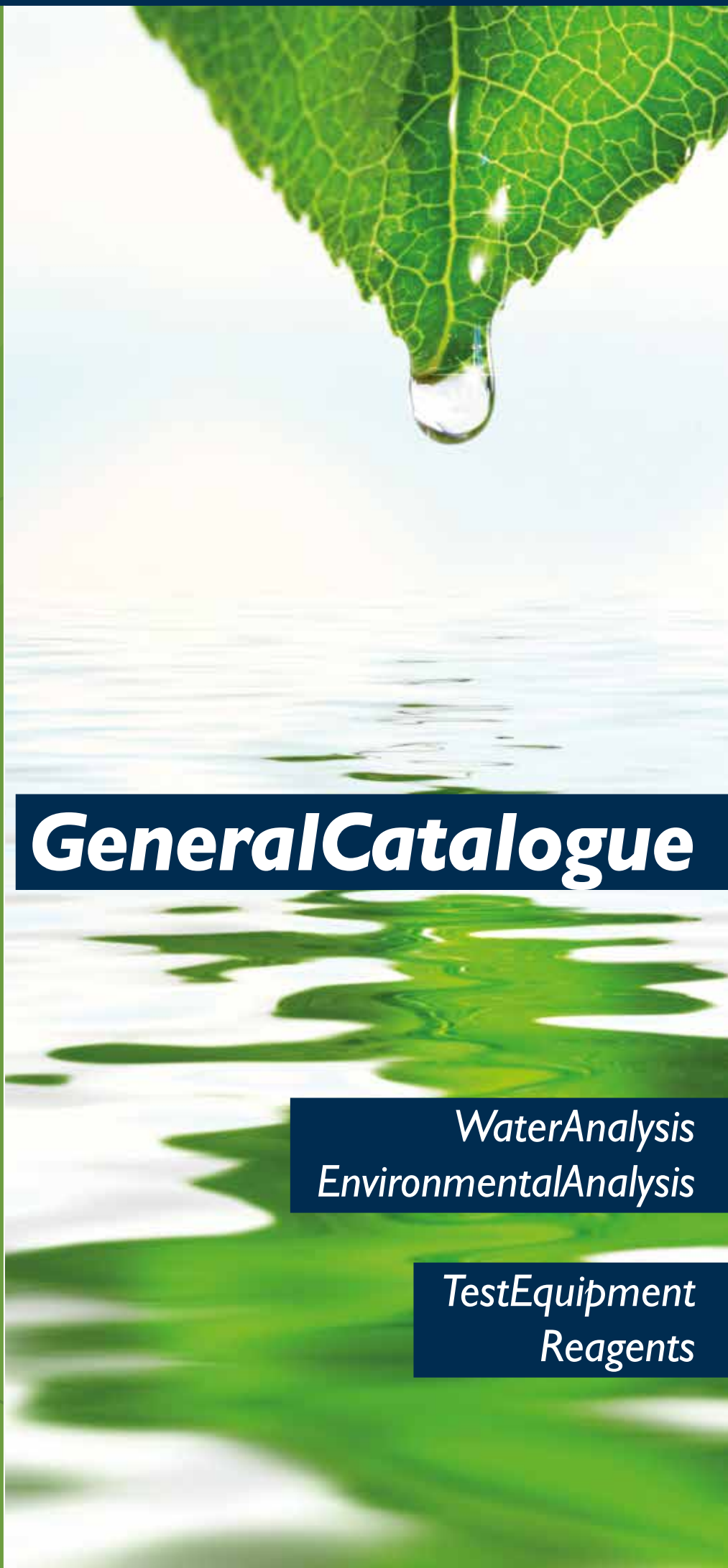
AQUA LYTIC®



GeneralCatalogue

WaterAnalysis
EnvironmentalAnalysis

TestEquipment
Reagents

AQUALYTIC® is a leading manufacturer of equipment for water and wastewater analysis, specializing in BOD measurement and photometry. We also provide portable instruments for the measurement of pH, Conductivity and Dissolved Oxygen. Easy-to-use, hand-held test-kits complete the product portfolio.

AQUALYTIC® originated as the sales division of Hoelzle & Chelius GmbH, one of the world's most experienced companies in the field of water maintenance and water treatment. This sales division was established in 1974, trading under the name of H+C Water-Test-Equipment.

The extremely rapid expansion of our international business, however, drove the requirement to change our name to one which would be instantly recognizable throughout the world. In 1985, the ACHEMA exhibition saw the first introduction of our Water Testing Equipment under the trademark AQUALYTIC®.

AQUALYTIC® became an independent company in 1996 and entered a cooperation agreement with Tintometer GmbH in Dortmund, Germany, manufacturers of water testing equipment and reagents. The Tintometer Group markets its range of equipment and reagents under the brand name Lovibond®.

In order to expand Service and Production activities, in November 1998, AQUALYTIC® moved to a new site in Langen, Germany, near the international airport of Frankfurt/Main. This move doubled the company's floor space and enabled the introduction of a new electronic data processing system.

In 2003, AQUALYTIC® transferred from its premises in Frankfurt to move to Dortmund. As an integral part of Tintometer® Group of Companies, AQUALYTIC® moved into its own office space at these facilities. The proximity to the new Tintometer® Logistics Centre and the continuously expanding production facilities means we are able to reduce delivery times and improve our response times to market requirements.

Over 150 employees are now working towards and responding to customer requests and individual requirements. Our Dortmund Research and Development Departments are constantly developing new, user-friendly water test systems. Time to market is essential. Bringing everything under one roof, from drawing board to final production within an economic corporate infrastructure means we can address the short production times expected by our customers.

The brand name AQUALYTIC® is now well known and used in many countries throughout the world. It stands for high-quality products "Made in Germany". We have enjoyed a close and long-lasting relationship with our customers because we view them not only as consumers but as an integral part of our Tintometer® family.

Sustainability and environmental protection

AQUALYTIC® places great importance on sustainability and the sensitive use of natural resources.

Environmental protection is one of the primary objectives of our organisation and we have therefore decided that, we shall issue our printed matter on FSC-certified paper.

Members of the Forest Stewardship Council (FSC) include environment associations, social organisations, forward-looking forestry companies and firms in the wood processing industry, working together to achieve improvements world-wide in the forestry field. The "FSC" quality seal is used to identify products manufactured from sustainably managed woods and forests.

In this way we make a further contribution to maintaining and improving our environment.



Content

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Electrochemistry Meters

Rapid Tests

Flocculation

Applications of Reagents

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Photometry

History

More than three decades have passed since the appearance of the first PC 100 photometer system.

Since that time, Tintometer has become a world-famous name as the manufacturer of photometer systems sold under the brand name of AQUALYTIC®.

Our range of photometer systems extends from the **AL100** as hand-held model, the multi parameter photometer **AL200** as desktop model to the **AL800** spectrophotometer for laboratories.

The **AL450** offers a wide variety of pre-programmed methods and is therefore suitable for the demands of modern water and drinking water analysis.

A modern, mobile photometer for rapid, reliable water testing is the **AL400**.

The latest development involves the photometer system **AL410** with Bluetooth® data transmission. The device works wirelessly with the free app AquaLX®.

All the parameters which can be measured with AQUALYTIC® photometer systems are set out in the table. This table also explains what parameters can be measured with which photometer system.

Parameter	AL100	AL200	AL400 & AL410	AL450	AL800	also compatible to Hach® devices*
Alkalinity-M	■	■	■	■	■	
Alkalinity-P			■	■	■	
Aluminium	■		■	■	■	see page 56
Ammonia	■		■	■	■	see page 56
Arsenic					■	
Boron			■	■	■	
Bromine	■	■	■	■	■	see page 56
Cadmium					■	
Calcium Hardness	■	■	■	■		
Chloride	■		■	■	■	
Chlorine	■	■	■	■	■	see page 56
Chlorine Dioxide	■	■	■	■	■	see page 56
Chromium			■		■	
COD	■	■	■	■	■	see page 56
Copper	■	■	■	■	■	see page 56
Cyanide			■	■	■	
Cyanuric acid	■	■	■	■	■	
DEHA	■		■	■	■	see page 56
Fluoride	■		■	■	■	
Formaldehyde					■	
Hazen (Pt-Co-Units ; APHA)	■		■	■	■	
Hydrazine	■		■	■	■	see page 58
Hydrogen Peroxide			■	■	■	
Iodine			■	■	■	
Iron (Fe^{2+}, Fe^{3+}), soluble	■	■	■	■	■	see page 58
Langelier Water Balance System			■	■		
Lead					■	
Manganese	■		■	■	■	see page 58
Molybdate / Molybdenum	■		■	■	■	see page 58
Nickel			■	■	■	

AL100

AL200

AL400

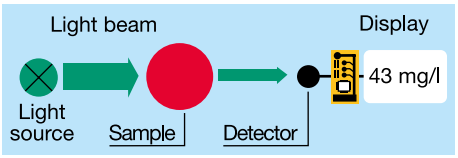
* HACH® is a registered trademark of Hach Company, Loveland, Colorado. The use of the HACH® trademark does not imply any affiliation with or approval by Hach Company regarding the formulation, testing or compatibility of these products for use in HACH® brand spectrophotometers or other devices or systems.

Parameter	AL100	AL200	AL400 & AL410	AL450	AL800	also compatible to Hach® devices*	
Nitrate			■	■	■		see page 58
Nitrite			■	■	■		see page 60
Oxygen, active			■	■			
Oxygen, dissolved	■		■	■			
Ozone	■		■	■	■		
pH-value	■	■	■	■	■		
Phenols					■		
PHMB (Biguanide)			■	■			
Phosphate	■		■	■	■		see page 60
Phosphonate			■	■	■		see page 60
Polyacrylates	■		■				
Potassium			■	■	■		
Silica	■		■	■	■		see page 60
Sodiumhypochlorite			■	■			
Spectral Absorption-Coefficient					■		
Sulphate	■		■	■	■		see page 60
Sulphide			■	■	■		
Sulphite			■	■	■		
Surfactants (anionic)					■		
Suspended Solids	■		■	■	■		
TOC					■		
Total Hardness	■		■	■	■		
Total Nitrogen			■	■	■		see page 58
Triazoles	■		■				
Turbidity (nephelometric), see AI250T-IR, page 74							
Turbidity (attenuated radiation method)			■	■	■		
Urea	■	■	■	■	■		
Zinc	■		■	■	■		

The principle of photometry

When specific reagents are added, the water sample takes on a degree of coloration that is proportional to the concentration of the parameter being measured. The photometer measures this coloration.

When a light beam passes through the coloured sample, energy with a specific wavelength is absorbed by the test substance. The photometer determines the coloration of the sample by measuring the transmission or absorption of light of this wavelength (in other words, monochromatic light). The photometer then uses a microprocessor to calculate the required concentration and displays the result.



Mode of operation of the photometer


AL450


AL800


AL450T-IR

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Photometer AL100

Precise Water Analysis in High-Quality Design

The AL100 uses high quality interference filters with long-life LEDs as a light source without any moving parts in a transparency sample chamber.

The units supply accurate, reproducible results very quickly. Other major advantages include ease of operation, ergonomic design, compact dimensions and safe handling.

The calibration and software-based adjustment options mean that the AL100 is also suitable for use as a testing instrument.

The tests are conducted using either AQUALYTIC tablet reagents with long-term stability and a guaranteed minimum 5 or 10 year shelf life, VARIO powder reagents or using liquid reagents.

Scroll Memory (SM)

To avoid unnecessary scrolling for the required test method, the instrument memorizes the last method used before switching off the instrument. When the instrument is switched on again, the scroll list comes up with the last used test method first.

Zero Setting (OTZ)

For certain versions of the instrument it is not necessary to zero the instrument each time. The zero setting is held in memory (**O**ne **T**ime **Z**ero - **OTZ**). The zero setting can be confirmed whenever it is usefull.

Manufacturers Test Certificate M

Besides the "Certificate of Compliance" which is supplied with the AL100, manufacturers test certificates M are available at cost on request. Manufacturers test certificates M are individually supplied per instrument and per method.

The manufacturers test certificate M has to be ordered together with the new instrument and cannot be delivered at a later stage.

N.I.S.T Traceability

The instrument has a factory calibration, which is related to international standards which are not N.I.S.T traceable. The instrument may be calibrated by the user in a "user calibration mode" with N.I.S.T traceable standards.
(N.I.S.T. = National Institute of Standards and Technology)

Reagents (order codes), please see pages 34 onwards

Highlights

- Scroll Memory
- Automatic Switch-Off
- Real-Time-Clock and Date
- Calibration Mode
- Backlit Display
- Storage Function
- One Time Zero (OTZ)
- Waterproof *)

*) as defined in IP 68, 1 hour at 0.1 meter

Single-Parameter

Test	Code
Aluminium, tablet reagents 0.01 - 0.3 mg/l Al	4276200
Aluminium, powder reagents 0.01 - 0.25 mg/l Al	4276205
Ammonia, tablet reagents 0.02 - 1.0 mg/l N	4276060
Ammonium, powder reagents 0.01 - 0.8 mg/l N	4276065
Chloride, tablet reagents 0.5 - 25 mg/l Cl^- 5 - 250 mg/l Cl^- (by dilution)	4276180
Chlorine, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2*	4276000
Chlorine, liquid reagents **(OTZ)** 0.02 - 4 mg/l Cl_2	4276005
Chlorine DUO, for 2 types of reagents 1) Tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* 2) Powder reagents 0.02 - 2.0 mg/l Cl_2 (ø 24 mm glass vial) 0.1 - 8.0 mg/l Cl_2 (ø 10 mm **multi vial-2**)	4276020 4276025
Chlorine, powder reagents 0.02 - 2.0 mg/l Cl_2 (ø 24 mm glass vial) 0.1 - 8.0 mg/l Cl_2 (ø 10 mm **multi vial-2**)	4276010
Chlorine HR (Potassium iodide), tablet reagents 5 - 200 mg/l Cl2 (ø 16 mm round vial & adapter)	4276170
Chlorine dioxide, tablet reagents 0.02 - 11 mg/l ClO_2	4276030
Chlorine dioxide, powder reagents 0.04 - 3.8 mg/l ClO_2	4276035
COD, tube tests (ø 16 mm) 0 - 150 mg/l O_2 / 0 - 1500 mg/l O_2 / 0 - 15000 mg/l O_2	4276120
Copper, tablet reagents 0.05 - 5.0 mg/l Cu	4276080
Copper, powder reagents 0.05 - 5.0 mg/l Cu	4276085
Fluoride, without reagents 0.05 - 2.0 mg/l F^-	4276090
Hardness, total, tablet reagents 2 - 50 mg/l $CaCO_3$ / 20 - 500 mg/l $CaCO_3$ (by dilution)	4276190
Hazen, no reagents required 0 - 500 mg/l Pt-Co	4276160
Iron, tablet reagents 0.02 - 1.0 mg/l Fe	4276050
Iron TPTZ, powder reagents 0.02 - 1.8 mg/l Fe	4276055
Iron, powder reagents 0.02 - 3.0 mg/l Fe	4276056
Manganese LR, tablet reagents 0.2 - 4.0 mg/l Mn	4276100
Manganese LR, powder reagents 0.01 - 0.7 mg/l Mn	4276105
Manganese HR, powder reagents 0.1 - 18 mg/l Mn	4276106
Molybdenum LR, powder reagents / reagent solution 0.03 - 3.0 mg/l Mo (mixing cylinder required, not included)	4276140
Molybdenum HR, powder reagents 0.3 - 40 mg/l Mo	4276141
Molybdenum, tablet reagents 0.6 - 30 mg/l Mo	4276142
Phosphate, tablet reagents 0.05 - 4.0 mg/l PO_4	4276040
Phosphate, powder reagents 0.06 - 2.5 mg/l PO_4	4276045
Silica, tablet reagents 0.05 - 4.0 mg/l SiO_2	4276110
Silica LR, powder reagents 0.1 - 1.6 mg/l SiO_2	4276115
Silica HR, powder reagents 1 - 90 mg/l SiO_2	4276116

