60 g/L 10x10 ml	1	EN006-STD
D-LACTIC ACID 0,60 g/L 1x10 ml	1	EN006-STD-FL
TARTARIC ACID 5 g/L 10x10 ml	1	EN021-STD
TARTARIC ACID 5 g/L 1x10 ml	1	EN021-STD-FL
TOTAL ACIDITY 8,00 g/L 10x10 ml	1	EN134STD
TOTAL ACIDITY 8,00 g/L 1x10 ml	1	EN134STD-FL
ACETIC ALDEIDE 100 mg/L 10x10 ml	1	EN009STD
ACETIC ALDEIDE 100 mg/L 1x10 ml	1	EN009-STD-FL
AMMINE BIOGENE 100 mg/L 10x 2ml	1	EN130B-STD
AMMINE BIOGENE 100 mg/L 1x 2ml	1	EN130B-STD-FL
NITROGEN, AMINO-ALPHA 250 mg/L 10x10 ml	1	EN010-STD1
NITROGEN, AMINO-ALPHA 250 mg/L 1x10 ml	1	EN010-STD1-FL
IONIC CALCIUM 200 mg/L 10x10 ml	1	EN020-STD1
IONIC CALCIUM 200 mg/L 1x10 ml	1	EN020-STD1-FL
CATECHINS 500 mg/L 10x10 ml	1	EN019-STD
CATECHINS 500 mg/L 1x10 ml	1	EN019-STD-FL
IONIC IRON 20m g/L 10x10 ml	1	EN016-STD
IONIC IRON 20m g/L 1x10 ml	1	EN016-STD-FL
GLUCOSE+FRUCTOSE 20 g/L 10x10 ml	1	EN014-STD20
GLUCOSE+FRUCTOSE 20 g/L 1x10 ml	1	EN014-STD20-FL
GLUCOSE+FRUCTOSE, SET 6x10 ml (50,100,150,200,250,300 g/L)	1	EN014STD-SET
GLUCOSE+FRUCTOSE 1x10 ml 50 g/L	1	EN014STD50-FL
GLUCOSE+FRUCTOSE 1x10 ml 100 g/L	1	EN014STD100-FL
GLUCOSE+FRUCTOSE 1x10 ml 150 g/L	1	EN014STD150-FL
GLUCOSE+FRUCTOSE 1x10 ml 200 g/L	1	EN014STD200-FL
GLUCOSE+FRUCTOSE 1x10 ml 250 g/L	1	EN014STD250-FL
GLUCOSE+FRUCTOSE 1x10 ml 300 g/L	1	EN014STD300-FL
GLUTATION REDUCED 2 g/L 10x10 ml	1	EN110-STD
GLUTATION REDUCED 2 g/L 1x10 ml	1	EN110-STD-FL
MAGNESIUM 120 mg/L 10x10 ml	1	EN025-STD
MAGNESIUM 120 mg/L 1x10 ml	1	EN025-STD-FL
TOTAL POLYPHENOLS 3 g/L 10x10 ml	1	EN018-STD
TOTAL POLYPHENOLS 3 g/L 1x10 ml	1	EN018-STD-FL
POTASSIUM 1500 mg/L 10x10 ml	1	EN026-STD FI
POTASSIUM 1500 mg/L 1x10 ml pH 6x10mL (2 vials x 3 std levels)	1	EN026-STD-FL
	1	EN150STD EN150STD-FL
pH 1x10mL (2 vials x 3 std levels) COPPER 2 mg/L /0,1 mg/L 5+5x15 mL 10x10 ml	1	EN013-STD
COPPER 2 mg/L 1x10 ml	1	EN013-STD-FL
SACCAROSE 2.5 g/L 10x10 ml	1	EN149-STD
SACCAROSE 2.5 g/L 1x10 ml	1	EN149-STD-FL
FREE SO2 60 mg/L 10x10 ml	1	EN022B-STD
FREE SO2 60 mg/L 1x10 ml	1	EN022B-STD-FL
TOTAL SO2 120 mg/L 10x10 ml	1	EN023B-STD
	1	
TOTAL SO2 120 mg/L 1x10 ml	1	EN023B-STD-FL



#### 2 Enzymatic Analyzer Model Gallardo

The evolution of enzymatic analysis.

Extremely easy to use: thanks to the ready-to-use Reactive Liquid Stable (SRL), no reagent preparation is needed; all the analyzes in one click.

In addition to all classic enzymatic analyzes, Gallardo also measures alcohol.

Touch screen keyboard.

Printer.

Possible analysis to be performed with the instrument:

Acetic acid Citric acid Giuconic acid D-lactic acid L-lactic acid Malic acid L-ascorbic acid Succinic acid Tartaric acid Acetaldehyde Anthocyanins Glucose/fructose Nitrates Sucrose/glucose Sulfites SO<sub>2</sub> 420/520 colour test 420/520/620 colour Potassium Copper AND ALSO Total Acidity Alcohol.

TECHNICAL FEATURES
Display: 320x240 (1/4 of VGA)
Number of set tests: 1000 Test
External PS2 RS232 Interface
Light Source: Halogen 12V 20 W
Silicon Detector: 340 nm - 620 nm
Peltier cell temperature control
24-digits graphics printer
Power: 110/220 AC - 50-60 Hz

Dimensions: 42x38x25 cm (LxWxH) / Weight: 11 Kg





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#### 1 Enzymatic Kits for Gallardo

For O.I.V. approved methods.

Description	PK	Cat. No.
TOTAL ACIDITY 10x1 ml	1	EN200CD
ACETIC ACID 10x1 ml	1	EN001LCD
D-GLUCONIC ACID 10x1 ml	1	EN004CD
D-LACTIC ACID 10x1 ml	1	EN006CD
L-LACTIC ACID 10x1 ml	1	EN005CD
L-MALIC ACID 10x1 ml	1	EN007CD
PIRAVIC ACID 10x1 ml	1	EN017CD
TARTARIC ACID 10x1 ml	1	EN021ACD
ANTHOCYANINS 10x1 ml	1	EN011CD
AMMONIA NITROGEN 10x1 ml	1	EN008CD
AMINO-ALPHA NITROGEN 10x1 ml	1	EN010CD
IONIC CALCIUM 10x1 ml	1	EN020BCD
CATECHINS 10x1 ml	1	EN019LCD
CHLORIDE 10x1 ml	1	EN012CD
COLOUR MONOTEST 420-520-620 10x1 ml	1	EN024CD
IONIC IRON 10x1 ml	1	EN016CD
ALCOHOLIC DEGREE 10x1 ml	1	EN132CD
GLYCERINE 10x1 ml	1	EN015CD
GLUCOSE 10x1 ml	1	EN140CD
GLUCOSE-FRUCTOSE 10x1 ml	1	EN014CD
MAGNESIUM 10x1 ml	1	EN025BCD
POTASSIUM 10x1 ml	1	EN026CD
TOTAL POLYFENOLS 10x1 ml	1	EN018CD
COPPER 10x1 ml	1	EN013CD
FREE SO2 10x1 ml	1	EN022CDG
TOTAL SO2 10x1 ml	1	EN023CDG
Monotest Kit for Oil. TOTAL ACIDITY, 10 TESTS	1	L001
Monotest Kit for Oil. TOTAL POLYFENOLS, 10 TESTS	1	L002
Monotest Kit for Oil. PEROXIDES, 10 TESTS	1	L003



#### 2 Enzymatic kits, for spectrophotometers and automatic analyzers

For O.I.V. approved methods. Ready-to-use.

Description	Description	PK	Cat. No.
ACETIC ACID SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN001LB
ACETIC ACID SLR + ACS powder 10x10 ml	Manual 50 / Automatic 100-200	1	EN001S
ACETIC ACID SLR + ACS powder 5x20 ml	Manual 50 / Automatic 100-200	1	EN002S
ACETIC ACID SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN131B
CITRIC ACID SLR + ACS powder 1x80 ml	Manual 40 / Automatic 80-160	1	EN003
D-GLUCONIC ACID SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN004
D-GLUCONIC ACID SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN004B
D-LACTIC ACID SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN006
L-LACTIC ACID SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN005
L-LACTIC ACID (BI-REAGENT) SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN005B
L-MALIC ACID SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN007
L-MALIC ACID (BI-REAGENT) SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN007B
PIRAVIC ACID Liquid + Lyophilised 5x20 ml	Manual 50 / Automatic 100-200	1	EN017
TARTARIC ACID SLR 2x100 ml	Manual 100 / Automatic 200-300	1	EN021
TARTARIC ACID SLR 4x50 ml	Manual 100 / Automatic 200-300	1	EN021A
ACETIC ACID SLR 2x50 ml	Automatic 300	1	EN021W
ACETIC ALDEIDE Liquid + Lyophilised 5x20 ml	Manual 50 / Automatic 100-200	1	EN009
ANTHOCYANINS SLR 4x50 ml	Manual 100 / Automatic 200-300	1	EN011
AMINO-ALPHA NITROGEN SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN010
AMMONIA NITROGEN SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN008
AMMONIA NITROGEN (BI-REAGENT) SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN008B
IONIC CALCIUM SLR 2x100 ml	Manual 100 / Automatic 200-300	1	EN020
CATECHINS SLR 2x60 ml	Manual 50 / Automatic 100-200	1	EN019L
CHLORIDE SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN012
COLOUR SLR 4x100 ml	Manual 100 / Automatic 200-300	1	EN024
IONIC IRON SLR 4x50 ml	Manual 80 / Automatic 160-280	1	EN016
GLYCERINE SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN015
GLUCOSE SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN140
GLUCOSE-FRUCTOSE SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN014
GLUTATION REDUCED SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN110
MAGNESIUM Xilidil blue SLR 2x50ml	Manual 40 / Automatic 80-160	1	EN025
MAGNESIUM Enzymatic UV SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN025E
TOTAL POLYPHENOLS SLR 3x100 ml	Manual 50 / Automatic 100-200	1	EN018
TOTAL POLYPHENOLS Enzymatic SLR 3x100 ml	Manual 44 / Automatic 88-176	1	EN018E
POTASSIUM SLR 1x100 ml	Manual 40 / Automatic 80-160	1	EN026
COPPER SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN013
SUCROSE SLR 4x20 ml	/	1	EN149
FREE SO2 SLR 1x120 ml	Manual 60 / Automatic 120-240	1	EN022
TOTAL SO2 SLR 2x100 ml	Manual 100 / Automatic 200-300	1	EN023
DILUENT SOLUTION for TOTAL SO2 detection, 6x50 ml	/	1	ENDS02
UREA SLR 2x50 ml	Manual 50 / Automatic 100-200	1	EN055

#### 1 Standards & Controls, for spectrophotometers

For O.I.V. approved methods.

ENOCAL 10x10 ml Multiparameter calibrator 1	EN050
ENOCAL F 10x10 ml Multiparameter calibrator for flow cells	EN050STD-F
L-ASCORBIC 500 g/L 10x10 ml 1	EN131-STD-FL
D-LACTIC ACIDO 0,60 g/L 10x10 ml 1	EN006-STD
D-LACTIC ACIDO 0,60 g/L 1x10 ml 1	EN006-STD-FL
PIRAVIC ACID 0.4 g/L 10x10 ml 1	EN017-STD
PIRAVIC ACID 0.4 g/L 1x10 ml	EN017-STD-FL
TARTARIC ACID 5 g/L 10x10 ml 1	EN021-STD
TARTARIC ACID 5 g/L 1x10 ml 1	EN021-STD-FL
ACETIC ALDEIDE 100 mg/L 1x10 ml	EN009-STD-FL
AMMINE BIOGENE 100 mg/l 10x2 ml 1	EN130B-STD
AMMINE BIOGENE 100 mg/l 1x2 ml 1	EN130B-STD-FL
AMINO-ALPHA NITROGEN 150 mg/L 10x10 ml 1	EN010-STD
AMINO-ALPHA NITROGEN 150 mg/L 1x10 ml 1	EN010-STD-FL
IONIC CALCIUM 200 mg/L 10x10 ml 1	EN020-STD
IONIC CALCIUM 100 mg/L 1x10 ml Manual	EN020-STD-FL
CATECHINS 500 mg/l 10x10 ml 1	EN019-STD
CATECHINS 500 mg/L 1x10 ml 1	EN019-STD-FL
CHLORIDE 1 g /L 10x10 ml 1	EN012-STD
CHLORIDE 1 g/L 1x10 ml 1	EN012-STD-FL
IONIC IRON 20 mg/L 10x10 ml 1	EN016-STD
IONIC IRON 20 mg/L 1x10 ml	EN016-STD-FL
GLUTATION REDUCED 2 g/L 10x10 ml 1	EN110-STD
GLUTATION REDUCED 2 g/L 1x10 ml 1	EN110-STD-FL
MAGNESIUM 120 mg/L 10x10 ml 1	EN025-STD
MAGNESIUM 120 mg/L 1x10 ml 1	EN025-STD-FL
TOTAL POLYFENOLS 3 g/L 10x10 ml	EN018-STD
TOTAL POLYFENOLS 3 g/L 1x10 ml	EN018-STD-FL
POTASSIUM 1500 mg/L 10x10 ml 1	EN026-STD
POTASSIUM 1500 mg/L 1x10 ml	EN026-STD-FL
COPPER 2 mg/L /0,1 mg/L 5+5x15 mL 10x10 ml 1	EN013-STD
COPPER 2 mg/L 1x10 ml 1	EN013-STD-FL
FREE SO2 60 mg/L 10x10 ml 1	EN022B-STD
FREE SO2 60 mg/L 1x10 ml 1	EN022B-STD-FL
TOTAL SO2 120 mg/L 10x10 ml	EN023B-STD
TOTAL SO2 120 mg/L 1x10 ml 1	EN023B-STD-FL





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#### 1 2 Filterability index

#### art. A11321

Manual operation.

The test is performed by measuring the needed time to filter 200 ml (T2) and 400 ml (T4) of wine through a 0.65  $\mu m$  membrane.

The filtering index is calculated using the following formula: IF = (T4) - 2(T2)

Technical specifications:

Stainless steel chamber, cover and locking ring

3 ball taps

Stainless steel manometer 63 mm KL 1.6

Quick air fitting Pressure regulator O-ring sealing gasket Filter Diameter: 25 mm Filtering surface: 3.9 cm square

Tank capacity: 1 lt

Complete with: Polypropylene cylinder, manual stopwatch, filter membranes, base with support rod.

#### art. A11327

Fully automatic determination of the filtering index (IF) and the modified filtering index (IFm).

Technical features:

Dimensions: 210x370x500 mm Power: air or nitrogen Min Pressure: 4 bar

Max pressure: 6 bar Washing: Current water Power: 100 to 250 V - 50/60 Hz Calculator: 4000 IF-IFm measurements

RS232 interface

Precision < 0.2 (IF-IFm) under best conditions

Weight: 5 Kg Software: included

Description	PK	Cat. No.
Stainless steel filterability test	1	A11321
Filterability Tester	1	A11327



Stainless steel filterability test

2



Filterability tester



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#### 1 2 Magnetic stirrers

#### **UniSTIRRER 1:**

An ultra-flat induction magnetic stirrer without heating for biology and biochemistry applications.

Modern magnetic coil technology consists only of non-moving parts and therefore guarantees no usury.

No probes heating. For better mixing the sample, the rotation direction can be changed of every 30 seconds. 3 years

warranty.

100% inductive motor without usury and maintenance

LED display for precise rotation speed adjustment

Digital rotation speed adjustment

Adjustable stirring direction

High IP 65 protection class

Stainless steel surface

Delivery includes: magnetic stirrer, power cable, adapters for UK and USA.

#### UniSTIRRER 3:

Economical magnetic stirrer with all the needed features for operation. A LED display controls all the parameters, an integrated temperature control and a closed design (IP42) are its features. The included PT-1000 sensor ensures accurate temperature control. A support rod with a sensor support is provided with the instrument.

The HOT signal warns the user when the plate is hot, even if the instrument is off. 3 years warranty.

LED display to adjust the exact rotation speed and temperature

Digital control of rotation speed and temperature

Included PT-1000 sensor

Integrated temperature control

The supply includes: magnetic stirrer with PT-1000, support rod, sensor support and fixing material.