Single-Parameter

Test	Code
Suspended solids, no reagents required 0 - 750 mg/l TSS	4276150
Urea, tablet reagents 0.1 - 2.5 mg/l Urea 0.2 - 5 mg/l Urea (by dilution)	4276210

2in1

Chlorine, pH, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 6.5 - 8.4 pH	4278020
Chlorine, pH, liquid reagent **(OTZ)** 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH	4278025
Chlorine, pH, powder reagents for chlorine 0.02 - 2.0 mg/l Cl_2 (ø 24 mm glass vial) 0.1 - 8.0 mg/l Cl_2 (ø 10 mm **multi vial-2**) ; 6.5 - 8.4 pH	4278030

3in1

Chlorine, pH, Cyanuric acid, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* 6.5 - 8.4 pH ; 0 - 160 mg/l Cyanuric acid	4278010
Chlorine, pH, Cyanuric acid liquid reagent for chlorine and pH **(OTZ)** 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH / 0 - 160 mg/l cyanuric acid	4278015
Chlorine, pH, Alkalinity-M, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* 6.5 - 8.4 pH ; 5 - 200 mg/l $CaCO_3$ (TA)	4278060
Chlorine, pH, Alkalinity-M liquid reagent for chlorine and pH (OTZ) 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH / 5 - 200 mg/l $CaCO_3$ (TA)	4278065
Chlorine LR, Chlorine HR, **Chlorine dioxide#**, tablet reagents 0.01 - 6.0 mg/l Cl_2 5 - 200 mg/l Cl_2 (ø 16 mm round vial) 0.02 - 11 mg/l ClO_2	4278000

4in1

Chlorine, pH, Cyanuric acid, Alkalinity-M tablet reagents **(OTZ)** 0.02 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 6.5 - 8.4 pH 0 - 160 mg/l cyanuric acid ; 5 - 200 mg/l $CaCO_3$ (TA)	4278070
Chlorine, pH, Cyanuric acid, Alkalinity-M liquid reagent for chlorine and pH (OTZ) 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH 0 - 160 mg/l cyanuric acid / 5 - 200 mg/l $CaCO_3$ (TA)	4278075

5in1

Chlorine, pH, Cyanuric acid, Alkalinity-M, **Calcium hardness**, tablet reagents **(OTZ)** 0.02 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 6.5 - 8.4 pH ; 0 - 160 mg/l Cyanursäure 5 - 200 mg/l $CaCO_3$ (TA) ; 0 - 500 mg/l $CaCO_3$ (CaH)	4278080

6in1

Chlorine, Bromine, pH, Cyanuric acid, **Alkalinity-M, Calcium hardness** tablet reagents **(OTZ)** 0.02 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 0.05 - 13 mg/l Br 6.5 - 8.4 pH ; 0 - 160 mg/l Cyanursäure 5 - 200 mg/l $CaCO_3$ (TA) ; 0 - 500 mg/l $CaCO_3$ (CaH)	4278090

AL100 Boiler Water (without reagents)

Aluminium, Chloride, Copper, DEHA, Hydrazine, Iron, Oxygen (dissolved), Phosphate, Polyacrylates, Silica	4276230

AL100 Cooling Water (without reagents)

Aluminium, Bromine, Chlorine, Chlorine HR, Chlorine dioxide, Copper, Iron, Molybdate LR, Molybdate HR, Ozone, Polyacrylates, Sulphate, Triazoles, Zinc	4276240

* Delivery without reagents for measuring range 0.1 - 10 mg/l Cl_2

Where chlorine and chlorine dioxide are present together, they may be determined quantitatively as a single figure.

Photometer AL100

Technical Data

Optics	LEDs, interference filters (IF) and photo sensors in transparent sample chamber. Depending on the version, up to 3 different interfernce filters are used. Wavelength specifications of interference filters: 430 nm Δ λ = 5 nm 530 nm Δ λ = 5 nm 560 nm Δ λ = 5 nm 580 nm Δ λ = 5 nm 610 nm Δ λ = 6 nm 660 nm Δ λ = 5 nm
Wavelength Accuracy	± 1 nm
Photometric Accuracy[4)]	3% FS (T = 20°C – 25°C)
Photometric Resolution	0.01 A
Power Supply	4 micro batteries (AAA), capacity approx. 17 hours or 5000 tests
Auto - OFF	automatic switch-off
Display	backlit LCD (on keypress)
Storage	internal ring memory for 16 data sets
Interfaces	Infrared interface for test data transfer
Additional feature	real time clock and date
Calibration	factory calibration and user calibration. Reset to factory calibration possible
Dimensions	155 x 75 x 35 mm (L x W x H)
Weight	basic unit approx. 260 g
Environmental conditions	Temperature: 5–40 °C rel. humidity: 30–90% (non condensing)
Approval	CE

[4)] tested with standard solutions

Reference Standard Kits for AL100

The reference standards are designed to check the accuracy and the reliability of the results.

It is not possible to calibrate the photometer with the reference standards.

The shelf life of reference standards is two years from the date of production, provided that storage and use are in accordance with the instructions provided.

Kit Chlorine for instruments with tablet / liquid reagent 0.2* and 1.0* mg/l	4275650
Kit Chlorine for instruments with tablet / liquid reagent 0.5* and 2.0* mg/l	4275655
Kit Chlorine for instruments with tablet / liquid reagent 1.0* and 4.0* mg/l	4275656
Kit Chlorine for instruments with powder reagent (VARIO) 0.2* and 1.0* mg/l	4275660
Kit pH for instruments with tablet / liquid reagent 7,45* pH	4275670

* Approximate figure, actual figure specified in Certificate of Analysis

Verification Standard Kit

The verification standard kit for the AL100 is designed to assure the user of the accuracy and the reliability of the results.
The kit contains one zero standard, 6 different vials for checking 6 different wave lengths and allows checking the complete range of AL100 photometers.
The shelf life of the Verification standard kit is two years from the date of production, provided that storage and use are in accordance with the instructions provided.

Verification Standard Kit	4215670

Accessories

Item	Code
Set of 12 round vials with lid Height 48 mm, Ø 24 mm	197620
Set of 5 round vials with lid Height 48 mm, Ø 24 mm	197629
Set of 10 round vials with lid Height 90 mm, Ø 16 mm	197665
Adapter for round vials ø 16 mm	19802220
Set of 12 plastic vials (PC), with lid **"Multi"-Type 2**, Ø 10 mm	197600
Vial stand for 6 round vials Ø 24 mm, acrylic glass	418951
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
Mixing cylinder, 25 ml, with stopper required accessory for molybdenum LR test with AL100 (4276140)	19802650
Membrane filter set for use when preparing samples, 25 membrane filters, 0,45 µm, 2 syringes 20 ml	366150
Cleaning cloth for vials	197635
Set of 12 sealing rings for round vial ø 24 mm	197626
4 micro batteries (AAA)	1950026
Measuring beaker, volume 100 ml	384801
Plastic funnel with handle	471007
Plastic stirring rod, 13 cm length	364100
Plastic stirring rod, 13 cm length, (10 pc.)	364120
Plastic stirring rod, 10 cm length	364109
Plastic stirring rod, 10 cm length, (10 pc.)	364130
Infra-red data transfer modul IRiM	4214050

Delivery Content

Each AL100 is supplied in a sturdy plastic case with 4 micro batteries (AAA), 3 round vials (glass) with lids, 1 stirring rod & 1 syringe, tablet reagents and/or liquid reagents or VARIO powder reagent, warranty information, certificate (Certificate of Compliance) and instruction manual.

You can find updated information on parameters and measuring ranges on our website at www.aqualytic.de

Data transfer

The optional available IRiM (infra-red interface modul) uses modern infra-red technology to transmit measurement data from the AL100 photometer to one of 3 optional interfaces. These interfaces can be used to connect to a PC, a USB printer[1)] or alternative a serial printer[2)].

The unit is supplied complete with data logging software providing easy and rapid transfer of data to the PC. As an option the data can be saved as an Excel sheet or a .txt file.

Measurement data can quickly be printed out, using a specified[1)] USB or alternative a printer with a serial plug-in connected to the IRiM.

Applicable for the following operating systems:
Windows XP, Windows Vista and Windows 7.

[1)] USB printer: HP Deskjet 6940 ; [2)] each ASCII printer

Further information to the IRiM, see page 23

Photometer AL200

Designed to meet the latest technical requirements, the AL200 photometer can be used in practically every area of water analysis.

The high-precision optics with its top-quality interference filters uses long-term stable LEDs as light-source. Because there are no moving parts, the entire measurement device requires absolutely no maintenance.

Precise and reproducible analysis results are obtained in a short time. The units impress with their user-friendliness, ergonomic design, compact dimensions and easy handling.

The tests are conducted using either AQUALYTIC® tablet reagents with long-term stability and a guaranteed minimum 5 or 10 year shelf life or using liquid reagents.

Highlights

- Scroll Memory
- Infra-red interface
- Real-Time-Clock and Date
- Calibration Mode
- Backlit Display
- Storage Function
- One Time Zero (OTZ)
- Waterproof *)

*) as defined in IP 68, 1 hour at 0.1 meter

Scroll Memory (SM)

For multi-parameter instruments, the order of the various methods is determined. To avoid unnecessary scrolling for the required test method, the instrument memorizes the last method used before switching off the instrument. When the instrument is switched on again, the scroll list comes up with the last used test method first. This allows for faster access to favored methods.

Zero Setting (OTZ)

It is not necessary to zero the instrument each time.
The zero setting is held in memory until the device is turned off (**O**ne **T**ime **Z**ero - **OTZ**).
The zero setting can be confirmed whenever it is usefull.

Manufacturers Test Certificate M

Besides the "Certificate of Compliance" which is supplied with the AL100, manufacturers test certificates M are available at cost on request. Manufacturers test certificates M are individually supplied per instrument and per method.

The manufacturers test certificate M has to be ordered together with the new instrument and cannot be delivered at a later stage.

Reagents (order codes), please see pages 34 onwards

Technical data

Optics	LEDs, interference filters (IF) and photo sensor in transparent sample chamber. Depending on the version, up to 3different interfernce filters are used. Wavelength specifications of interference filters: 430 nm Δ λ = 5 nm 530 nm Δ λ = 5 nm 560 nm Δ λ = 5 nm 580 nm Δ λ = 5 nm 610 nm Δ λ = 6 nm 660 nm Δ λ = 5 nm
Wavelength Accuracy	± 1 nm
Photometric Accuracy[4)]	3% FS (T = 20°C – 25°C)
Photometric Resolution	0.01 A
Power Supply	4 batteries (AA), capacity approx. 53 hours or 15000 tests (continuous operation without display lighting)
Auto - OFF	automatic switch-off
Display	backlit LCD (on keypress)
Storage	internal ring memory for 16 data sets
Interface	infrared interface for test data transfer to IRiM
Additional feature	real time clock and date
Calibration	factory calibration and user calibration. Reset to factory calibration possible
Dimensions	190 x 110 x 55 mm (L x W x H)
Weight	basic unit approx. 455 g (with batteries)
Environmental conditions	temperature: 5 – 40 °C rel. humidity: 30 – 90% (non condensing)
Approval	CE

[4)] tested with standard solutions

Accessories

Item	Code
Set of 12 round vials with lid Height 48 mm, Ø 24 mm	197620
Set of 5 round vials with lid Height 48 mm, Ø 24 mm	197629
Adapter for round vials ø 16 mm	19802220
Membrane filter set for use when preparing samples, 25 membrane filters, 0,45 µm, 2 syringes 20 ml	366150
Vial stand for 6 round vials Ø 24 mm, acrylic glass	418951
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
Cleaning cloth for vials	197635
Set of 12 sealing rings for round vial ø 24 mm	197626
4 batteries (AA)	1950025
Battery lid	19802241
Measuring beaker, volume 100 ml	384801
Plastic stirring rod, 13 cm length	364100
Plastic stirring rod, 13 cm length, (10 pc.)	364120
Plastic stirring rod, 10 cm length	364109
Plastic stirring rod, 10 cm length, (10 pc.)	364130
Infra-red data transfer modul IRiM	4214050

Delivery Content

Each AL200 is supplied in a sturdy plastic case with 4 batteries (AA), 3 round vials (glass) with lids, 1 stirring rod, 1 brush & 1 syringe, tablet reagents and/or liquid reagents, warranty information, certificate (Certificate of Compliance) and instruction manual.