#### Stirring quantity (H2O):

UniSTIRRER 1: 800 ml UniSTIRRER 3: 3000 ml

Speed range:

UniSTIRRER 1: 15 - 1500 rpm UniSTIRRER 3: 100 - 1500 rpm

Allowed environment To:

UniSTIRRER 1: 5 - 40 °C UniSTIRRER 3: 5 - 40 °C

Heating plate:

UniSTIRRER 1: diam 94 mm / Stainless steel UniSTIRRER 3: diam 135 mm / Stainless steel

Display:

Description	PK	Cat. No.
LLG-uniSTIRRER 1	1	6263420
LLG-uniSTIRRER 3, with heating system	1	6263410



Logger LOG32TH



### Thermometers and Datalogger

#### Logger Temperature/Humidity LOG32TH

Measuring range: -40 to +70 °C

Accuracy: 0.1 °C

Accuracy: ±0.5 °C (-10 to +40 °C), or ±1.0 °C

Measuring range: 0 to 100% R.H.

Resolution: 0.1% R.H.

Accuracy:  $\pm 3\%$  R.H. (40 to 60%),  $\pm 3.5\%$  R.H. (20 to 40% and 60 to 80%), or  $\pm 5\%$  R.H.

Interface: USB (Integrated) Battery: 1 x 3.6 V ½ AA Lithium

Dimensions: 100x19x19 mm - Weight: 70 g

#### Checkfridge thermometer

Measuring range: -50 to +150 °C Accuracy: ±0.3 °C (-50 to +90 °C) Probe: 40x5 mm, with 1mt cable

Battery Type: 1 x 1.5 V

Weight: 100 g

Description	PK	Cat. No.
Logger Temperature/Humidity LOG32TH	1	9726422
Checkfridge thermometer	1	9851098

# 1 2 Centrifuges

Description	PK	Cat. No.
Compact HERMLE bench centrifuge Model Z 206 A	1	9945737
Fixed angle rotor 6x50ml, for Model Z 206 A	1	9945729
Conical graduated tube 50ml, for Model Z 206 A	100	YK0084002
Mini centrifuge LLG-uniCFUGE 3 with timer and digital display. Speed 6000rpm. Workload 8x2ml	1	6263520
Mini centrifuge LLG-uniCFUGE 5 with timer and digital display. Speed 15000rpm. Workload 12x2ml	1	6263530



Model Z 206 A



Model LLG-uniCFUGE 5

# 3 4 Technical Kern balances

Series 440.

Compact laboratory balances. Integrated program for recipes formulation and counters. Their high performances are ideal for routine laboratory activity. Protection cover supplied. Integrated calibration program to ensure high precision. LCD display with 15mm digits. Power supply with external transformer or with 9V battery (not supplied). The balance has an AUTO-OFF function activating after 5 minutes to save battery power. Stainless steel weighing plate.

Dimensions: 165x230x80 mm

Weight: 1 kg

Туре	Pan dim.	Capacity	Readability	Linearity	PK	Cat. No
	mm	g	g	± mg		
440-35N	Ø 105	400	0,01	0,03	1	9901349
440-35A	Ø 105	600	0,01	0,03	1	9901341
440-45N	130 x 130	1000	0,1	0,2	1	9901346
440-47N	130 x 130	2000	0,1	0,2	1	9901347
440-49N	170 x 150	4000	0,1	0,3	1	9901343
440-49A	170 x 150	6000	0,1	0,3	1	9901342



Model 440-49N



# Ultrasonic bath

SONOREX SUPER ULTRASONCIC BATH Model RK 31

For accurate cleaning, liquid degassing, sono-chemistry.

It works at 35 kHz and is equipped with a PZT transducer for optimum cleaning and a very deep action.

Continuous high frequency at maximum power.

Power: 230V, 50/60Hz, real 30W

Equipped with stainless steel basin and housing and anti-static protection.

Internal dimensions (LxWxH) 190x85x60mm.

Capacity 0.9 lt.

Ultrasonic capacity 240W.

CE marked

Description	PK	Cat. No.
RK 31	1	9877021







Chem-lab is pleased to offer a large selection of High Purity Solvents.

**Our High Purity Solvents** are filtered through 0.2 µm filters and bottled under nitrogen.

Our screw caps are fitted with an inner Teflon seal to protect the solvent against possible contamination after bottling and during storage.

# Chem-Lab **High Purity Solvents**

- HPLC Grade Solvents
- Pesticide Grade Solvents
- LC-MS Grade Solvents
- Dissolution Media
- Ion Pair Reagents
- Anhydrous Solvents



# 1 LLG-uniTOPDISPENS, Dispensers for bottles

With glass piston and clear glass cylinder.

Accurate and reliable volume control

Visible dosing procedure

PP valves block providing optimized protection of the glass dosing cylinder

High precision of the glass piston to have a perfect seal in the glass cylinder

Ergonomic fingers-protector

Supplied with 2 adapters in PP: GL40 and GL45

Accuracy Max. Vol. 0.6 ( $\leq \pm A\%$ ) Precision Max. Vol 0.2 ( $\leq CV\%$ )

Туре	Sample volume	PK	Cat. No.
	mi		
LLG-uniTOPDISPENS	2 - 10 0,2	1	9283806
LLG-uniTOPDISPENS	10 - 50 1,0	1	9283808



# 2 LLG-Micropipettes, one-channel, variable volume

Available with fixed or adjustable volume.

Ergonomic shape for a really comfortable pipetting.

The rounded shape and soft handle of the LLG pipettes ensure a safe and comfortable pipetting.

A minimum effort for pipetting is required, so that the risk of repetitive strain injuries (RSI) is reduced.

Maximum precision and accuracy

The thermal insulation of the internal components, through the innovative soft handle, improves the accuracy.

Blow-out universal system

The operation of the two-step piston allows reverse pipetting. It also facilitates the dispensing of the last drop, thanks to soft piston movements. High accuracy and precision.

Color-coded button for fast operation

Color coding allows quick selection of the right pipette according to the volume to be pipetted (see the corresponding column in the table below).

Easy Maintenance and Adjustment

Adjusting the volume is easy and precise, using the push button, even when wearing gloves.

Maintenance and adjustment take only a few minutes with only one tool (supplied).

Pipetting without contaminants

The pipette is fully autoclavable, ideal for applications where sterility is important.

Guaranteed Satisfaction

Each pipette is individually tested and calibrated twice according to EN ISO 8655 and DIN 12600 standards.

A certificate is included.

Made in Germany, CE certificated.

Capacity	Readability	Readability	Description	PK	Cat. No.
μl	g				
0,1 - 2,5	1,5	0,8	Grey color	1	9280000
0,5 - 10	1,00	0,5	Grey color	1	9280001
2 - 20	4,5	1,0	Grey color	1	9280002
10 - 100	2,8	0,8	Yellow color	1	9280003
20 - 200	2,5	0,6	Yellow color	1	9280004
100 - 1000	2,9	0,6	Blue color	1	9280005
500 - 5000	2,4	0,6	Violet color	1	9280006
1000 - 10000*	3,0	0,6	Turquoise color	1	9280007
0,1 - 10	/	/	Tips. Clear color	1000	9409099
1 - 200	/	/	Tips. Yellow color	1000	9409046
100 - 1000	/	/	Tips. Blue color	1000	9409048
100 - 5.000	/	/	Tips. Clear color for manual pipettes	250	9409097