You can find updated information on parameters and measuring ranges on our website at www.aqualytic.de

Photometer AL200

Single-Parameter

Test	Code
COD, tube tests, without reagents 0 - 150 mg/l O_2 (ø 16 mm) 0 - 1500 mg/l O_2 (ø 16 mm) 0 - 15000 mg/l O_2 (ø 16 mm)	42892502

2in1

Test	Code
Chlorine, pH, tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 6.5 - 8.4 pH	42889402
Chlorine, pH, liquid reagents 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH	42889412
Copper, pH tablet reagents 0.05 - 5 mg/l Cu / 6.5 - 8.4 pH	42872102
Hydrogen peroxide, pH (no OTZ) liquid reagents 1 - 50 mg/l H_2O_2 / 40 - 500 mg/l H_2O_2 6.5 - 8.4 pH	42888102

3in1

Test	Code
Chlorine, pH, Bromine tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 6.5 - 8.4 pH / 0.05 - 13 mg/l Br	42861802
Chlorine, pH, Cyanuric acid tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 6.5 - 8.4 pH / 0 - 160 mg/l cyanuric acid	42860102
Chlorine, pH, Cyanuric acid liquid reagents for chlorine and pH 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH 0 - 160 mg/l cyanuric acid	42882002
Chlorine, pH, Alkalinity-M tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 6.5 - 8.4 pH / 5 - 200 mg/l $CaCO_3$ (TA)	42889002
Chlorine, pH, Alkalinity-M liquid reagents for chlorine and pH 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH 5 - 200 mg/l $CaCO_3$ (TA)	42889302

4in1

Test	Code
Chlorine, pH, Cyanuric acid, Alkalinity-M tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 6.5 - 8.4 pH / 0 - 160 mg/l cyanuric acid 5 - 200 mg/l $CaCO_3$ (TA)	42860502
Chlorine, pH, Cyanuric acid, Alkalinity-M liquid reagents for chlorine and pH 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH 0 - 160 mg/l cyanuric acid / 5 - 200 mg/l $CaCO_3$ (TA)	42860542

5in1

Test	Code
Chlorine, pH, Cyanuric acid, Alkalinity-M, Calcium hardness tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 6.5 - 8.4 pH / 0 - 160 mg/l cyanuric acid 5 - 200 mg/l $CaCO_3$ (TA) / 0 - 500 mg/l $CaCO_3$ (CaH)	42861202

6in1

Test	Code
Chlorine, Bromine, pH, Cyanuric acid, Alkalinity-M, Calcium hardness tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 0.05 - 13 mg/l Br / 6.5 - 8.4 pH 0 - 160 mg/l cyanuric acid / 5 - 200 mg/l $CaCO_3$ (TA) 0 - 500 mg/l $CaCO_3$ (CaH)	42861902
Chlorine, pH, Cyanuric acid, Alkalinity-M, Copper, Iron tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2* 6.5 - 8.4 pH / 0 - 160 mg/l cyanuric acid 5 - 200 mg/l $CaCO_3$ (TA) / 0.05 - 5 mg/l Cu 0.02 - 1 mg/l $Fe^{2+/3+}$	42862102

* Delivery without reagents for measuring range 0.1 - 10 mg/l Cl_2

Data Transfer

The optional available IRiM (infra-red interface modul) uses modern infra-red technology to transmit measurement data from the AL100 photometer to one of 3 optional interfaces. These interfaces can be used to connect to a PC, a USB printer1) or alternatively a serial printer2).

The unit is supplied complete with data logging software providing easy and rapid transfer of data to the PC. As an option, the data can be saved as an Excel sheet or a .txt file.

Measurement data can quickly be printed out, using a specified1) USB or alternatively a printer with a serial plug-in connected to the IRiM.

Applicable for the following operating systems:
Windows XP, Windows Vista and Windows 7.

[1] USB printer: HP Deskjet 6940 ; 2) each ASCII printer

Verification Standard Kit

The verification standard kit for the AL200 is designed to assure the user of the accuracy and the reliability of the results.
The kit contains one zero standard, 6 different vials for checking 6 different wave lengths and allows checking the complete range of AL200 photometers.
The shelf life of the verification standard kit is two years from the date of production, provided that storage and use are in accordance with the instructions provided.
Measurements are taken in mAbs.

Verification Standard Kit 4215670

Reference Standard Kits for AL200

The reference standards are designed to check the accuracy and the reliability of the results.

It is not possible to calibrate the photometer with the reference standards.

The shelf life of reference standards is two years from the date of production, provided that storage and use are in accordance with the instructions provided.

Kit Chlorine for instruments with tablet / liquid reagent 0.2* and 1.0* mg/l 4275650

Kit Chlorine for instruments with tablet / liquid reagent 0.5* and 2.0* mg/l 4275655

Kit Chlorine for instruments with tablet / liquid reagent 1.0* and 4.0* mg/l 4275656

Kit pH for instruments with tablet / liquid reagent 7,45* pH 4275670

* Approximate figure, actual figure specified in certificate of analysis enclosed

COD Set-Ups COD VARIO

Determination of the chemical oxygen demand index (ST-COD) Small-scale sealed-tube | Total range 0 - 15000 mg/l | (ISO 15705:2002)

COD Set-Up AL200 COD VARIO

Waste water parameter COD

The chemical oxygen demand, ST-COD value, of water as determined by this dichromate method can be considered as an estimate of the theoretical oxygen demand, i.e. the amount of oxygen consumed in total chemical oxidation of the organic constituents present in the water.

COD VARIO Photometer

With a measuring range from 0 to 15,000 mg/l O_2, the AQUALYTIC® photometer are suitable for waste water testing.

Two LED light sources with long-term stability (λ_1 = 610 nm ; λ_2 = 430 nm, according to ISO 15705:2002), a waterproof sample chamber, a large digital display, and the user-friendly keypad ensure maximum operating reliability and convenience.

AL100 COD VARIO (AL100 photometer in case)	Order code: 4276120
AL200 COD VARIO (AL200 photometer in case)	Order code: 42892502

Highlights

- ST-COD sealed tubes ready for use
- Suppression of chloride interference
  up to 1000 mg/l (LR & MR)
  up to 10000 mg/l (HR)
- Mercury free tube tests,
  in absence of chloride interference
- 3 ranges:
  Low range:
  0 - 150 mg/l, meets ISO 15705:2002
  Middle range:
  0 - 1500 mg/l, meets ISO 15705:2002
  High range: 0 - 15000 mg/l

Set-Ups COD VARIO

The AQUALYTIC® COD VARIO test set-ups allow highly sensitive and precise water testing with minimum effort.
They measure the ST-COD concentration by photometric detection employing a linear relationship between absorbance and concentration.

After adding the sample to a AQUALYTIC® COD VARIO tube test (LR, MR according to ISO 15705:2002), it is heated in the reactor and then analysed in a COD VARIO photometer.

The COD-Set-ups comprise a COD VARIO photometer, 25 tube tests for each of the two lower measuring ranges, a reactor for sample digestion and a vial stand.

COD-Set-Up **Order code**
AL100 COD VARIO 4276130
Instrument in carrying case, 4 batteries (AAA), adapter for round vials ø 16 mm, 2 sets of tube tests 0-150 mg/l, 0-1500 mg/l, thermoreactor AL125, tube stand, 2 syringes 1 ml, 2 ml, warranty information, certificate (COC), instruction manual

COD-Set-Up **Order code**
AL200 COD VARIO 42892602
Instrument in carrying case, 4 batteries (AA), adapter for round vials ø 16 mm, 2 sets of tube tests 0-150 mg/l, 0-1500 mg/l, thermoreactor AL125, tube stand, 2 syringes 1 ml, 2 ml, warranty information, certificate (COC), instruction manual

Ranges

0 – 150 mg/l O_2 ± 3.5%*) FS

0 – 1500 mg/l O_2 ± 3.5%*) FS

0 –15000 mg/l O_2 ± 3.5%*) FS

* based on the use of potassium-hydrogenephthalate standards (DIN 38 409)

COD VARIO tube tests

The AQUALYTIC® COD VARIO tube tests are available for the measuring ranges 0-150 mg/l O_2, 0-1500 mg/l O_2 and 0-15000 mg/l O_2. Their chemical properties and a 16 mm tube diameter make them compatible to Hach® devices.*

Tube tests	Quantity	Order code
0 - 150 mg/l O_2	(25 pc.) mercury free**	420710
	(25 pc.)	420720
	(150 pc.)	420725
0 - 1500 mg/l O_2	(25 pc.) mercury free**	420711
	(150 pc.) mercury free**	420716
	(25 pc.)	420721
	(150 pc.)	420726
0 - 15000 mg/l O_2	(25 pc.) mercury free**	420712
	(25 pc.)	420722
	(150 pc.)	

** without chloride removal

Standard solutions

Standard solutions are solutions with a defined concentration and are provided to check the operation methods and devices of the cuvette tests as well as the condition of optical filters and the instrument.

Standard solutions	Quantity	Order code
100 mg/l COD	30 ml	420803
500 mg/l COD	30 ml	420804
5000 mg/l COD	10 ml	420805

* HACH® is a registered trademark of Hach Company, Loveland, Colorado. The use of the HACH® trademark does not imply any affiliation with or approval by Hach Company regarding the formulation, testing or compatibility of these products for use in HACH® brand spectrophotometers or other devices or systems.

Thermoreactor AL125

For the digestion of tube tests

COD (150°C)
TOC (120°C)
Total Chromium (100°C)
Total Nitrogen (100°C)
Total Phosphate (100°C)

Chemical digestion of samples is required for the photometric determination of COD, TOC, total phosphate and total nitrogen.

The required temperatures and reaction time can be selected by using the membrane keypad of the reactor AL125. The unit works at three different temperatures (100 / 120 / 150 °C) and three pre-set reaction times (30 / 60 / 120 minutes). When digestion is complete, the reactor automatically switches off and gives a corresponding LED indication with short beep alarm.

The AL125 reactor is fitted with 24 holes for 16 mm diameter vials.

Thermoreactor AL125 Order code: 418940

Technical data AL125

Power supply	230 V / 50-60 Hz or 115 V / 50-60 Hz (switchable)
Power	550 W
Dimensions	248 x 219 x 171 mm
Weight	3.9 kg
Materials, housing **Protection grid** **Lid** **Block insert** **Heating block**	ABS PPS PC PBT Aluminium
Holes in the aluminium block	24 holes, 16.2 mm ± 0.2 mm
Selectable temp.	100 / 120 / 150 °C
Probe type	Pt100 A class
Temperature stability	± 1 °C at the Pt100
Selected time	30 / 60 / 120 / min. and continuous operation (∞)
Heating up	from 20°C to 150°C in 12 min.
Regulation	Microprocessor
Protection against overheating	at the alu block at 190 °C
Beeper	max. 88 dB (Piezo Summer)
Environmental conditions	10 – 40 °C max. 85 % rel. humidity
Approval	CE

Waste Water Set-Ups

Waste Water Set-Up AL400

Photometer AL400 with standard accessory,
thermoreactor AL125, Infra-red data
transmission module IRiM, tube stand, membrane filter set,
instruction manual, warranty information

COD 0 - 150 mg/l and 0 - 1500 mg/l,
Ammonia 1 - 50 mg/l N,
Nitrate 1 - 30 mg/l N
Nitrite LR 0.01 - 0.3 mg/l N
Nitrogen 5 - 150 mg/l N
Phosphate 0.02 - 1 mg/l P / 0.06 - 3.5 mg/l PO_4

Waste Water Set-Up AL400 4214100

Waste Water Set-Up AL800

Spectrophotometer AL800,
thermoreactor AL125, 5 round vials ø 24 mm,
tube stand, membrane filter set,
instruction manual, warranty information

COD 0 - 150 mg/l und 0 - 1500 mg/l,
Ammonia 1 - 50 mg/l N
Nitrate 1 - 30 mg/l N
Nitrite LR 0.01 - 0.3 mg/l N
Nitrogen 5 - 150 mg/l N
Phosphate 0.02 - 1 mg/l P / 0.06 - 3.5 mg/l PO_4

Waste Water Set-Up AL800 4712100

Reagents for waste water set-ups

COD 0-150 mg/l O_2	
(25 pc.), mercury free **	420710
(25 pc.)	420720
(150 pc.)	420725
COD 0-1500 mg/l O_2	
(25 pc.), mercury free **	420711
(150 pc.), mercury free **	420716
(25 pc.)	420721
(150 pc.)	420726
COD 0-15000 mg/l O_2	
(25 pc.), mercury free **	420712
(25 pc.)	420722
(150 pc.)	420727
** without chloride removal	
Ammonia VARIO HR tube test	4535650
Nitrate VARIO tube test	4535580
Nitrite LR VARIO powder pack	4530980
Nitrogen VARIO Total HR tube test	4535560
Phosphate VARIO Total HR tube test	4535210

Accessories for Waste Water Set-Ups

Set of round vials with lids Height 48 mm, Ø 24 mm	197629
Membrane filter set for use when preparing samples, 25 membrane filters 0.45 µm, 2 syringes 20 ml	366150
Vial stand for 6 round vials Ø 24 mm, acrylic glass	418951
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
Automatic pipette*, 1 - 5 ml	419076
Pipette tips*, 1 - 5 ml (white), 100 pc.	419066
Automatic pipette**, 0.1 - 1 ml	419077
Pipette tips**, 0,1 - 1 ml (white), 1000 pc.	419073

* 0 - 150 mg/l and 0 - 1500mg/l ; ** 0 - 15000 mg/l

Photometer AL400 & AL410

Modern, mobile photometers for rapid, reliable water testing

The AL410 and AL400 give you mobile devices in a modern design with the analytical features of laboratory photometers.

All important water analysis parameters from A(luminium) to Z(inc) are covered by these two devices. Combined with the high precision of AQUALYTIC® reagents, a reliable and quick analysis of water samples is guaranteed. Reagent tablets, powder reagents, liquid reagents, or cuvette tests are used depending on the method.

Six long-lasting LEDs serving as a light source in combination with interference filters guarantee the highest precision. The devices are designed without moving optical parts and thus have a maintenance-free measuring unit. Up to 1,000 data records can be stored in both the AL410 and the AL400.

The **AquaLX®** app, available free of charge, offers the possibility of transferring measurements to smart phones or tablets via **Bluetooth®**. The data management then enables analysis and export as a CSV file or graph via email. The app is available free of charge for Android™ and iOS®.

The proven AL400 photometer uses the classic infrared interface with which data can be transferred by means of the IRiM module to the PC or laptop.

Highlights

- Highest/reproducible precision with interference filter
- Display with background lighting
- More than 120 pre-programmed methods
- Automatic selection of wavelength
- User guidance in German, English, French, Spanish, Italian, Portuguese (BR), Polish, and Indonesian.
- Buffer for up to 1000 data records
- More than 35 user-specific methods possible
- Bluetooth® interface for connection to smart phones and tablets (only with AL410)
- iOS® and Android™ app for data management and email delivery (only with AL410)
- Infrared interface (only with AL400)
- Waterproof housing*
- Handheld format, portable

*) as defined in IP 68, 1 hour at 0.1 meter

N.I.S.T. Traceability

The instrument has a factory calibration, which is related to internal standards, which are not N.I.S.T traceable. The instrument may be calibrated by the user in a "user calibration mode" with N.I.S.T traceable standards.
(N.I.S.T. = National Institute of Standards and Technology)

New methods

Test methods are regularly updated to suit market requirements. You can find software updates for new methods and additional languages on our website at www.aqualytic.de.