<sup>\* 10000</sup> ml pipette without tips ejector





# 1 Syringe filters & filter paper

Description	PK	Cat. No.
SYRINGE FILTER Ø 25 mm, CA, 0,45 μm, yellow. STERILE	50	9055513
SYRINGE FILTER Ø 25 mm, CA, 0,45 μm, yellow	500	9055503
SYRINGE FILTER Ø 25 mm, Nylon, 0,45 μm, transparent	500	9055523
FILTER PAPER, plan disc, Ø 150 mm RAPID	100	3540900
FILTER PAPER, plan disc, Ø 185 mm RAPID	100	3540901
FILTER PAPER, plan disc, Ø 210 mm RAPID	100	3540903
FILTER PAPER, plan disc, Ø 250 mm RAPID	100	3540904
FILTER PAPER, folded disc, Ø 150 mm EXTRA-RAPID	100	3540943
FILTER PAPER, folded disc, Ø 190 mm EXTRA-RAPID	100	3540944
FILTER PAPER, folded disc, Ø 210 mm EXTRA-RAPID	100	3540954
FILTER PAPER, folded disc, Ø 250 mm EXTRA-RAPID	100	3540945
FILTER PAPER, in ream, 500x500 mm BIBULA, 67g for rough impurities (sheets)	100	G01526
FILTER PAPER, in ream, 500x500 mm, 67q for rough impurities (sheets)	500	G01989

# Laboratory gloves

Disposable, latex, with powder

Description	PK	Cat. No.
size: S	100	YL0500111
size: M	100	YL0500112
size: L	100	YL0500113
size: XL	100	YL0500114

# Consumable

Description	PK	Cat. No.
Wash bottle with extractable pin, 500 ml	1	YK0000183
Safety pipetting ball, universal type, red	1	6270266
Bunsen Poligas lamp, with thermocouple and tap	1	YL0084000
Absorbent paper coil, double thickness wadding. 625 rips. 300x400 mm	2	YL0325500
Absorbent paper coil, 800 rips. 80% rips, 20% recycled	2	YL0325750
Foldable digital thermometer TLC 700, -30 to 220°C	1	9908018
Min/Max Thermometer with outdoor sensor.	1	9243165
Inside -20 to 70 °C, outside -50 to 70 °C		
Infrared thermometer TFI-250. Measuring range -60 to 550 °C	1	9908031



# 2 Glassware

for the oenological laboratory. Borosilicate 3.3.

Description	DI	Cat Na
Description	PK	Cat. No.
Beaker with spout, low form, 100 ml	1	YA0014505
Beaker with spout, low form, 250 ml	1	YA0014705
Beaker with spout, low form, 600 ml	1	YA0014905
Beaker with spout, low form, 800 ml	1	YA0015005
Flask, narrow mouth, 100 ml	1	YA0180405
Flask, narrow mouth, 250 ml	1	YA0180805
Flask, narrow mouth, 500 ml	1	YA0181105
Filtration flask with spout, 1000 ml	1	YA0186102
Graduated cylinder with spout, class A, 50 ml	1	YA0089010
Graduated cylinder with spout, class A, 100 ml	1	YA0089210
Graduated cylinder with spout, class A, 250 ml	1	YA0089410
Volumetric flask, class A, NS 12/21, with Moplen cap, capacity 100 ml	1	YA0210900
Volumetric flask, class A, NS 14/23, with Moplen cap, capacity 200 ml	1	YA0211000
Volumetric flask, class A, NS 19/26, with Moplen cap, capacity 500 ml	1	YA0211200
Funnel, short shaft, diam. 75 mm	1	YA0158205
Funnel, short shaft, diam. 100 mm	1	YA0159002
Volumetric pipette, 1-mark graduation, class A, capacity 5 ml	1	YA0277400
Volumetric pipette, 1-mark graduation, class A, capacity 10 ml	1	YA0277500
Volumetric pipette, 1-mark graduation, class A, capacity 20 ml	1	YA0277700
Volumetric pipette, 1-mark graduation, class A, capacity 25 ml	1	YA0277800
Graduated pipette, class A, capacity 5 ml, div. 1/10	1	YA0257800
Graduated pipette, class A, capacity 10 ml, div. 1/10	1	YA0258000
Mohr burette, Schelbach glass, class A, capacity 25 ml, div. 1/10	1	YA0052400
Pellet burette, Schelbach glass, class A, capacity 25 ml, div. 1/10	1	YA0065300
Pellet burette, amber glass, class A, capacity 25 ml, div. 1/10	1	YA0065400
Disponibili altri tagli/confezionamenti		

# 1 2 Plastic consumable

For the oenological laboratory.

Description	PK	Cat. No.
Measuring jug, low form, 500 ml	1	YK0001156
Measuring jug, low form, 1000 ml	1	YK0001157
Measuring jug, low form, 2000 ml	1	YK0001158
Measuring jug, low form, 3000 ml	1	YK0001159
Measuring jug, low form, 5000 ml	1	YK0001160
Measuring jug, tall form, 250 ml	1	YK0001086
Measuring jug, tall form, 500 ml	1	YK0001087
Measuring jug, tall form, 1000 ml	1	YK0001088
Measuring jug, tall form, 2000 ml	1	YK0001089
Measuring jug, tall form, 3000 ml	1	YK0001090
Bottle with graduated dispenser. Measuring container 25 ml; bottle 250 ml	1	YK0001475
Bottle with graduated dispenser. Measuring container 25 ml; bottle 500 ml	1	YK0001476
Bottle with graduated dispenser. Measuring container 25 ml; bottle 1000 ml	1	YK0001477
Bottle with graduated dispenser. Measuring container 50 ml; bottle 250 ml	1	YK0001480
Bottle with graduated dispenser. Measuring container 50 ml; bottle 500 ml	1	YK0001481
Bottle with graduated dispenser. Measuring container 50 ml; bottle 1000 ml	1	YK0001482
Graduated cylinder, low form, 10 ml	1	YK0000814
Graduated cylinder, low form, 25 ml	1	YK0000815
Graduated cylinder, low form, 50 ml	1	YK0000816
Graduated cylinder, low form, 100 ml	1	YK0000817
Graduated cylinder, low form, 250 ml	1	YK0000820
Graduated cylinder, low form, 500 ml	1	YK0000821
Graduated cylinder, low form, 1000 ml	1	YK0000822
Graduated cylinder, low form, 2000 ml	1	YK0000823
Funnel, diam. 66 mm	1	YK0000148
Funnel, diam. 81 mm	1	YK0000150
Funnel, diam. 120 mm	1	YK0000153
Vertical pipette stand. 18 small and 10 large holes places	1	YK0000265
Circular base with PVC rod, for art. YK0000265	1	YK0000262
Vertical pipette stand, 200x75 mm	1	YK0000255
Pipette stand, PP, vertical and rotatable, 94 places	1	9273895
Disponibili altri tagli/confezionamenti		





Measuring jug, low form

2



Bottle with dispenser

# KITS for chemical analysis

For 40 tests. With standard glassware.

Reagents and instruction manual.

Description	PK	Cat. No.
KIT, for Total Acidity in wine	1	A113KP.01
KIT, for Total Acidity in vinegar	1	A113KP.02
KIT, for Total Acidity in milk	1	A113KP.03
KIT, for Total Acidity in oil	1	A113KP.04
KIT for sugar detection with Fehling.	1	A113KP.09
Complete with bunsen, tripod and Mohr burette		



# Reagecon

2



# 1 2 Reagents









selected for the oenological laboratory.

Hydrochloric acid 37% a.r.   7647-01-0   1000 ml	Description	Linearity	Cat. No.	PK	Cat. No.
Sulfuric aid 85% a.r.         7664-38-2         1000 ml         1         CL00.0605,1000           Sulfuric aid 1.4 V/V         1000 ml         1         CL05.661,21000           Sulfuric aid 1.15 V/V         7664-93-9         1000 ml         1         CL02.662,11000           Sulfuric aid 1.15 V/V         7664-93-9         1000 ml         1         CL02.662,11000           Sulfuric aid 55% p.a.         /         1000 ml         1         CL02.663,1000           Bid Stilled water Tank with tap         732.18-5         20 lt         1         412.79020           Hydrogen perxide 1-3 volumes         /         1000 ml         1         CL12.2303.1000           Concentrated silicone foam         /         1000 ml         1         CL12.1996.1010           Silicone foam 30%         /         1000 ml         1         CL12.1995.1000           Silicone foam 30%         /         1000 ml         1         CL12.1995.1000           Silicone foam 30%         /         1000 ml         1         WF9500335           Bentotest, solution for white wine         /         500 ml         1         L72.00714           Bentotest, solution for edwine         /         500 ml         1         L72.200714           Blue benombroil					
Sulfuric acid 0.1 N 7664-93-9 1000 ml 1 CL05.2612.1000 Sulfuric acid 1:4 V/V 1000 ml 1 CL12.2690.1000 Sulfuric acid 1:5 V/V 7664-93-9 1000ml 1 CL12.2690.1000 BidStilled water. Tank with tap 7732-18-5 20 lt 1 427.9020 Hydrogen perovide 1-3 volumes / 1000 ml 1 CL12.2303.1000 Ethyl alcohol 95% p.a. / 1000 ml 1 CL12.2303.1000 Ethyl alcohol 95% p.a. / 1000 ml 1 CL12.2303.1000 Ethyl alcohol 95% p.a. / 1000 ml 1 CL12.2303.1000 Silkone foam 30% / 1000 ml 1 CL12.1990.1000 Silkone foam 30% / 1000 ml 1 CL12.1990.1000 Silkone foam 20% / 200 ml 1 CL12.1990.2001 Felhing A, solution for red wine / 200 ml 1 CL12.0002.000 Felhing B, solution / 758-98-7 500 ml 1 CL12.0002.000 Felhing B, solution / 758-98-7 500 ml 1 CL12.0003.000 Felhing B, solution / 758-56-2 1000 ml 1 CL12.0003.000 Felhing B, solution / 758-56-2 1000 ml 1 CL12.0003.000 Iodine N/10 / 758-56-2 1000 ml 1 CL12.0003.000 Iodine N/10 / 758-56-2 1000 ml 1 CL12.1003.0000 Iodine N/10 / 758-758-759 / 758-759-7					
Sulfuric acid 1:4 V/V					
Sulfuric acid 1:5 V/V		7664-93-9			
Sulfurc acid 95% p.a.					
Bidstilled water, Tank with tap   7732-18-5   20 lt		7664-93-9			
Hydrogen peroxide 1-3 volumes		/			
Ethyl alcohal 95% P.A.		7732-18-5			
Concentrated silicone foam		/			
Silicone foam 30%		64-17-5			
Silicone foam 2%		/			
Bentotest, solution for white wine		/			
Bentotest, solution for red wine		/,			
Blue promotimal 0.4% 720-79-3 250 ml 1 CL12.0201.0250 Blue methylene, 1% 720-79-3 250 ml 1 CL12.0202.050 Fehling A, solution 7758-98-7 500 ml 1 CL12.0602.0500 Fehling A, solution 7758-98-7 500 ml 1 CL12.0602.0500 Fehling B, solution 6381-59-5 500 ml 1 CL12.0603.0500 Fehling B, solution 6381-59-5 500 ml 1 CL12.0603.0500 Fehling B, solution 6381-59-5 500 ml 1 CL12.0603.0500 Fehling B, solution 7553-56-2 vial 1 CL12.0603.0500 Fehling B, solution 7553-56-2 vial 1 CL0.0603.0500 Fehling B, solution 7553-56-2 vial 1 CL0.0604.2500 Iodine N/10 7553-56-2 vial 1 CL0.0604.2500 Iodine N/10 7553-56-2 500 ml 1 CL0.05161 Iodine N/10 7553-56-2 500 ml 1 CL0.05161 Iodine N/10 7553-56-2 500 ml 1 CL0.05161 Iodine N/50 7553-56-2 500 ml 1 CL12.1001.0500 Iodine N/50 7553-56-2 500 ml 1 CL12.1001.0500 Iodine N/50 7553-56-2 500 ml 1 CL12.1001.0500 Iodine N/64 7553-56-2 500 ml 1 CL12.1001.0500 Iodine N/100 7553-56-2 500 ml 1 CL12.1003.0500 Iodine N/100		/			
Blue methylene, 1%   7220-79-3   250 ml   1   CL12.1302.02500   Fehling A, solution   7758-98-7   500 ml   1   CL12.0602.0500   Fehling B, solution   7758-98-7   1000 ml   1   CL12.0602.0500   Fehling B, solution   6381-59-5   500 ml   1   CL12.0603.0500   Fehling B, solution   6381-59-5   1000 ml   1   CL12.0603.0500   Fehling B, solution   7553-56-2   1000 ml   1   CL12.0603.1000   Phenolphthalein 1%   7553-56-2   1000 ml   1   CL12.0603.1000   The solution   7553-56-2   1000 ml   1   1   1   1   1   1   1   1   1	•	/			
Fehling A, Solution 7758-98-7 500 ml 1 CL12.0602.0500 Fehling B, solution 7758-98-7 1000 ml 1 CL12.0602.1000 Fehling B, Solution 6381-59-5 500 ml 1 CL12.0603.1000 Fehling B, Solution 6381-59-5 500 ml 1 CL12.0603.1000 ml 1 CL12.0013.1000 ml 1 CL12.0015.1000 ml 1 CL12.0015.1000 ml 1 CL12.1001.0500 ml 1 CL12.1003.0500 ml 1 CL12.003.0500 ml 1 CL12.1003.0500 ml 1 CL12.003.0500 ml 1 CL12.103.0500 m					
Fehling A, Solution	, ,				
Fehling B, solution					
Fehling B, solution Phenolphthalein 1% Iodine N/10 7553-56-2 Vial 1 CL06.0604.2500 Iodine N/10 7553-56-2 Vial 1 IC005IGL Iodine N/10 7553-56-2 Vial 1 IC1001.0500 Iodine N/50 Iodine N/50 7553-56-2 Vial 1 ICL12.1001.0500 Iodine N/50 Iodine N/50 Iodine N/64 7553-56-2 Vial 1 ICL12.1001.1000 Iodine N/64 7553-56-2 Vial Iodine N/100 Iodine N/64 7553-56-2 Vial Iodine N/100 Iodine N/100 7553-56-2 Iodon ml 1 IC112.1005.0500 Iodine N/100 Iodine N/64 Iodine N/100 Iodine N/64 Iodine N/100 Iodine N/64 Iodine N/100 Iodine N/64 Iodine N/100					
PhenoIphthalein 1%					
Iodine N/10					
Indine N/10					
Indine N/10	•				
Indine N/50					
Iodine N/50	•				
Indine N/64					
Indine N/64	•				
Indine N/100					
Indine N/100					
Calcium hydroxide (12% CaO) solution         1305-62-0         500 ml         1 CL12.0303.0500           Calcium hydroxide (12% CaO) solution         1305-62-0         1000 ml         1 CL12.0303.1000           Granular punice stone P.A.         1332-09-8         500 g         1 CL12.1601.0500           Potassium hydrate N/10         1310-58-3         500 ml         1 CL05.1105.1000           Potassium hydroxide, pellets         1310-58-3         1000 ml         1 CL12.1102.1000           Potassium hydroxide, pellets         1310-58-3         1000 g         1 CL00.1135.1000           Potassium iodide BP-USP         / 250 g         1 A15281-250G           Potassium iodide BP-USP         / 1000 g         1 000897-0250           Potassium iodide BP-USP         / 1000 g         1 000897-0250           Potassium iodide BP-USP         / 1000 g         1 ST1005           Starch 1% stabilized         / 500 ml         1 ST1005           Starch 1% stabilized         / 1000 ml         1 CL12.1423.0500           Sodium hydroxide 1N         1310-73-2 vial         1 CL12.1423.0500           Sodium hydroxide 1N         1310-73-2 vial         1 CL05.1424.1000           Sodium hydroxide 4N         1310-73-2 vial         1 CL05.1424.1000           Sodium hydroxide N/10         1310-73-2 vial					
Calcium hydroxide (12% CaO) solution         1305-62-0         1000 ml         1 CL12.0303.1000           Granular pumice stone P.A.         1332-09-8         500 g         1 CL12.1601.0500           Potassium hydrate N/10         1310-58-3         500 ml         1 CL05.1105.1000           Potassium hydrate 1 N         1310-58-3         1000 ml         1 CL02.1102.1000           Potassium hydroxide, pellets         1310-58-3         1000 g         1 CL00.1135.1000           Potassium iodide BP-USP         / 250 g         1 A15281-250G           Potassium iodide BP-USP         / 1000 g         1 000897-0250           Potassium iodide BP-USP         / 1000 g         1 000897-1           Starch 1% stabilized         / 500 ml         1 ST105           Starch 1% stabilized         / 500 ml         1 ST105           Starch 1% stabilized         / 500 ml         1 CL12.1423.0500           Sodium hydroxide 0.354N         1310-73-2 1000 ml         1 CL12.1423.0500           Sodium hydroxide 1N         1310-73-2 1000 ml         1 CL05.1422.1000           Sodium hydroxide 4N         1310-73-2 1000 ml         1 CL05.1424.1000           Sodium hydroxide N/10         1310-73-2 1000 ml         1 CL05.1411.1000           Sodium hydroxide N/2         1310-73-2 1000 ml         1 CL05.1411.1000 <td></td> <td></td> <td></td> <td></td> <td></td>					
Granular pumice stone P.A.         1332-09-8         500 g         1         CL12.1601.0500           Potassium hydrate N/10         1310-58-3         500 ml         1         CL05.1105.1000           Potassium hydrate 1 N         1310-58-3         1000 ml         1         CL12.1102.1000           Potassium hydroxide, pellets         1310-58-3         1000 g         1         CL00.1135.1000           Potassium iodide BP-USP         /         250 g         1         A15281-250G           Potassium iodide BP-USP         /         1000 g         1         000897-0,250           Potassium iodide BP-USP         /         1000 g         1         000897-1           Starch 1% stabilized         /         1000 ml         1         ST105           Starch 1% stabilized         /         1000 ml         1         ST100           Sodium hydroxide 0.354N         1310-73-2         1000 ml         1         CL12.1423.0500           Sodium hydroxide 1N         1310-73-2         vial         1         SC1001L           Sodium hydroxide 4N         1310-73-2         1000 ml         1         CL05.1424.1000           Sodium hydroxide N/10         1310-73-2         1000 ml         1         CL05.1424.1000           So					