Polynomials

With the help of an external mathematical program, the corresponding polynomial is created from data pairs (concentration/absorption). A known polynomial may also be used. 25 order polynomials ($y = A+Bx+Cx^2+Dx^3+EX^4+FX^5$) can be stored together with user-specific parameters such as wavelength, measuring range, unit and number of decimals.

Concentration

This function can be used to measure 2 to 14 known standards. On the basis of the concentrations/absorption pairs obtained, the photometer will calculate a linear interpolation between the measured points. Up to 10 methods can be stored for further sample measurements.

Delivery Content

The instrument is supplied complete and ready-to-use incl. 4 batteries, 3 vials ø 24 mm, 3 vials ø 16 mm, 1 adapter each for 16 mm and 13 mm vials, stirring rod 13 cm, brush 11 cm, screw driver, warranty information, certificate of compliance, instruction manual, carrying case with water resistance foam, **but without reagents**.

Order codes
AL400: 4214020
AL410: 4214025

Please specify the reagents or parameters required at time of order.

You can find updated information on parameters and measuring ranges on our website at www.aqualytic.de

Reagents (order codes), please see pages 34 onwards

Applications

- Waste Water
- Drinking Water
- Industrial Process Water
- Scientific & Research
- Governmental and Private Laboratories
- Mobile Application

Bluetooth® is a wireless technology subject to regional approval. The use of the AL410 with Bluetooth® is currently only permitted within the EU, the USA, and in Canada. The use of the AL410 will also be possible in other regions in the future. For current regions and further information, visit: www.aqualytic.de/bluetooth
Regions in which the AL410 with Bluetooth® can currently be used (status: 01/2015):
within the EU (according R&TTE Directive 1999/5/EC) ; USA (according to FCC part 15, comprised in FCC ID QOQBT113) ; Canada (comprised in IC 5123A-BGTBLE113)

Photometer AL400 & AL410

Technical Data

Display	Graphic-display
Interfaces	Infrared[1] (AL400), Bluetooth® 4.0 (AL410) RJ45 socket for Internet updates[2]
Optics	LEDs, interference filters (IF) and photo sensor in transparent sample chamber Wavelength range: 1 = 530 nm IF Δλ = 5 nm 2 = 560 nm IF Δλ = 5 nm 3 = 610 nm IF Δλ = 6 nm 4 = 430 nm IF Δλ = 5 nm 5 = 580 nm IF Δλ = 5 nm 6 = 660 nm IF Δλ = 5 nm IF = interference filter
Wavelength Accuracy	± 1 nm
Photometric Accuracy*	2% FS (T = 20°C – 25°C)
Photometric Resolution	0,005 A
Operation	Acid and solvent resistant, touch-sensitive keypad with audible feedback via integrated beeper
Power Supply	4 batteries (Mignon AA/LR6); Operation time: approx. 26 h continuous operation or 3500 tests
Auto-Off	approx. 20 minutes after last keypress with audible signal
Dimensions	approx. 210 x 95 x 45 mm (unit) approx. 395 x 295 x 106 mm (case)
Weight (unit)	approx. 450 g
Ambient Conditions	5–40°C at max. 30–90% rel. humidity (non condensing)
Language Selection	German, English, French, Spanish, Italian,Portuguese, Polish, Indonesian; additional languages via Internet update
Memory Capacity	approx. 1000 data sets
Approval	CE

[1] optional available: IRiM (Infrarot Interface Modul)
[2] optional available: connection cable with integrated electronics (RS 232 / RJ-45-Buchse)
* tested with standard solutions

Reagents (order codes), please see pages 34 onwards

Accessories

Item	Code
Set of 12 round vials with lid Height 48 mm, Ø 24 mm	197620
Set of 10 round vials with lid Height 90 mm, Ø 16 mm	197665
Adapter for round vials ø 16 mm	19802220
Adapter for round vials ø 13 mm	19802221
Set of **multy vials-3** with lids path length 10 mm, 10 ml volume Height 48 mm, Ø 24 mm (12 pc.)	197605
Vial stand for 6 round vials Ø 24 mm, acrylic glass	418951
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
Sealing ring for vial ø 24 mm (12 pc.)	197626
Battery, 1.5 V, AA-Alkali-Mangan (4 pc.)	1950025
Cleaning cloth for vials	197635
Plastic funnel with handle	471007
Plastic stirring rod, 13 cm length	364100
Plastic stirring rod, 13 cm length, (10 pc.)	364120
Plastic stirring rod, 10 cm length	364109
Plastic stirring rod, 10 cm length, (10 pc.)	364130
Cleaning brush, 10 cm	380230
Verification Standard Kit	4215640
Cable for update for connection to a PC	4214030
Infra-red data transmission modul IRiM	4214050

Verification Standard Kit

The Verification standard kit for the AL400 is designed to reassure the user about the accuracy and the reliability of the results.
The shelf life of the Verification standard kit is two years from the date of production, provided that storage and use are in accordance with the instructions provided.
Measurements are taken in mAbs.

Verification Standard Kit **4215640**

Infra-red data transmission modul IRiM

The IRiM (infra-red interface modul) uses modern infra-red technology to transmit measurement data from the AL400 photometer to one of 3 optional interfaces. These interfaces can be used to connect to a PC, a USB printer[1)] or alternative a serial printer[2)]. The interface which is selected is displayed by an LED function indicator. The user can switch between the interfaces using the „Select" button.

The unit is supplied complete with data logging software providing easy and rapid transfer of data to the PC. As an option the data can be saved as an Excel sheet or a .txt file.

Measurement data can quickly be printed out, using a specified[1)] USB or alternative a printer with a serial plug-in connected to the IRiM.

Applicable for the following operating systems:
Windows XP, Windows Vista and Windows 7.

[1)] USB printer: HP Deskjet 6940 ; 2) each ASCII printer

Delivery content

The IRiM is delivered ready for use, with the following accessories :

USB cable, 4 batteries, screwdriver, CD-ROM, operating instructions and guarantee certificate

Order code: 4214050

Technical Data

System requirements	Processor: Pentium 4/M or equivalent RAM: 512 MB Screen resolution: 1280 x 1024 pixels Operating system: Windows XP Disc space: 90 MB
Interfaces	SUB-D9 port USB-A port USB-B port
Baud rate RS232 interface	1200 ; 2400 ; 4800 ; 9600 19200 ; 38400 ; 57600
Protocol RS232 interface	XON/XOFF RTS/CTS ; XON/XOFF & RTS/CTS DTR/DSR ; XON / XOFF & DTR/DSR
Dimensions	132 x 95 x 43 mm (L x W x H)
Weight	315 g incl. 4 AA cells
Batteries	4 x AA cells

Bluetooth® is a wireless technology subject to regional approval. The use of the AL410 with Bluetooth® is currently only permitted within the EU, the USA, and in Canada.
The use of the AL410 will also be possible in other regions in the future. For current regions and further information, visit: www.aqualytic.de/bluetooth
Regions in which the AL410 with Bluetooth® can currently be used (status: 01/2015):
within the EU (according R&TTE Directive 1999/5/EC) ; USA (according to FCC part 15, comprised in FCC ID QOQBT113) ; Canada (comprised in IC 5123A-BGTBLE113)

Photometer AL450

Dual Beam Technology and Interference Filters for highest accuracy

The AL450 is a contemporary, microprocessor-controlled photometer with ergonomically designed keypad and large-format graphic display. It is equipped with a wide range of pre-programmed methods based on the proven range of AQUALYTIC® tablet reagents, liquid reagents, tube tests and powder reagents (VARIO Powder Packs). Users can also store their own methods.

The AL450 is a filter photometer using interference filters at 6 different wavelengths. The unique design of the optics allows the automatic selection of the required wavelength without any moving parts. This and the dual beam technology utilizing an internal reference channel, guarantees the highest accuracy.

For portable use, the instrument operates with seven standard rechargeable batteries (supplied). These batteries are available all over the world and are easily changed. The integrated intelligent charge controller allows simultaneous operation of the unit and battery charging (using the supplied power pack). The AL450 also operates without a power pack by using alkaline manganese batteries.

The entire instrument, including sample chamber (the most critical component of any photometer) and battery compartment, is waterproof, ensuring that no water comes in contact with the electronic components.

Highlights

- A wide range of pre-programmed methods
- Long-term stable LEDs as light sources
- Update of new methods and languages via Internet (free of charge)
- Interface
- Memory for 1000 data sets
- Mobile

N.I.S.T. Traceability

The instrument has a factory calibration, which is related to internal standards, which are not N.I.S.T traceable. The instrument may be calibrated by the user in a "user calibration mode" with N.I.S.T traceable standards.
(N.I.S.T. = National Institute of Standards and Technology)

New methods

Test methods are regularly updated to suit market requirements. You can find software updates for new methods and additional languages on our website at www.aqualytic.de.

Polynomials

With the help of an external mathematical program, the corresponding polynomial is created from data pairs (concentration/absorption). A known polynomial may also be used. 25 order polynomials ($y = A+Bx+Cx^2+Dx^3+EX^4+FX^5$) can be stored together with user-specific parameters such as wavelength, measuring range, unit and number of decimals

Concentration

This function can be used to measure 2 to 14 known standards. On the basis of the concentrations/absorption pairs obtained, the photometer will calculate a linear interpolation between the measured points. Up to 10 methods can be stored for further sample measurements.

Applications

- Waste Water
- Drinking Water
- Industrial Process Water
- Scientific & Research
- Governmental and Private Laboratories
- Mobile Applications

Delivery Content

The instrument is supplied complete and ready-to-use incl. 7 rechargeable batteries and mains charger, 100-240 V, 1 lithium battery, PC connection cable, 3 x 24 mm vials, 3 x 16 mm vials, 1 adapter for 16 mm vials, 3 syringes of various sizes, 1 plastic beaker 100 ml, carrying case with water resistance foam, **but without reagents**.

Order code: 4210000-B
Order code: 4210000 (as above, but without lithium battery)

Please specify the reagents or parameters required at time of order.

You can find updated information on parameters and measuring ranges on our website at www.aqualytic.de

Please see pages 34 onwards for tests, ranges and reagents

Photometer AL450

Technical Data

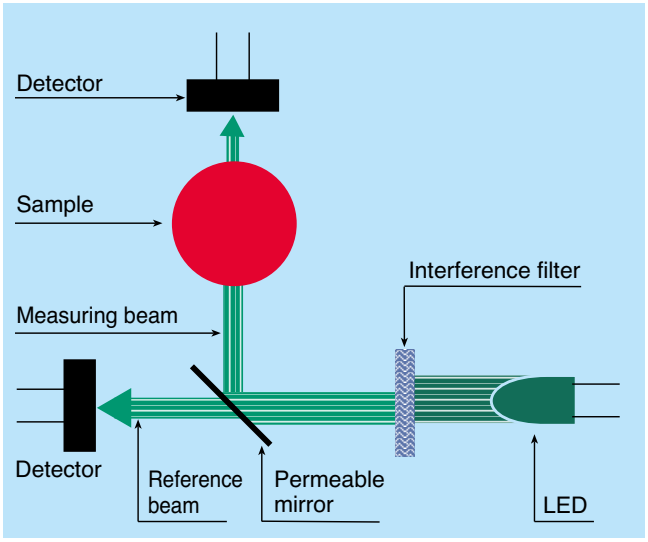
Display	Graphic-display
Optics	6 temperature compensating LED, internal reference channel, photodiode in protected sample chamber
Wavelengths	6 interference filters in one unit, λ_1 = 430 nm IF Δ λ (nm) = 5 λ_2 = 530 nm IF Δ λ (nm) = 5 λ_3 = 560 nm IF Δ λ (nm) = 5 λ_4 = 580 nm IF Δ λ (nm) = 5 λ_5 = 610 nm IF Δ λ (nm) = 6 λ_6 = 660 nm IF Δ λ (nm) = 5 IF = interference filter
Interface	RS232 for printer and PC-connection
Download	Software and methods update by means of the internet
Operation	Acid and solvent resistant, touch-sensitive keypad with audible feedback
Power Supply	7 Ni-MH-battery pack (AA/Mignon), charged whilst in the unit with external mains charger, integrated overload cut-out
Dimensions (L x W x H)	265 x 195 x 70 mm
Weight (unit)	approx. 1000 g with rechargeable batteries
Ambient Conditions	up to max. 90 % humidity (non condensing) approx. 5–40 °C
Auto-Off	approx. 20 minutes after last keypress with no loss of data
Auto-Check	By pressing ON/OFF-key
Memory Capacity	approx. 1000 data sets with date, time and registration number
Approval	CE

Please see pages 34 onwards for tests, ranges and reagents

Accessories

Item	Code
Set of 12 round vials with cap Height 48 mm, Ø 24 mm	197620
Set of 10 round vials with cap Height 90 mm, Ø 16 mm	197665
Adapter for round vials Ø 16 mm	19801094
Lid for adapter	19801100
Sealing ring for vial ø 24 mm (12 pc.)	197626
Vial stand for 6 round vials Ø 24 mm, acrylic glass	418951
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
Cleaning cloth for vials	197635
Adapter for Vacu-vial®	192075
Plastic beaker, 100 ml	384801
Plastic funnel with handle	471007
Plastic stirring rod, 13 cm length	364100
Plastic stirring rod, 13 cm length, (10 pc.)	364120
Plastic stirring rod, 10 cm length	364109
Plastic stirring rod, 10 cm length, (10 pc.)	364130
Cleaning brush, 10 cm	380230
Syringe, plastic, 2 ml	369080
Syringe, plastic, 5 ml	366120
Syringe, plastic, 10 ml	369090
Rubber seal cap	19801501
Mains charger, 100-240 V, 50-60 Hz, with international adapters	193010
Universal adapter for socket, international	192065
Cable for connection to PC, serial 9-pins	198198
AA Ni-MH, 1100 mAh (7 pc.)	1950020
Lithium battery	1950017
Paper printer DPN 2335	198075
Verification Standard Kit	4215650

Dual Beam Technologie



Verification Standard Kit

The verification standard kit for the AL450 is designed to reassure the user about the accuracy and the reliability of the results.
The shelf life of the verification standard kit is two years from the date of production, provided that storage and use are in accordance with the instructions provided.
Measurements are taken in mAbs.