Potassium hydrate N/10         1310-58-3         500 ml         1 CL05.1105.1000           Potassium hydrate 1 N         1310-58-3         1000 ml         1 CL12.1102.1000           Potassium hydroxide, pellets         1310-58-3         1000 g         1 CL00.1135.1000           Potassium Hydrogenated L-Tartrate (THK)         / 250 g         1 A15281-250G           Potassium iodide BP-USP         / 250 g         1 000897-0,250           Potassium iodide BP-USP         / 1000 g         1 000897-0,250           Potassium iodide BP-USP         / 500 ml         1 ST105           Starch 1% stabilized         / 500 ml         1 ST105           Starch 1% stabilized         / 1000 ml         1 ST1001           Sodium hydroxide 0.354N         1310-73-2 1000 ml         1 CL12.1423.0500           Sodium hydroxide IN         1310-73-2 vial         1 SC1001L           Sodium hydroxide 4N         1310-73-2 1000 ml         1 CL05.1424.1000           Sodium hydroxide N/10         1310-73-2 vial         1 SC0101L           Sodium hydroxide N/10         1310-73-2 vial         1 SC0101L           Sodium hydroxide N/2         1310-73-2 vial         1 CL05.1411.1000           Sodium hydroxide N/4         1310-73-2 1000 ml         1 CL05.1414.1000           Sodium hydroxide N/50 <t< td=""><td></td><td></td><td></td><td></td><td></td></t<>					
Potassium hydrate 1 N         1310-58-3         1000 ml         1 CL12.1102.1000           Potassium hydroxide, pellets         1310-58-3         1000 g         1 CL00.1135.1000           Potassium hydrogenated L-Tartrate (THK)         / 250 g         1 A15281-250G           Potassium iodide BP-USP         / 250 g         1 000897-0,250           Potassium iodide BP-USP         / 1000 g         1 000897-1           Starch 1% stabilized         / 500 ml         1 ST105           Starch 1% stabilized         / 1000 ml         1 ST1001           Sodium hydroxide 0.354N         1310-73-2 1000 ml         1 CL12.1423.0500           Sodium hydroxide 1N         1310-73-2 vial         1 SC1001L           Sodium hydroxide 4N         1310-73-2 1000 ml         1 CL05.1420.1000           Sodium hydroxide N/10         1310-73-2 1000 ml         1 CL05.1421.1000           Sodium hydroxide N/10         1310-73-2 vial         1 SC0101L           Sodium hydroxide N/2         1310-73-2 1000 ml         1 CL05.1411.1000           Sodium hydroxide N/2         1310-73-2 1000 ml         1 CL05.1411.1000           Sodium hydroxide N/2         1310-73-2 1000 ml         1 CL05.1410.1000           Sodium hydroxide N/50         1310-73-2 1000 ml         1 CL05.1408.1000           Sodium hydroxide, pellets, p.a					
Potassium hydroxide, pellets         1310-58-3         1000 g         1         CL00.1135.1000           Potassium Hydrogenated L-Tartrate (THK)         /         250 g         1         A15281-250G           Potassium iodide BP-USP         /         250 g         1         000897-0,250           Potassium iodide BP-USP         /         1000 g         1         000897-1           Starch 1% stabilized         /         500 ml         1         ST105           Starch 1% stabilized         /         1000 ml         1         ST1001           Sodium hydroxide 0.354N         1310-73-2         1000 ml         1         CL12.1423.0500           Sodium hydroxide 1N         1310-73-2         vial         1         CL05.1420.1000           Sodium hydroxide 4N         1310-73-2         1000 ml         1         CL05.1424.1000           Sodium hydroxide N/10         1310-73-2         1000 ml         1         CL05.1421.1000           Sodium hydroxide N/2         1310-73-2         vial         1         SC0101L           Sodium hydroxide N/2         1310-73-2         1000 ml         1         CL05.1417.1000           Sodium hydroxide N/2         1310-73-2         1000 ml         1         CL05.1414.1000					
Potassium Hydrogenated L-Tartrate (THK)         /         250 g         1         A15281-250G           Potassium iodide BP-USP         /         250 g         1         000897-0,250           Potassium iodide BP-USP         /         1000 g         1         000897-1           Starch 1% stabilized         /         500 ml         1         ST1005           Sodium hydroxide 0.354N         1310-73-2         1000 ml         1         CL12.1423.0500           Sodium hydroxide 1N         1310-73-2         vial         1         SC1001L           Sodium hydroxide 4N         1310-73-2         1000 ml         1         CL05.1420.1000           Sodium hydroxide N/10         1310-73-2         1000 ml         1         CL05.1424.1000           Sodium hydroxide N/10         1310-73-2         vial         1         SC0101L           Sodium hydroxide N/10         1310-73-2         vial         1         SC0101L           Sodium hydroxide N/2         1310-73-2         1000 ml         1         CL05.1417.1000           Sodium hydroxide N/2         1310-73-2         1000 ml         1         CL05.1414.1000           Sodium hydroxide N/50         1310-73-2         1000 ml         1         CL05.1409.1000	•				
Potassium iodide BP-USP         /         250 g         1         000897-0,250           Potassium iodide BP-USP         /         1000 g         1         000897-1           Starch 1% stabilized         /         500 ml         1         ST1005           Scdium hydroxide 0.354N         1310-73-2         1000 ml         1         CL12.1423.0500           Sodium hydroxide 1N         1310-73-2         vial         1         SC1001L           Sodium hydroxide 1N         1310-73-2         1000 ml         1         CL05.1420.1000           Sodium hydroxide 4N         1310-73-2         1000 ml         1         CL05.1424.1000           Sodium hydroxide N/10         1310-73-2         1000 ml         1         CL05.1411.1000           Sodium hydroxide N/2         1310-73-2         vial         1         SC0101L           Sodium hydroxide N/2         1310-73-2         vial         1         CL05.1417.1000           Sodium hydroxide N/2         1310-73-2         1000 ml         1         CL05.1417.1000           Sodium hydroxide N/50         1310-73-2         1000 ml         1         CL05.1409.1000           Sodium hydroxide N/100         1310-73-2         1000 ml         1         CL05.1409.1000					
Potassium iodide BP-USP         /         1000 g         1         000897-1           Starch 1% stabilized         /         500 ml         1         ST105           Starch 1% stabilized         /         1000 ml         1         ST1001           Sodium hydroxide 0.354N         1310-73-2         1000 ml         1         CL12.1423.0500           Sodium hydroxide 1N         1310-73-2         vial         1         SC1001L           Sodium hydroxide 4N         1310-73-2         1000 ml         1         CL05.1420.1000           Sodium hydroxide N/10         1310-73-2         1000 ml         1         CL05.1424.1000           Sodium hydroxide N/10         1310-73-2         vial         1         SC0101L           Sodium hydroxide N/2         1310-73-2         vial         1         CL05.1411.1000           Sodium hydroxide N/2         1310-73-2         1000 ml         1         CL05.1417.1000           Sodium hydroxide N/4         1310-73-2         1000 ml         1         CL05.1417.1000           Sodium hydroxide N/50         1310-73-2         1000 ml         1         CL05.1409.1000           Sodium hydroxide N/100         1310-73-2         1000 ml         1         CL05.1409.1000           Sodium	, -	1			
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Sodium hydroxide, pellets, p.a.       1310-73-2       1000 g       1       CL00.1403.1000         Sodium thiosulfate 0.5 N       10102-17-7       1000 ml       1       CL12.1415.1000         Sodium chloride and potassium alum (12% solution)       /       500 ml       1       CL12.1416.0500         Buffer solution pH 4,01       /       500 ml       1       CL03.0216.0500         Buffer solution pH 7,00       /       500 ml       1       CL03.0213.0500		1310-73-2	1000 ml	1	
Sodium thiosulfate 0.5 N       10102-17-7       1000 ml       1       CL12.1415.1000         Sodium chloride and potassium alum (12% solution)       /       500 ml       1       CL12.1416.0500         Buffer solution pH 4,01       /       500 ml       1       CL03.0216.0500         Buffer solution pH 7,00       /       500 ml       1       CL03.0213.0500					
Sodium chloride and potassium alum (12% solution)       /       500 ml       1       CL12.1416.0500         Buffer solution pH 4,01       /       500 ml       1       CL03.0216.0500         Buffer solution pH 7,00       /       500 ml       1       CL03.0213.0500		10102-17-7	1000 ml	1	CL12.1415.1000
Buffer solution pH 4,01     /     500 ml     1     CL03.0216.0500       Buffer solution pH 7,00     /     500 ml     1     CL03.0213.0500				1	
Buffer solution pH 7,00 / 500 ml 1 CL03.0213.0500		/	500 ml	1	
1 00000	Mix uindicator solution for SO <sub>2</sub>	/	100 ml	1	CL12.0904.0100