Verification Standard Kit **4215650**

Spectrophotometer AL800

Water and waste water testing
330 - 900 nm

The AL800 is a modern single-beam spectrophotometer with an excellent price/performance ratio that is specifically designed for water testing.

The instrument is equipped with a wide range of pre-programmed methods based on the proven range of AQUALYTIC® tube tests, tablet reagents, liquid reagents and powder reagents (Vario Powder Packs).

Please see pages 34 onwards for tests, ranges and reagents

Highlights

- Interface RS232
- Large illuminated display
- Touch-sensitive film keypad with logical layout
- Use of round vials and rectangular cells of different sizes without adapter
- 35 user-specific methods
- Fast, easy lamp change
- Update via Internet

Optics

The AL800 is a single-beam spectral photometer (see illustration).

The light source is a tungsten halogen lamp with flash function. The lamp is switched on only momentarily during of the measurement process[1)], so there is no need for a warm-up period. The AL800 is ready to perform a self-test as soon as it is switched on.

The light passes through an entry slot to the monochromator, where it is split into spectral ranges. The monochromator is a holographically produced, transparent grating. The movable mirror ensures that light of the desired wavelength is focused automatically so that it passes through the exit slot, into the sample chamber and therefore through the water sample. The light that is not absorbed by the sample travels to the silicon photodiode detector. This signal is then evaluated by a microprocessor and shown as a result in the display.

1) (Exception: permanent light is used for a wavelength scan).

Multifunctional sample chamber

Round vials measuring 16 mm and 24 mm in diameter and rectangular cells with pathlengths from 10 to 50 mm may be used without an adapter. Only the 10 mm cell will be fixed by a little holder that must inserted into the sample chamber.

New methods

Test methods are continuously updated to suit market requirements.

You can find updates for new methods and additional languages on our website at www.aqualytic.de.

Functions

- Pre-programmed AQUALYTIC® methods
- Absorption
- Transmission
- Spectral data recording
- User calibration (polynomials)
- Concentration (linear)
- Kinetics

Self-test

After it is switched on, the AL800 automatically performs a self-test – beginning with a function test of the stepper motor and the halogen lamp, followed by an optics test. For this purpose, the unit has a built-in didymium glass filter. This filter checks the correct wavelength setting. If the wavelengths are incorrect, the optical system is automatically adjusted during the self-test.

Maintenance

Thanks to the design of the AL800, the only maintenance that is required is replacement of the light source. The lamp is situated at the back of the photometer in an easily accessible position. Changing the lamp is fast and simple and does not require any tools. The positioning of the assembly ensures optimum focusing of the halogen lamp.

Power supply

The required input voltage is 12 V.
The AL800 is connected to an external power pack as standard. Battery operation is also possible by using an external energy station (see accessories).

Applications

- Waste Water
- Drinking Water
- Industrial Process Water
- Scientific & Research
- Governmental and Private Laboratories

Choice of language

The user prompt in the display can be switched to German, English, French, Italian, Spanish, Portugese or Polish. If further languages are available they can be updated via internet.

N.I.S.T. Traceability

This spectrophotometer can be calibrated using a Secondary Standard Filter Set (order code 711160) which is N.I.S.T. traceable. Furthermore the instrument may be calibrated for each method in a "user calibration mode" with N.I.S.T. traceable standards.

(N.I.S.T. = National Institute of Standards and Technology)

Printer/PC connection

On the back of the AL800 photometer, there is an RS232 interface with a 9-pin D-Sub connector for connection of a PC or a printer with serial interface (see accessories).

Printing data

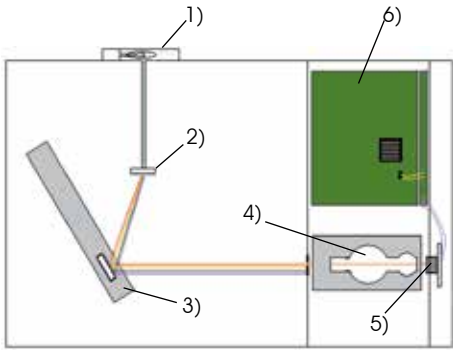
Every result is printed with date, time, reg. no, code no., measuring range and method number.

Storing data

You can store results of programmed and user-specific methods (polynomials) in a memory with a capacity of 1000 data sets. Alongside the result, the data sets contain information on method, date and time of the test.

User prompt

The user prompt is a convenient and easy to understand feature that guides the user step by step all the way through to the test result.



1) Tungsten halogen lamp
2) Monochromator
3) Movable mirror
4) Sample chamber
5) Silicon photodiode
6) Microprocessor unit

Spectrophotometer AL800

Zero calibration and measurements

The user chooses the desired method either from the method list in alphabetical order or by entering a numerical code. If desired additional information like the required vial, the reagent type and the measuring range can be displayed using the functional keys. The date and time are shown in the display by pressing the "clock key". The AL800 automatically selects the correct wavelength.

Zero calibration is performed with the water sample by pressing the ZERO key.

A characteristic coloration develops when you add the indicator to the water sample. Press the [Test] key to initiate the measurement (which starts either immediately or after the time required for colour development).

Countdown function

With some methods, after adding the indicator to the water sample, the user has to wait for a predefined colour reaction time. This time interval is shown in the display. The remaining time is displayed continuously. An alarm sounds during the last 10 seconds of the time periode. Measurement then starts automatically, and the result is shown in the display. The countdown function can be switched off to allow rapid processing of a series of samples.

Differentiation of results

The AL800 allows differentiated tests for certain methods. With the Chlorine method, for example, differentiated measurement is possible for free, combined and total chlorine.

Functions

The AL800 is ideal for routine laboratory use and is equipped with additional functions for user-specific applications. One example is the creation of a user-defined method for a routine check.

Spectral data

A wavelength scan is performed over the user-defined interval between 330 and 900 nm.

The display shows the graph of the spectrum; if the user presses a key, the display also shows a data list with the corresponding maximum and minimum absorption levels.

Absorption/Transmission

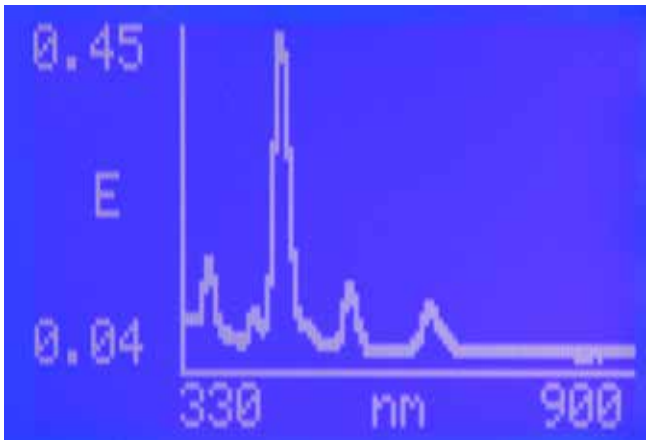
Using this function, the operator can, for example, carry out measurement of standards with different concentrations using the user-selected wavelength in order to obtain the data pairs required for a polynomial. Result output is in Abs and % Transmission.

Polynomials

With the help of an external mathematical program, the corresponding polynomial is created from data pairs (concentration/absorption). A known polynomial may also be used. 25 order polynomials ($y = A+Bx+Cx^2+Dx^3+EX^4+FX^5$) can be stored together with user-specific parameters such as wavelength, measuring range, unit and number of decimals.

Concentration

This function can be used to measure 2 to 14 known standards. On the basis of the concentrations/absorption pairs obtained, the photometer will calculate a linear interpolation between the measured points. Up to 10 methods can be stored for further sample measurements.



Technical data

Wavelength range	330 to 900 nm
Photometric range	-0.3 to 2.5 Abs
Spectral bandwidth	10 nm
Wavelength accuracy	±2 nm
Wavelength reproducibility	±1 nm
Light source	Pre-adjusted tungsten halogen lamp
Monochromator	Holographic grating
Detector	Silicon photodiode
Multifunctional sample chamber	Round vials 24 and 16 mm Ø, Rectangular cells 10-50 mm
Display	Backlit LCD graphic display
Language options	German, English, French, Italian, Spanish, Portugese
Storage capacity	1000 test data sets
Serial interface	RS232
Dimensions (L x W x H)	270 x 275 x 150 mm
Weight	approx. 3.2 kg
Power supply unit	Input: 100 - 240 V ~ 1.0 A 50 - 60 Hz Output: 12 V .... 30 W
Approval	CE

Accessories

	Code
Replacement halogen lamp	7110 00
Magnetical pin (for updates)	19801687-2
Connection cable to a PC	198197
Connection to a 12 V plug	711040
Case for transport	712050
Universal adapter for sockets	192065
Secondary standard set	711160
Plastic funnel with handle	471007
Cleaning cloth for vials	197635
Power supply unit 100-240 V / 50-60 Hz	711090
Power station, 230 V / 50 Hz with cable for connection	711050
12 round vials with lid Height 48 mm, 24 mm Ø	197620
5 round vials with lid Height 48 mm, 24 mm Ø	197629
10 round vials with lid Height 90 mm, 16 mm Ø	197665
Vial stand for 6 round vials Ø 24 mm, acrylic glass	418951
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
W 100, rectangular cell optical glass OG, 10 mm path length	601040
W 100, rectangular cell optical glass OG, 50 mm path length	601070
W 110, rectangular cell Quartz-UV-glass, 10 mm path length	661130
Paper printer DPN 2335 with power pack (230 V, 50 Hz) connection cable and one paper roll	198075
Arsenic glass apparatus	370500
delivery content:	
Erlenmeyer flask	370501
Glass stopper	370502
Absorption tube	370503

additionally required (**not** included, please order separately):

W 100, cell, Optical-Glass-OG, 20 mm path length	601050

AQUALYTIC® AL800

Spectrophotometer 330 - 900 nm

complete with power supply unit (100-240 V, 50-60 Hz), two batteries for keeping data and serial cable for connection to a PC (D9F-D9M).

Order code: 4712000

AQUALYTIC® AL800

Spectrophotometer 330 - 900 nm

in case as above, with energy station, replacement lamp, 12 round vials with lid (height 48 mm, ø 24 mm),10 round vials with lid (height 90 mm, ø 16 mm), W 100 rectangular cell (50 mm path length),
W 100 rectangular cell (10 mm path length), plastic stirring rod, but without reagents.

Order code: 4712005

We would be pleased to quote a ready to use spectrophotometer unit for the parameters and required accessories.

Please see pages 34 onwards for tests, ranges and reagents

Reagents

Development

For more than thirty years, AQUALYTIC® has been manufacturing reagents for water testing and marketing these reagents around the world.

Different forms of reagents are required for different fields of application. It is fair to say that, in terms of quality, tablet reagents are the best form of reagent. Thanks to production techniques of the type used in the pharmaceutical industry and stringent internal quality standards, AQUALYTIC® is able to produce tablet reagents for water testing with a guaranteed shelf life of 5 or 10 years. These tablets are individually sealed in high-grade, polyethylene-coated aluminium foil and represent the reagent form of choice for everyday water testing applications.

Users in different countries traditionally prefer forms of reagent other than tablets. AQUALYTIC® powder reagents are designed to allow fast and easy testing.

Powder reagents are packed in aluminium foil for a wide range of applications and producers represent an alternative reagent form recently introduced by AQUALYTIC®.

Last but not least, liquid reagents are indispensable for many testing tasks. Testing for substances that are hard to detect, for parameters like total nitrogen, or for the aggregate parameter COD, require the use of a wide range of reagents in a form that permits more "aggressive" sample processing. The programme is rounded off by reagent tests and tube tests, making AQUALYTIC® the only reagent producer in the world that offers a complete range of reagent forms.

Tablet reagents

Our test tablets are manufactured in Germany under tightly controlled conditions on the latest machinery.

Maintaining the highest quality standards permits AQUALYTIC® to guarantee our reagent tablets for a minimum of 5 years, and some for as long as 10 years.

We can make this promise because each tablet is hermetically sealed within an individual aluminium foil pocket, protecting against challenging environmental conditions. This packaging keeps each tablet in perfect condition, right up until the time it is needed by the user.

Test tablets remain the most consistent and reliable reagent format available, consistently outperforming other reagent formats, and delivering maximum accuracy for the user.

Now we have improved even further on this highly successful format. To the tight quality control processes, integral to AQUALYTIC® tablet manufacture, and the simple test procedures, we have added new blister packaging.

Our new aluminium foil blister packaging brings added convenience to the tradition of protection achieved in AQUALYTIC® long established tablet production technology.

With the new blister strip, the user just pushes the tablet through the protective foil, straight into the sample. Simple, time-saving and practical.

This type of packaging, long established in pharmaceutical applications, combines all the advantages of protective foil, with convenience for the user.

Each tablet is contained within an individually formed foil cup, lined with the latest aluminium composite material, and guaranteeing product performance.

As a result of improved sealing efficiency, the blister pack has been reduced in size to 91 x 34mm making them even more convenient for storage and shipping.

'BT' is added to the end of the code to identify the new style of packaging. (For example – 4511060BT).

There are no safety risks if the tablets are used in line with the instructions supplied. Safety data sheets are available for all reagents.

Specifications and Certificate of Analysis

To express the high quality standard of AQUALYTIC® tablet reagents, specifications for each type of tablet as well as a "Certificate of Analysis" for each lot is available.

Tube tests

AQUALYTIC® tube tests enable the user to easily perform highly sensitive and precise water testing.

When using tube tests measurement is considerably faster and easier, particularly in the case of standard and serial tests.

The tube tests contain a precisely measured amount of reagent, thereby avoiding the presence of superfluous chemicals and optimising test safety.

Up to six different measuring ranges are available for the various tests.

The tubes are made of special optical glass with a 16 mm in diameter. They are supplied in a storage and dispatch box together with the digestion or auxiliary reagents. This packaging unit contains 24 or 25 reaction vials and up to 2 zero vials for photometer system calibration.

Liquid reagents

As a rule, liquid reagents do not consist of a single preparation but comprise several components that need to be added to the sample in a certain order. As both the size and the number of drops have a decisive effect on the resultant colour complex, the reagents need to be added with a high degree of precision.

The useful life of liquid reagents is reduced by temporary contact with oxygen in the air when the bottle is opened as well as by unsuitable storage environments (presence of sunlight or high temperatures). Provided that the bottles are stored within the temperature range +6°C to +10°C, the AQUALYTIC® DPD and Phenol Red solutions can be used for a period of one year from the production date.

VARIO Powder Packs

The fast and easy use of VARIO Powder Packs has made them extremely popular for water testing applications in many countries throughout the world.