Other sizes available on request.

# 1 2 Laboratory benches ETAlab series, "H" support legs

The fully modular design is meant to fit the specific requirements of each lab. ETAlab benches are made of:

- "H" shaped "legs" in 30x30 mm steel tube with waterproof laminated fixing panels;
- worktop;
- service panel with or without shelf.

TECHNICAL FEATURES

Our benches are available in different configurations, 600, 900, 1200, 1500 and 1800 mm modules

The base frames are coated acid-resistant epoxy resins, RAL 7035 Grey painted.

Two available depth: 600 or 750 (without service panel and shelf).

COMPOSITION

"H" base stand made in 30x30 mm steel tube with adjustable feet for leveling;

Background panel;

Front panel;

Back panel;

Service panel (depending on configuration);

Shelf (depending on configuration).

Our benches comply with NFX-201 standard

Height: without service panel and shelf 900 mm/with service panel and shelf 1100 mm.

Worktop depth: 600 or 750 mm.

Maximum permissible load distributed without vibration 140 Kg/m

Description	PK	Cat. No.
Wall bench with service panel 1800x750x900/1100 (h) mm p75 d frame, 750 mm depth. Greslam worktop 180x75 cm	1	AR111
Wall bench with service panel 1800x750x900/1100 (h) mm. p75 d frame, 750 mm depth. Laminate+glass worktop 180x75 cm	1	AR222
Washing units 120 PP, 1 basin	1	AR333



2



# 3 Self-standing fume hoods Asem® EN, Series ISP200

DOUBLE ASPIRATION SYSTEM

CERTIFIED ACCORDING TO EN 14175.2.3 BUREAU VERITAS

The ASEM® exhaust fume hoods, having full expulsion, ensure user's protection while handling toxic products, maintaining the work environment meeting the safety requirements.

Accurate design and construction provided much better performance than the EN standards requirements. The fume hoods are available in different front dimensions (120, 150, 180, 210 and 240 cm) and different materials with standard 90 cm high worktops; For distillation with a 50 cm height; walk-in for processes with bulky and heavy equipment; with 250 cm total height; with 230 cm reduced height with single latch or two elements for low environments. All models are factory tested for the containment index and certified in accordance with EN 14175 2-3-4-5-6-7. Asem® EN fume hoods should be considered as real security devices as they must guarantee the health of people working

within the lab.

Description	PK	Cat. No.
ICP0220EN	1	E000231

<sup>\*</sup> IT NEEDS WORKTOP, ON/OFF SWITCH PANEL, FURNITURES, AIR SPEED PANEL, EXHAUST FAN, other accessories (EE, GAS.....)



# EXACTA EFO12 Type 90

# Exacta safety cabinets for inflammable products (liquid and solid)



SAFETY CABINETS FOR STORAGE OF FLAMMABLE PRODUCTS WITH FIRE RESISTANCE CLASS 90 MINUTES, CERTIFIED ACCORDING TO EN 14470-1, EN 14727.

Completely built in steel sheet having 1 - 1.5 mm thickness, cold pressed, painted with acid-resistant epoxy powder and thermal tunnel passage at 200 °C.

Particular insulation through high-density rock wool panels (Fibroceramic free) for high temperatures (800 °C) and calcium sulphate panels.

Interior finishing panels in melamine laminate with high resistance even to aggressive steams.

Certification according to EN 14470-1, EN 14727.

Doors piston closure with temperature > 47 °C.

Closure with key and door lock

Adjustable feet.

Automatic closing valves (70 °C) of the air inlet and outlet ducts, certified 90 minutes, placed on the ceiling and at the bottom of the cabinet.

Expulsion hole diam. 100 mm on the cupboard roof

Anti-spark hinge.

Thermo-dilating seal, 3 cm (DIN 4102).

3 x painted steel/stainless steel shelves tray, height adjustable with INOX pins.

Painted steel basin with support grid.

"Ground" clamp to prevent electrostatic charges.

Туре	Working space W x D x H	Int. dimensions (W x D x H)	ribs/shelves		PK	Cat. No.
	mm	mm				
EFO12 Type 90	1200 x 600 x 2055	1095 x 446 x 1640	160/200	n. 3 stainless steel - 1094x420x39 - 16	1	K89000
EFO12 Basic Type 90	1200 x 600 x 2055	1095 x 446 x 1640	160/200	n. 3 painted steel - 1094x420x39 - 16	1	K89072

## 2



# Exacta safety cabinets for chemicals, non flammable products







Complies with EN 61010 and CEI 66-5 standards.

Signs, according to ISO 3864 standards.

Storage rrganization for type of product.

Modular solutions.

1.5 mm metal sheet structure covered with acid-resistant epoxy powders with subsequent thermal fixing passage at 200 °C. Coating thickness > 90 micron. RAL 7035.

3 shelves with welded corners in painted steel.

Load capacity of 80 kg, evenly distributed.

Blind doors or with a polycarbonate window, with key lock.

Door opening with angle of 110°.

Туре	Description	Shelf support ribs/shelves	PK	Cat. No.
EFO12 Type 90	1190 x 600 x 1950	3	1	E000344
EFO12 Type 90	1190 x 600 x 1950	3	1	E000345





ALTERNATIVE ITEMS AVAILABLE ON REQUEST: PLS.ASK US!

# 1 2 Occupational safety/security

#### **Security Monitor**

The  $O2NE+^{TM}$  is a wall mounted, easy-to-use safety oxygen monitor with 2 audible/visual alarms, activating at 19.5% and 18% O2, which means that laboratory personnel can quit in case of a gas leak.

The supply includes: 02 main sensor unit with relay on 2nd alarm (18%) and 1 alarm repeater to be placed at the input, with mains power supply.