The AQUALYTIC® Powder Pack programme provides more experienced users with a real alternative to existing measurement systems.

The Vario Powder Packs are produced to the same high quality standards that have made AQUALYTIC® tablet reagents so successful for several decades.

Parameters from aluminium and chlorine through to sulphate are just some of the well-known tests that are included in the VARIO Powder Pack range.

Their chemical properties make them compatible to Hach® devices.*

Detailed information see pages 54 - 61

Membrane filter set

For use when preparing samples for photometric measurements

Advantages

- removes turbid materials from samples
- differentiates between dissolved and total substances
- 0.45 µm mesh meets the requirements of the official German unitary procedure for water testing

To prevent the effects of light scatter, it must be ensured that all turbid materials are removed from the sample before photometric measurements are carried out. This can be achieved with the AQUALYTIC® membrane filter set. Where certain methods are employed (e.g., iron, manganese, COD, etc.) a membrane filter set must be used to differentiate samples in terms of dissolved and total substances. The filter mesh size of 0.45 µm is in accordance with the official German unitary procedure for water testing.

Order code: 366150
(covers 25 x 0.45 µm membrane filters and two 20 ml syringes)

* HACH® is a registered trademark of Hach Company, Loveland, Colorado. The use of the HACH® trademark does not imply any affiliation with or approval by Hach Company regarding the formulation, testing or compatibility of these products for use in HACH® brand spectrophotometers or other devices or systems.

Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Alkalinity-M	5 - 200 mg/l	610	610	610	610	615	Acid/Indicator [1, 2, 5]	24 mm ø
Alkalinity-M HR	5 - 500 mg/l	-	-	610	610	615	Acid/Indicator [1, 2, 5]	24 mm ø
Alkalinity-P	5 - 300 mg/l	-	-	560	560	551	Acid/Indicator [1, 2, 5]	24 mm ø
Aluminium VARIO	0.01 - 0.25 mg/l	530	-	530	530	535	Eriochrome cyanine R [2]	24 mm ø
Aluminium	0.01 - 0.3 mg/l	530	-	530	530	535	Eriochrome cyanine R [2]	24 mm ø
Ammonia	0.02 - 1 mg/l	610	-	610	610	676	Indophenole blue [2, 3]	24 mm ø
Ammonia VARIO	0.01 - 0.8 mg/l	660	-	660	660	655	Salicylate [2]	24 mm ø
Ammonia VARIO LR	0.02 - 2.5 mg/l	-	-	660	660	655	Salicylate [2]	16 mm ø
Ammonia VARIO HR	1 - 50 mg/l	-	-	660	660	655	Salicylate [2]	16 mm ø
Arsenic (III, IV)	0.02 - 0.6 mg/l	-	-	-	-	507	Silver diethyldithiocarbamate[1]	20 mm ❑
Biguanide (see PHMB)								
Boron	0.1 - 2 mg/l	-	-	430	430	450	Azomethine [3]	24 mm ø

Material safety data sheets: www.aqualytic.de

For other reagent quantities please see our current price list.

Legend

[1] Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlamm- Untersuchung
[2] Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992
[3] Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989
[4] Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980
[5] Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
$CaCO_3$	ALKA-M-PHOTOMETER	Tablet / 100	4513210BT
$CaCO_3$	ALKA-M-HR-PHOTOMETER	Tablet / 100	4513240BT
$CaCO_3$	ALKA-P-PHOTOMETER	Tablet / 100	4513230BT
Al	VARIO Aluminum ECR/F20 VARIO Aluminum Hexamine/F20 VARIO Aluminum ECR Masking Reagent	Powder Pack / 100 Powder Pack / 100 Liquid reagent / 25 ml **Set**	 4535000
Al	ALUMINIUM No. 1 ALUMINIUM No. 2 Combi pack# ALUMINIUM No.1 / No.2 Combi pack# ALUMINIUM No.1 / No.2	Tablet / 100 Tablet / 100 each 100 each 250	4515460BT 4515470BT 4517601BT 4517602BT
N	AMMONIA No. 1 AMMONIA No. 2 Combi pack# AMMONIA No.1 / No.2 Combi pack# AMMONIA No.1 / No.2 Ammonia conditioning powder (for seawater)	Tablet / 100 Tablet / 100 each 100 each 250 Powder / 15 g / 50 Tests	4512580BT 4512590BT 4517611BT 4517612BT 460170
N	VARIO Ammonia Salicylate F10 VARIO Ammonia Cyanurate F10	Powder Pack / 100 Powder Pack / 100 **Set**	 4535500
N	VARIO Ammonia Salicylate F5 VARIO Ammonia Cyanurate F5 VARIO Am Diluent Reagent LR VARIO Deionised Water (for Zero)	Powder Pack / 50 Powder Pack / 50 Reaction tube / 50 Bottle, 100 ml **Set** (Tube test)	 4535600
N	VARIO Ammonia Salicylate F5 VARIO Ammonia Cyanurate F5 VARIO Am Diluent Reagent HR VARIO Deionised Water (for Zero)	Powder Pack / 50 Powder Pack / 50 Reaction tube / 50 Bottle, 100 ml **Set** (Tube test)	 4535650
As	for chemicals see manual, reagents at specialized chemistry dealer		
B	BORON No. 1 BORON No. 2 Combi pack# BORON No.1 / No.2 Combi pack# BORON No.1 / No.2	Tablet / 100 Tablet / 100 each 100 each 200	4515790 4515800BT 4517681BT 4517682BT

[a] determination of free, combined and total
[b] Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)
[c] AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)
[d] Spectroquant® is a Merck KGaA Trademark
[e] alternative reagent, used instead of DPD No.1 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity
[f] additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine
[g] Reagent recovers most insoluble iron oxides without digestion
[h] additionally required for samples with hardness values above 300 mg/l $CaCO_3$
[i] high range by dilution
[j] Vacu-vials® is a Chemetrics Trademark
including stirring rod

Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Bromine	0.05 - 13 mg/l 0.05 - 1 mg/l 0.1 - 3 mg/l 0.05 - 6.5 mg/l	530 - - -	530 - - -	530 - - -	530 - - -	- 510 510 510	DPD [5]	24 mm ø 50 mm □ 10 mm □ 24 mm ø
Bromine VARIO	0.05 - 4.5 mg/l	-	-	530	530	-	DPD [1, 2]	24 mm ø
Cadmium (Cd^{2+})	0.025 - 0.75 mg/l	-	-	-	-	525	Cadion	16 mm ø
Chloride	0.5 - 25 mg/l 5 - 250 mg/l [i)]	530 530	- -	530 -	530 -	450 -	Silver nitrate/turbidity	24 mm ø
Chloride	5 - 60 mg/l	-	-	-	-	455	Iron (III)-thiocyanate [4]	24 mm ø
Chloride	0.5 - 20 mg/l	430	-	430	-	-	Mercury thiocyanate / Iron nitrate	24 mm ø
Chlorine [a)]	0.01 - 6 mg/l 0.02 - 0.5 mg/l 0.1 - 6 mg/l 0.02 - 3 mg/l	530 - - -	530 - - -	530 - - -	530 - - -	- 510 510 510	DPD [1, 2]	24 mm ø 50 mm □ 10 mm □ 24 mm ø
Chlorine HR (DPD) [a)]	0.1 - 10 mg/l	530	530	530	530	530	DPD [1, 2]	24 mm ø
Chlorine [a)]	0.02 - 4 mg/l 0.02 - 3 mg/l	530	530	530	530	- 510	DPD [1, 2]	24 mm ø 24 mm ø
Chlorine VARIO [a)]	0.02 - 2 mg/l 0.1 - 8 mg/l	530 530	- -	530 530	530 -	510 -	DPD [1, 2]	24 mm ø 24 mm ø multy via
Chlorine HR (KI)	5 - 200 mg/l	530	-	530	530	470	KI / Acid [5]	16 mm ø

Material safety data sheets: www.aqualytic.de

For other reagent quantities please see our current price list.

Legend

[1] Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlamm- Untersuchung
[2] Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992
[3] Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989
[4] Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980
[5] Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
Br	DPD No. 1	Tablet / 100	511050BT
	DPD No. 3	Tablet / 100	511080BT
	Combi pack# DPD No.1 / No.3	each 100	517711BT
	Combi pack# DPD No.1 / No.3	each 250	517712BT
	DPD No. 1 HIGH CALCIUM [e]	Tablet / 100	515740BT
	DPD No. 3 HIGH CALCIUM [e]	Tablet / 100	515730BT
	Combi pack# DPD No.1 / No.3 HIGH CALCIUM [e]	each 100	517781BT
	Combi pack# DPD No.1 / No.3 HIGH CALCIUM [e]	each 250	517 82BT
	DPD Nitrite	Tablet / 100	502691
	GLYCINE [f]	Tablet / 100	512170BT
	Combi pack# DPD No.1 / GLYCINE	each 100	517731BT
	Combi pack# DPD No.1 / GLYCINE	each 250	517732BT
Br	VARIO Chlorine TOTAL-DPD/F10	Powder Pack / 100	530120
Cd	Spectroquant® 1.14834.0001[d]	Tube test / 25	420750
Cl	CHLORIDE T1	Tablet / 100	515910BT
	CHLORIDE T2	Tablet / 100	515920BT
	Combi pack# CHLORIDE T1 / T2	each 100	517741BT
	Combi pack# CHLORIDE T1 / T2	each 250	517742BT
Cl	Chlorid-51 / Chlorid-52	Reagent test (Liquid reagent) approx. 50-75 Tests	419031
Cl^-	KS251 (Chloride Reagent A)	Liquid reagent / 65 ml	56L025165
	KS253 (Chloride Reagent B)	Liquid reagent / 65 ml	56L025365
		Set	56R018490
Cl_2	DPD No. 1	Tablet / 100	511050BT
	DPD No. 3	Tablet / 100	511080BT
	Combi pack# DPD No.1 / No.3	each 100	517711BT
	Combi pack# DPD No.1 / No.3	each 250	517712BT
	DPD No. 1 HIGH CALCIUM [e]	Tablet / 100	515740BT
	DPD No. 3 HIGH CALCIUM [e]	Tablet / 100	515730BT
	Combi pack# DPD No.1 / No.3 HIGH CALCIUM [e]	each 100	517781BT
	Combi pack# DPD No.1 / No.3 HIGH CALCIUM [e]	each 250	517782BT
Cl_2	DPD No. 1 HR	Tablet / 100	511500BT
	DPD No. 3 HR	Tablet / 100	511590BT
Cl_2	DPD 1 Buffer solution	Liquid reagent / 15 ml	471010
	DPD 1 Reagent solution	Liquid reagent / 15 ml	471020
	DPD 3 Solution	Liquid reagent / 15 ml	471030
		Set	471056
Cl_2	VARIO Chlorine FREE-DPD/F10	Powder Pack / 100	530100
	VARIO Chlorine TOTAL-DPD/F10	Powder Pack / 100	530120
Cl_2	ACIDIFYING GP	Tablet / 100	515480
	CHLORINE HR (KI)	Tablet / 100	513000
	Combi pack CHLORINE HR (KI)/ACIDIFYING GP	each 100	517721
	Combi pack# CHLORINE HR (KI)/ACIDIFYING GP	each 250	517722

[a] determination of free, combined and total
[b] Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)
[c] AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)
[d] Spectroquant® is a Merck KGaA Trademark
[e] alternative reagent, used instead of DPD No.1 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity
[f] additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine
[g] Reagent recovers most insoluble iron oxides without digestion
[h] additionally required for samples with hardness values above 300 mg/l $CaCO_3$
[i] high range by dilution
[j] Vacu-vials® is a Chemetrics Trademark
including stirring rod

Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Chlorine dioxide	0.02 - 11 mg/l 0.05 - 1 mg/l 0.05 - 2.5 mg/l	530 - -	530 - -	530 - -	530 - -	- 510 510	DPD/Glycine [1,2]	24 mm ø 50 mm □ 24 mm ø
Chlorine dioxide VARIO	0.04 - 3.8 mg/l	530	-	530	530	-	DPD [1, 2]	24 mm ø
Chromium (III, VI) [b)]	0.005 - 0.5 mg/l 0.02 - 2 mg/l	- -	- -	- 530	- -	542 542	1,5-Diphenylcarbozide[1, 2]	50 mm ❑ 16 mm ø
COD LR (ISO 15705:2002)[b)]	0 - 150 mg/l	430	430	430	430	420	Dichromate / H_2SO_4 [1, 2]	16 mm ø
COD MR (ISO 15705:2002)[b)]	0 - 1500 mg/l	610	610	610	610	620	Dichromate / H_2SO_4 [1, 2]	16 mm ø
COD HR [b)]	0 - 15000 mg/l	610	610	610	610	620	Dichromate / H_2SO_4 [1, 2]	16 mm ø
Copper [a)]	0.05 - 5 mg/l 0.05 - 1 mg/l 0.3 - 5 mg/l 0.5 - 5 mg/l	560 - 530 -	560 - - -	560 - - -	560 - - -	- 559 - 559	Biquinoline [4]	24 mm ø 50 mm o 24 mm ø 24 mm ø
Copper free	0.02 - 1 mg/l	-	-	-	-	-	Zincon [3] / EDTA	24 mm ø
Copper [a)]	0.05 - 4 mg/l	-	-	560	-	-	Bicinchoninate	24 mm ø
Copper, free VARIO	0.05 - 5 mg/l	560	-	560	560	560	Bicinchoninate	24 mm ø
Cyanide	0.01 - 0.5 mg/l 0.005 - 0.2 mg/l	- -	- -	580 -	580 -	585 585	Pyridine-barbituric acid [1]	24 mm ø 50 mm ❑
Cyanuric acid	0 - 160 mg/l	530	530	530	530	530	Melamine	24 mm ø
DEHA	20 - 500 µg/l	-	-	560	560	562	PPST [3]	24 mm ø

Material safety data sheets: www.aqualytic.de

For other reagent quantities please see our current price list.