\_ The **AX60** includes a central display unit, a CO<sub>2</sub> sensor and a CO<sub>2</sub> alarm which can alert in case of a CO<sub>2</sub> loss. No calibration required (except local rules do not ask for it)

Long lasting sensor, even up to 15 years

Up to 4x CO<sub>2</sub> sensors and 8x CO<sub>2</sub> alarms can be used for each Central Display Unit

Supplied with a relay on each alarm which can be used to trigger ventilation, extraction or building management system

Easy to install and maintain, by the user directly

CO<sub>2</sub> sensors (quick connection) and additional alarms are available if you have more than one entrance to the lab or more than a hazardous area

In accordance with Exposure Limits such as EH40

The supply includes: 1x Central Display Unit with 2 relays, 1x CO<sub>2</sub> sensor and 1x CO<sub>2</sub> alarm, complete with universal power supply.

Description	PK	Cat. No.
O2NE+ Oxygen Depletion Safety Monitor	1	6284255
	1	
Ax60 CO2 Safety Monitor	1	6284262
Disposable gloves, Standard, Nitrile, size S, powder free	100	9006375
Disposable gloves, Standard, Nitrile, size M, powder free	100	9006376
Disposable gloves, Standard, Nitrile, size L, powder free	100	9006377
Disposable gloves, Standard, Nitrile, size XL, powder free	100	9006378
Protection spectacle "Classic" blue frame, clear lenses	1	9006001
Protective coat, woman, model Carla, white, elastic wrists, size M	1	YL0600201
Protective coat, woman, model Carla, white, elastic wrists, size L	1	YL0600202
Protective coat, man, model Capri, white, elastic wrists, size M	1	YL0600211
Protective coat, man, model Capri, white, elastic wrists, size L	1	YL0600212
Protective coat, man, model Capri, white, elastic wrists, size XL	1	YL0600213
Respirator, Type 8710, FFP 1 without valve	20	6050640
Respirator Type 8810, FFP 2 without valve	20	6078942
Respirator Type 8812, FFP 1 with valve	10	6202080
Respirator Type 8822, FFP 2 with valve	10	6052910





O2NE+



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EN021AM15	30	1 14701	23		•	X71111	16
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EN022	32	F500		K94159	28	X71198	16
EN022B-STD	31, 33	F5003	25	L001		X71199	16
EN022B-STD-FL	31, 33	F5004	25			X712	
EN022BM15	30			L001	32		4.0
EN022CDG	32	G015		L002		X71212	16
EN022M15	30	G01526	40	L002	32	X71213	16
EN023	32				32	X71214 X71215	16
EN023AM15	30	G019		L003		V/ 1712	16
EN023B-STD	31, 33	G01989	40	L003	32	YA00	
EN023B-STD-FL	31, 33				-		
EN023BM15	30 32	G021		SC01		YA0014505	40
EN023CDG EN024	32	G02112	18	SC01 01L	42	YA0014705	40
EN024 EN024M15	30	002112	10	SC10		YA0014905	40
EN025	32	G038				YA0015005	40
EN025-STD	31, 33	G03883	23	SC10 01L	42	YA0052400	40
EN025-STD-FL	31, 33	000000	23	ST10		YA0065300	40 40
EN025BCD	32	G102		ST1001	42	YA0065400 YA0068200	26
EN025BM15	30	G10281	23	ST1001 ST105	42	YA0089010	40
		510201	23	3.103	74		TU

YA0089210	40
YA0089410	40
IAUUUJTIU	40
YA01	
YA0158205	40
YA0159002	40
YA0180405	40
YA0180805	40
YA0181105	40
YA0186102	40
YA02	
YA0210900	40
YA0211000	40
YA0211200	40
YA0257800	40
YA0258000	40
YA0277400	40
YA0277500	40
YA0277700	40
YA0277800	40
YA03	
YA0315700	21
YK00	
YK0000148 - YK0000153	41
YK0000183	40
YK0000255 - YK0000265	41
YK0000814 - YK0000823	41
YK0001086 - YK0001090	41
YK0001156 - YK0001160	41
YK0001395	18
YK0001475 - YK0001482	41
YK0001937 - YK0001940	28
YK0084002	37
110001002	37
YL00	
YL0084000	9, 18, 40
	J, 10, 40
YL03	
YL0325500	40
YL0325750	40
YL05	
YL0500111 - YL0500114	40
YL06	
YL0600201 - YL0600213	45
YT01	
YT0102200	24



# Notes







0	2 He 4.003	10 Ne 20.18	18 Ar 39.948	36	54 Xe 131.29	86 Rn 222.02	
	VIIA	9	17 CI 35.453	35 Br 79.904	<b>53</b>	85 <b>At</b> 209.99	
	ΑIA	15.999	16 32.066	34 <b>S</b> 78.96	52 <b>Te</b>	<b>PO</b> 209.98	
	*	7 N 14.007	15 <b>P</b>	33 <b>AS</b> 74.922	51 <b>Sb</b> 121.76	83 <b>E</b> 208.98	
	<u>×</u>	6 <b>C</b> 12.011	14 <b>Si</b> 28.086	32 <b>Ge</b> 72.61	50 <b>Sn</b> 118.71	82 <b>Pb</b> <sup>207.20</sup>	
	<b>₫</b>	5 <b>B</b> 10.811	13 <b>AI</b> 26.982	31 <b>Ga</b> 69.723	49 <b>In</b> 114.82	81 <b>T</b> 204.38	
			<u>B</u>	30 <b>Zn</b> 65.39	48 <b>Cd</b> 112.41	80 Hg	duU
			<u>m</u>	29 <b>Cu</b> 63.546	47 <b>Ag</b> 107.87	79 <b>Au</b> 196.97	nnn Nan
	**************************************			28 N 58.693	46 <b>Pd</b> 106.42	78 <b>Pt</b> 195.08	110 Uun
	<u>.</u>		- <b>M</b>	27 C0 58.933	45 <b>Rh</b> 102.91	77 <b>F</b> 192.22	109 Mt
		2 0		26 <b>Fe</b> 55.845	44 <b>Ru</b> 101.07	76 <b>OS</b> 190.23	108 HS
	82	207.20	VIIB	25 Mn 54.938	43 TC 98.906	75 <b>Re</b> 186.21	<sup>107</sup> Bh
	o b		Ν	24 C 51.996	42 <b>Mo</b> 95.94	74 W 183.84	106 Sg
	Atomic Number	Atomic Mass	ΛB	23 V 50.942	41 Nb 92.906	73 <b>Ta</b> 180.95	105 Db
			NB NB	22 <b>T</b> 47.88	40 <b>Zr</b> 91.224	72 <b>Hf</b> 178.49	104 Rf
			<u>B</u>	21 <b>SC</b> 44.956	39	* <b>La</b>	89 ⁺ <b>Ac</b>
	<u>₹</u>	<b>Be</b> 9.012	12 Mg 24.305	20 40.078	္လွင္င	56 <b>Ba</b> 137.33	Ra Ra
⋖	1.008	3 [Li 6.941	Na 22.990	19 39.098	37 S S S S S S S S S S S S S S S S S S S	55 CS 132.91	Fr 8
	<del>-</del>	N	က	4	rv R	<b>6</b>	_
<b>Legend</b>	Non-Metals	Alkali Metals	Transition Metals	Alkali Earth Metals	Rare Earth Metals	Other Metals	nalogens

H-gas	Li-solid	<b>Br-liquid</b>	Tc-synthetic
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28	29	09	61	62	63	64	<b>6</b> 5			<b>68</b>	69	20	7
Se	Pr	P	Pm	Sm	_	<u>6</u>	0	۵	운	й	Щ	Υb	7
140.12	140.91	144.24	146.92	150.36	151,96	157.25	158.93	162.50	164.93	167.26	168.93	173.04	174.97
06	91	76	93	94	95	96	26	86	66	100	101	102	103
Th Pa	Pa	<b></b>	Q N	Pu	Am	Cm	BK	Cţ	Es	Fm	Md	No	ב
232.04 231.04	231.04	238.03	237.05	244.06	243.06	247.07	247.07	251.08	252.08	257.18	258.10	259.10	262.11

# OENOLOGY Wine & Spirits Analysis



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