Legend

[1] Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlamm- Untersuchung
[2] Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992
[3] Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989
[4] Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980
[5] Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
ClO_2	DPD No. 1	Tablet / 100	4511050BT
	DPD No. 3	Tablet / 100	4511080BT
	Combi pack# DPD No.1 / No.3	each 100	4517711BT
	Combi pack# DPD No.1 / No.3	each 250	4517712BT
	GLYCINE [f]	Tablet / 100	4512170BT
	Combi pack# DPD No.1 / GLYCINE	each 100	4517731BT
	Combi pack# DPD No.1 / GLYCINE	each 250	4517732BT
	DPD No. 1 HIGH CALCIUM [e]	Tablet / 100	4515740BT
	DPD No. 3 HIGH CALCIUM [e]	Tablet / 100	4515730BT
	Combi pack# DPD No.1 / No.3 HIGH CALCIUM [e]	each 100	4517781BT
	Combi pack# DPD No.1 / No.3 HIGH CALCIUM [e]	each 250	4517782BT
ClO_2	VARIO Chlorine FREE-DPD/F10	Powder Pack / 100	4530100
	GLYCINE [f]	Tablet / 100	4512170BT
Cr^{6+} 24 mm ø	PERSULF. RTG FOR CR	Powder Pack / 100	4537300
	Chromium Hexavalent	Powder Pack /100	4537310
O_2	Reaction tube 0-150 mg/l	Tube test / 25	420720
	Reaction tube 0-150 mg/l, mercury free	Tube test / 25	420710
O_2	Reaction tube 0-1500 mg/l	Tube test / 25	420721
	Reaction tube 0-1500 mg/l, mercury free	Tube test / 25	420711
O_2	Reaction tube 0-15000 mg/l	Tube test / 25	420722
	Reaction tube 0-15000 mg/l, mercury free	Tube test / 25	420712
Cu	COPPER No. 1	Tablet / 100	4513550BT
	COPPER No. 2	Tablet / 100	4513560BT
	Combi pack# COPPER No.1 / No.2	each 100	4517691BT
	Combi pack# COPPER No.1 / No.2	each 250	4517692BT
Cu	COPPER/ZINC LR	Tablet / 100	4512620
	EDTA	Tablet / 100	4512390
	DECHLOR (in case of high levels of residual chlorine)	Tablet / 100	4512350
Cu	KS240 (Coppercol Reagent 1)	Liquid reagent / 30 ml	56L024030
	KS241 (Coppercol Reagent 2)	Liquid reagent / 30 ml	56L024130
	KS242 (Coppercol Reagent 3)	Powder / 10 g	56L024210
	COPPER No.2	Tablet / 100	4513560BT
		Set	56R023355
Cu	Vario Cu 1 F10	Powder Pack / 100	4530300
CN	Cyanid-11 / Cyanid-12 / Cyanid-13	Reagent test (Powder, Liquid reagent) / 200 Tests	418875
Cys	CyA-TEST	Tablet / 100	4511370BT
DEHA	DEHA Solution	Liquid reagent / 100 ml	461181
	DEHA	Tablet / 100	4513220

[a] determination of free, combined and total
[b] Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)
[c] AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)
[d] Spectroquant® is a Merck KGaA Trademark
[e] alternative reagent, used instead of DPD No.1 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity
[f] additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine
[g] Reagent recovers most insoluble iron oxides without digestion
[h] additionally required for samples with hardness values above 300 mg/l $CaCO_3$
[i] high range by dilution
[j] Vacu-vials® is a Chemetrics Trademark
[#] including stirring rod

Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
DEHA VARIO	20 - 500 µg/l	560	-	560	560	562	PPST [3]	24 mm ø
Fluoride	0.05 - 2 mg/l 0.05 - 1.5 mg/l	580 -	- -	580 -	580 -	- 580	SPADNS [2]	24 mm ø
Formaldehyde	1 - 5 mg/l 0.02 - 1 mg/l	- -	- -	- -	- -	585 585	H_2SO_4/ Chromotropic acid	10 mm ❑ 50 mm ❑
Formaldehyde	0.1 - 5 mg/l	-	-	-	-	575	H_2SO_4/ Chromotropic acid	16 mm ø
Hardness, calcium	50 - 900 mg/l	-	-	560	560	-	Murexide [4]	24 mm ø
Hardness, calcium	0 - 500 mg/l	560	560	560	560	-	Murexide [4]	24 mm ø
Hardness, total	2 - 50 mg/l 20 - 500 mg/l [i)]	560 560	- -	560 560	560 560	571 571	Metallphthalein [3]	24 mm ø
Hazen (Pt-Co-units ; APHA)	0 - 500 mg/l 0 - 500 mg/l	430 -	- -	430 -	430 -	- 455	Direct reading [1, 2]	24 mm ø 50 mm ❑
Hydrazine	0.05 - 0.5 mg/l	430	-	430	430	455	Dimethylamino-benzaldehyde [3]	24 mm ø
Hydrazine	0.01 - 0.6 mg/l 0.005 - 0.6 mg/l	- -	- -	430 -	430 -	- 455	Dimethylamino-benzaldehyde [3]	24 mm ø
Hydrazine [c)]	0.01 - 0.7 mg/l	-	-	430	430	-	PDMAB	24 mm ø
Hydrogen peroxide	0.03 - 3 mg/l 0.01 - 0.5 mg/l 0.03 - 1.5 mg/l	- - -	- - -	530 - -	530 - -	- 510 510	DPD/Catalyst [5]	24 mm ø 50 mm ❑ 24 mm ø
Hydrogen peroxide	1 - 50 mg/l 40 - 500 mg/l [i)]	- -	430 530	430 530	430 530	- -	Peroxotitanium acid	24 mm ø
Iodine	0.05 - 3.6 mg/l	-	-	530	530	510	DPD [5]	24 mm ø
Iron (II, III) soluble	0.02 - 1 mg/l 0.01 - 0.5 mg/l 0.1 - 1 mg/l	560 - -	560 - -	560 - -	560 - -	- 562 562	PPST [3]	24 mm ø 50 mm ❑ 10 mm ❑

Material safety data sheets: www.aqualytic.de

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Display	Reagent	Form of reagent/Quantity	Order code
DEHA	VARIO OXYSCAV 1 RGT VARIO DEHA 2 RGT	Powder Pack / 200 Solution / 100 ml **Set**	 4536000
F	SPADNS Reagent Fluoride Standard Reagent solution and standard required	Liquid reagent / 250 ml Liquid reagent / 500 ml Solution / 30 ml	4467481 4467482 205630
HCHO	Spectroquant® 1.14678.0001[d)]	Reagent test / ca. 50-75 Tests	420751
HCHO	Spectroquant® 1.14500.0001[d)]	Tube test / 25	420752
$CaCO_3$	CALCHECK	Tablet / 100	4515650BT
$CaCO_3$	Combi pack# CALCIO H No.1 / No.2 Combi pack# CALCIO H No.1 / No.2	each 100 each 250	4517761BT 4517762BT
$CaCO_3$	HARDCHECK P	Tablet / 100 Tablet / 250	4515660BT 4515661BT
Pt-Co-units	no reagents required	-	-
N_2H_4	Hydrazine Test Powder Spoon	Powder / 30 g	462910 384930
N_2H_4	VARIO Hydra 2 Rgt Solution	Solution / 100 ml	4531200
N_2H_4	Vacu-vial® [j)]	Test Kit / 30 Adapter for Vacu-vials® [j)]	380470 192075
H_2O_2	HYDROGENPEROXIDE LR	Tablet / 100	4512380BT
H_2O_2	H_2O_2 reagent solution	Liquid reagent / 15 ml	424991
I	DPD No. 1	Tablet / 100	4511060BT
Fe	IRON LR (Fe^{2+} and Fe^{3+}) IRON (II) LR (Fe^{2+})	Tablet / 100 Tablet / 100	4515370BT 4515420BT

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[c)] AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)
[d)] Spectroquant® is a Merck KGaA Trademark
[e)] alternative reagent, used instead of DPD No.1 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity
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[g)] Reagent recovers most insoluble iron oxides without digestion
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[i)] high range by dilution
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[#] including stirring rod

Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Iron VARIO (II, III) soluble	0.02 - 3 mg/l 0.1 - 3 mg/l	530 -	- -	530 -	530 -	- 510	1,10-Phenanthroline [2]	24 mm ø
Iron VARIO, total [g)]	0.02 - 1.8 mg/l 0.1 - 1.8 mg/l	580 -	- -	580 -	580 -	- 590	TPTZ [g)]	24 mm ø
Iron LR	0.03 - 2.0 mg/l 0.03 - 2.0 mg/l	560 530	-	560	-	-	Ferrozine / Thioglycolate	24 mm ø
Iron LR 2	0.03 - 2.0 mg/l	-	-	560	-	-	Ferrozine / Thioglycolate	24 mm ø
Iron HR	0.1 - 10 mg/l	-	-	560	-	-	Thioglycolate	24 mm ø
Lead (Pb^{2+})	0.1 - 5 mg/l	-	-	-	-	520	4-(2-Pyridylazo)-resorcin	10 mm ❑
Lead (Pb^{2+})	0.1 - 5 mg/l	-	-	-	-	515	4-(2-Pyridylazo)-resorcin	16 mm ø
Manganese	0.2 - 4 mg/l	530	-	530	530	450	Formaldoxime	24 mm ø
Manganese VARIO LR	0.01 - 0.7 mg/l	560	-	560	560	558	PAN	24 mm ø
Manganese VARIO HR	0.1 - 18 mg/l	530	-	530	530	525	Periodate oxidation [2]	24 mm ø
Manganese	0.05 - 5 mg/l	-	-	430	-	-	Formaldoxime	24 mm ø
Molybdate / Molybdenum	1 - 50 mg/l 1 - 30 mg/l 0.6 - 30 mg/l	- - 430	- - -	430 - -	430 - -	- 366 -	Thioglycolate [4]	24 mm ø

Material safety data sheets: www.aqualytic.de

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Display	Reagent	Form of reagent/Quantity	Order code
Fe	VARIO Ferro F10	Powder Pack / 100	4530560
Fe	VARIO TPTZ F10	Powder Pack / 100	4530550
Fe	KS61 (Ferrozine / Thioglycolate)	Liquid reagent / 65 ml	56L006165
	KS63 (Thioglycolate)	Liquid reagent / 65 ml	56L006365
		Set	56R018990
	KT274 (Ammonia / Persulphate)	Tablet / 50	56T027450
	KT135 (Phenolphthalein Indicator)	Liquid reagent / 65 ml	56L013565
	KS144 (Calcium Hardness Buffer)		56L014465
Fe	KS60 FE1 (Acetate Buffer)	Liquid reagent / 65 ml	56L006065
	KS63 FE6 (Thioglycolate Reagent)	Liquid reagent / 65 ml	56L006365
	KS65 FE7 (Ferrozine Reagent)	Liquid reagent / 65 ml	56L006565
		Set	56R023490
Fe	KS160 TH2 FE8 (Total Hardness Buffer)	Liquid reagent / 65 ml	56L016065
	KS63 FE6 (Thioglycolate Reagent)	Liquid reagent / 65 ml	56L006365
		Set	56R023590
Pb	Spectroquant® 1.09717.0001[d]	Reagent test / 50 Tests	420753
Pb	Spectroquant® 1.14833.0001[d]	Tube test / 25	420754
Mn	MANGANESE LR 1	Tablet / 100	4516080BT
	MANGANESE LR 2	Tablet / 100	4516090BT
	Combi pack# MANGANESE LR 1 / LR 2	each 100	4517621BT
	Combi pack# MANGANESE LR 1 / LR 2	each 250	4517622BT
Mn	VARIO Ascorbic Acid	Powder Pack / 100	
	VARIO Alkaline-Cyanide	Liquid reagent / 60 ml	
	VARIO PAN Indicator	Liquid reagent / 60 ml	
		Set	4535090
	VARIO Rochelle Salt Solution [h]	30 ml	4530640
Mn	VARIO Manganese Citrate Puffer F10	Powder Pack / 100	
	VARIO Sodiumperiodate F10	Powder Pack / 100	
		Set	4535100
Mn	KS265 Manganese Reagent A	Liquid reagent / 30 ml	56L026530
	KS266 Manganese Reagent B	Liquid reagent / 30 ml	56L026630
	KS267 Manganese Reagent C	Liquid reagent / 30 ml	56L030430
		Set	56R024055
MoO_4	MOLYBDATE No.1 HR	Tablet / 100	4513060BT
	MOLYBDATE No.2 HR	Tablet / 100	4513070BT
	Combi pack# MOLYBDATE No.1 HR / No.2 HR	each 100	4517631BT
	Combi pack# MOLYBDATE No.1 HR / No.2 HR	each 250	4517632BT

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Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Molybdate / Molybdenum VARIO LR	0.5 - 5 mg/l 0.03 - 3 mg/l	- 610	- -	610 -	610 -	610 -	Mercaptoacetic acid	24 mm ø
Molybdate / Molybdenum VARIO HR	0.5 - 66 mg/l 0.3 - 40 mg/l	- 430	- -	430 -	430 -	420 -	Mercaptoacetic acid	24 mm ø
Molybdate / Molybdenum HR	1 - 100 mg/l 0.6 - 60 mg/l	- 430	- -	430 -	- -	- -	Thioglycolate [4]	24 mm ø
Nickel	0.02 - 1 mg/l 0.2 - 7 mg/l	- -	- -	- -	- -	443 443	Dimethylglyoxime [2, 3]	50 mm ❑ 24 mm ø
Nickel	0.1 - 10 mg/l	-	-	560	560	-	Nioxime	24 mm ø
Nitrate	0.08 - 1 mg/l	-	-	530	-	-	Zinc reduction / NED	24 mm ø
Nitrate VARIO	1 - 30 mg/l	-	-	430	430	410	Chromotropic acid	16 mm ø
Nitrate	0.5 - 14 mg/l	-	-	-	-	340	2,6-Dimethylphenole [3]	16 mm ø
Nitrite	0.01 - 0.5 mg/l	-	-	560	560	545	N-(1-Naphthyl)-ethylenediamine [2,3]	24 mm ø
Nitrite	0.03 - 0.6 mg/l 0.3 - 3 mg/l	- -	- -	- -	- -	545 545	Sulfanilic/Naphthylamine [1]	16 mm ø
Nitrite LR VARIO	0.01 - 0.3 mg/l	-	-	530	530	507	Diazotation	24 mm ø
Nitrogen-total [b)]	0.5 - 14 mg/l 5 - 140 mg/l i)	-	-	-	-	340	2,6-Dimethylphenole 2,3	16 mm ø
Nitrogen VARIO, total LR [b)]	0.5 - 25 mg/l	-	-	430	430	410	Persulphate-digestion method	16 mm ø

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Display	Reagent	Form of reagent/Quantity	Order code
MoO_4 Mo	VARIO Molybdenum 1 LR F20 VARIO Molybdenum 2 LR required accessory: mixing cylinder (not included)	Powder Pack / 100 Liquid reagent/ 50 ml **Set**	 4535450
MoO_4	VARIO Molybdenum HR1 F10 VARIO Molybdenum HR2 F10 VARIO Molybdenum HR3 F10	Powder Pack / 100 Powder Pack / 100 Powder Pack / 100 **Set**	 4535300
MoO_4	KS63 (Thioglycolate Reagent)	Liquid reagent / 65 ml	56L006365
Ni	Nickel-51, Nickel-52	Reagent test (Powder, Liquid reagent) / 50 Tests	419033
Ni	NICKEL No.1 NICKEL No.2	Tablet / 100 Tablet / 100	4515630BT 4515640BT
N	NITRATE TEST Powder NITRATE TEST Tablet NITRITE LR Nitratete test tube	Powder / 15 g Tablet / 100 Tablet / 100	465230 502810 4512310BT 366220
N	VARIO Nitrate Chromotropic VARIO Nitra X Reagent tube VARIO Deionised Water (for Zero)	Powder Pack / 50 Reaction tube / 50 Bottle, 100 ml **Set** (Tube test)	 4535580
N	Reaction tube, Nitrat-111	Tube test Liquid reagent / 24	420702
N	NITRITE LR	Tablet / 100	4512310BT
N	Reaction tube, Nitrit-101	Tube test (Powder) / 24	419018
N	VARIO Nitri 3	Powder Pack / 100	4530980
N	Digestion reagent, Compensation reagent, Nitrat-111	Tube test (Powder, Liquid reagent) / 24	420703
N	VARIO TN HYDROX. LR Tubes VARIO PERSULFATE Reagent VARIO TN Reagent A VARIO TN Reagent B VARIO TN ACID LR/HR Tubes VARIO Deionised Water (for Zero)	Digestion tubes / 50 Powder Pack / 50 Powder Pack / 50 Powder Pack / 50 Reaction tubes / 50 Bottle, 100 ml **Set** (Tube test)	 4535550

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Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Nitrogen VARIO, total HR [b]	5 - 150 mg/l	-	-	430	430	410	Persulphate-digestion method	16 mm ø
Oxygen, activ	0.1 - 10 mg/l	-	-	530	530	-	DPD	
Oxygen, dissolved [c]	10 - 800 µg/l	530	-	530	530	-	Rhodazine D ™	
Ozone	0.02 - 1 mg/l 0.02 - 0.5 mg/l 0.02 - 2 mg/l	- - 530	- - -	- - 530	- - 530	510 510 -	DPD/Glycine [5]	24 mm ø 50 mm ❑ 24 mm ø
Phenols	0.1 - 5 mg/l	-	-	-	-	507	4-Aminoantipyrine [1]	24 mm ø
PHMB (Biguanide)	2 - 60 mg/l	-	-	560	560	-	Buffer/Indicator	24 mm ø
Phosphate-total LR [b]	0.07 - 3 mg/l 0.2 - 10 mg/l	- -	- -	- -	- -	690 690	Phosphomolybdic acid/ Ascorbic acid [2]	16 mm ø
Phosphate-total HR [b]	1.5 - 20 mg/l 5 - 60 mg/l	- -	- -	- -	- -	690 690	Phosphomolybdic acid/ Ascorbic acid [2]	16 mm ø
Phosphate LR, ortho	0.05 - 4 mg/l	660	-	660	660	710	Phosphomolybdic acid/ Ascorbic acid [2]	24 mm ø
Phosphate HR, ortho	1 - 80 mg/l	-	-	430	430	470	Vanadomolybdate [2]	24 mm ø
Phosphate VARIO ortho	0.06 - 2.5 mg/l	660	-	660	660	890	Phosphomolybdic acid/ Ascorbic acid [2]	24 mm ø
Phosphate VARIO ortho	0.06 - 5 mg/l	-	-	660	660	890	Phosphomolybdic acid/ Ascorbic acid [2]	16 mm ø

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Display	Reagent	Form of reagent/Quantity	Order code
N	VARIO TN HYDROX. HR Tubes VARIO PERSULFATE Reagent VARIO TN Reagent A VARIO TN Reagent B VARIO TN ACID LR/HR Tubes VARIO Deionised Water (for Zero)	Digestion tubes / 50 Powder Pack / 50 Powder Pack / 50 Powder Pack / 50 Reaction tubes / 50 Bottle, 100 ml **Set** (Tube test)	 4535560
O_2	DPD No. 4	Tablet / 100	4511220BT
O_2	Vacu-vial® [j]	Liquid reagent / 30 Adapter for Vacu-vials® [j]	380450 192075
O_3	DPD No. 1 DPD No. 3 Combi pack# DPD No.1 / No.3 Combi pack# DPD No.1 / No.3 GLYCINE [f] Combi pack# DPD No.1 / GLYCINE Combi pack# DPD No.1 / GLYCINE	Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100 each 100 each 250	4511060BT 4511080BT 4517711BT 4517712BT 4512170BT 4517731BT 4517732BT
$C_6H_5O_H$	PHENOLE No. 1 PHENOLE No. 2	Tablet / 100 Tablet / 100	4515950 4515960BT
PHMB	PHMB PHOTOMETER	Tablet / 100	4516100BT
P PO_4	Reaction tube, Phosphat-101, Phosphat- 102, Phosphat-103	Tube test (Powder, Liquid reagent) / 24	419019
P PO_4	Reaction tube, Phosphat-101, Phosphat-102, Phosphat-103	Tube test (Powder, Liquid reagent) / 24	420700
PO_4	PHOSPHATE No. 1 LR PHOSPHATE No. 2 LR Combi pack# PHOSPHATE No.1 LR / No.2 LR	Tablet / 100 Tablet / 100 each 100	4513040BT 4513050BT 4517651BT
PO_4	PHOSPHATE No. 1 HR PHOSPHATE No. 2 HR Combi pack# PHOSPHATE No.1 HR / No.2 HR	Tablet / 100 Tablet / 100 each 100	4515810BT 4515820BT 4517661BT
PO_4	VARIO PHOSPHATE RGT, F10	Powder Pack / 100	4531550
PO_4	VARIO Dilution Vial VARIO PHOSPHATE RGT, F10 VARIO Deionised Water (for Zero)	50 Tubes Powder Pack / 50 Bottle, 100 ml **Set** (Tube test)	 4535200

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Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Phosphate-ortho	3 - 60 mg/l	-	-	-	-	438	Vanadomolybdate [2]	16 mm ø
Phosphate VARIO [b] acid hydrolyzable and total	acid hydrolyzable: 0.02 - 1.6 mg/l 0.06 - 5 mg/l total: 0.02 - 1.1 mg/l 0.06 - 3.5 mg/l	-	-	660	660	890	Acid digestion Phosphomolybdic acid/ Ascorbic acid [2] Acid-/ Persulphate digestion Phosphomolybdic acid/ Ascorbic acid [2]	16 mm ø 16 mm ø
Phosphate VARIO total [b]	0.02 - 1.1 mg/l 0.06 - 3.5 mg/l	-	-	660	660	890	Acid-/ Persulphate digestion Phosphomolybdic acid/ Ascorbic acid [2]	16 mm ø 16 mm ø
Phosphate, ortho [c]	5 - 40 mg/l	-	-	430	430	-	Vanadomolybdate [2]	
Phosphate, ortho [c]	0.05 - 5 mg/l	-	-	660	660	-	Stannous chloride [2]	
Phosphate LR	0.1 - 10 mg/l	-	-	660	-	-	Phosphomolybdic acid/ Ascorbic acid [2]	24 mm ø
Phosphate HR	5 - 80 mg/l	430	-	430	-	-	Vanadomolybdate [2]	24 mm ø
Phosphonate VARIO	0.02 - 125 mg/l	-	-	660	660	660	Persulfate UV-Oxidation	24 mm ø
pH value	5.2 - 6.8	-	-	560	560	-	Bromcresol purple [5]	24 mm ø
pH value	6.5 - 8.4	560	560	560	560	558	Phenol red [5]	24 mm ø
pH value	6.5 - 8.4	560	560	560	560	558	Phenol red [5]	24 mm ø
pH value	8.0 - 9.6	-	-	560	560	-	Thymol blue [5]	24 mm ø

Material safety data sheets: www.aqualytic.de

For other reagent quantities please see our current price list.

Legend

[1] Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlamm- Untersuchung
[2] Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992
[3] Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989
[4] Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980
[5] Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
PO_4	Reaction tube	Tube test / 24	420701
	VARIO Acid Reagent Vial	50 Tubes	
P	VARIO PHOSPHATE RGT, F10	Powder Pack / 50	
PO_4	VARIO Deionised Water (for Zero)	Bottle, 100 ml	
	1N NaOH	Bottle / 100 ml	
P	1,54 N NaOH	Bottle / 100 ml	
PO_4	VARIO Potassium Persulfate F10	Powder Pack / 50	
		Set (Tube test)	4535250
P	VARIO Acid Reagent Vial	50 Tubes	
	VARIO PHOSPHATE RGT, F10	Powder Pack / 50	
PO_4	VARIO Deionised Water (for Zero)	Bottle, 100 ml	
	1,54 N NaOH	Bottle / 100 ml	
	VARIO Potassium Persulfate F10	Powder Pack / 50	
		Set (Tube test)	4535210
PO_4	Vacu-vial® [j]	Test Kit / 30	380460
		Adapter for Vacu-vials® [j]	192075
PO_4	Vacu-vial® [j]	Test Kit / 30	380480
		Adapter for Vacu-vials® [j]	192075
PO_4	KS80 (CRP Reagent)	Liquid reagent / 2 x 65 ml	56L008065
	KP119 (Ascorbic acid)	Powder / 20 g	56P011920
		Set	56R023765
PO_4	KS228 (Ammonia Molybdate)	Liquid reagent / 65 ml	56L022865
	KS229 (Ammonia Metavanadate)	Liquid reagent / 65 ml	56L022965
		Set	56R019090
	KS278 (50 % Sulfuric Acid)	Liquid reagent / 65 ml	56L027865
	KS135 (Phenolphthalein Indicator)	Liquid reagent / 65 ml	56L013565
	KS144 (Calcium Hardness Puffer)	Liquid reagent / 65 ml	56L014465
	KT274 (Ammonium Persulfate Tablette)	Liquid reagent / 65 ml	56T027450
PO_4	VARIO Potassium Persulfate F10	Powder Pack / 100	
	VARIO PHOSPHATE RGT, F10	Powder Pack / 200	
		Set	4535220
pH	BROMOCRESOLPURPLE/PHOTOMETER	Tablet / 100	4515700BT
pH	PHENOLRED / PHOTOMETER	Tablet / 100	4511770BT
pH	PHENOLRED Solution	Liquid reagent / 15 ml	471040
pH	THYMOLBLUE / PHOTOMETER	Tablet / 100	4515710

[a] determination of free, combined and total
[b] Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)
[c] AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)
[d] Spectroquant® is a Merck KGaA Trademark
[e] alternative reagent, used instead of DPD No.1 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity
[f] additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine
[g] Reagent recovers most insoluble iron oxides without digestion
[h] additionally required for samples with hardness values above 300 mg/l $CaCO_3$
[i] high range by dilution
[j] Vacu-vials® is a Chemetrics Trademark
[#] including stirring rod

Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Polyacrylates	1 - 30 mg/l	530	-	660	-	-	Turbidity	24 mm ø
Potassium	0.7 - 12 mg/l 1 - 10 mg/l	- -	- -	430 -	430 -	- 730	Tetraphenylborate-Turbidity [4]	24 mm ø 24 mm ø
Silica	0.05 - 4 mg/l 0.05 - 3 mg/l	660 -	- -	660 -	660 -	- 820	Silicomolybdate [2,3]	24 mm ø
Silica VARIO LR	0.1 - 1.6 mg/l	660	-	660	660	815	Heteropolyblue [2]	24 mm ø
Silica VARIO HR	1 - 90 mg/l 1 - 100 mg/l	430 -	- -	430 -	430 -	- 452	Silicomolybdate [2,3]	24 mm ø 24 mm ø
Silica	0.1 - 8 mg/l	-	-	430	-	-	Heteropolyblue [2]	24 mm ø
Sodiumhypochlorite	0.2 - 16 %	-	-	530	530	-	Potssium iodide [5]	24 mm ø
Spectral Absorption-coefficient	0 - 50 m^{-1}	- - -	- - -	- - -	- - -	436 525 620	Direct reading [1] ISO 7887:1994	50 mm ❑
Sulphate VARIO	5 - 100 mg/l 2 - 100 mg/l	530 -	- -	530 -	530 -	- 450	Bariumsulphate Turbidity [2]	24 mm ø
Sulphate	5 - 100 mg/l	-	-	610	610	-	Bariumsulphate Turbidity [2]	24 mm ø
Sulphide	0.04 - 0.5 mg/l	-	-	660	660	668	DPD/Catalyst [3, 4]	24 mm ø

Material safety data sheets: www.aqualytic.de

For other reagent quantities please see our current price list.

Legend

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[3] Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989
[4] Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980
[5] Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
Polyacryl	KS255 (Polyacrylate Reagent 1) KS256 (Polyacrylate Reagent 2) KS336 (Propan-2-ol) C18 (Cartouche) KS173 (2,4 Dinitrophenol) KT183 (Nitric Acid)	Liquid reagent / 65 ml Liquid reagent / 65 ml **Set** Liquid reagent / 65 ml Liquid reagent / 65 ml Liquid reagent / 65 ml	56L025565 56L026565 56R019165 56L033665 AS-K22811-KW 56L017365 56L018365
K	POTASSIUM T	Tablet / 100	4515670
SiO_2	SILICA No. 1 SILICA No. 2 Combi pack# SILICA No.1 / No.2 Combi pack# SILICA No.1 / No.2 SILICA PR (in presence of phosphate)	Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100	4513130 4513140 4517671 4517672 4513150
SiO_2	VARIO Amino Acid F10 VARIO Citric Acid F10 VARIO Molybdate 3 Reagent solution	Powder Pack / 100 Powder Pack / 100 Liquid reagent / 50 ml **Set**	 4535690
SiO_2	VARIO Silica HR Molybdate F10 VARIO Silica HR Acid Rgt F10 VARIO Silica HR Citric Acid F10	Powder Pack / 100 Powder Pack / 100 Powder Pack / 100 **Set**	 4535700
SiO_2	KS104 (Silica Reagent 1) KS105 (Silica Reagent 2) KP106 (Silica Reagent 3)	Liquid reagent / 65 ml Liquid reagent / 65 ml Powder / 10 g **Set**	56L010465 56L010565 56P010610 56R023856
NaOCl	ACIDIFYING GP CHLORINE HR (KI) Combi pack# CHLORINE HR (KI)/ACIDIFYING GP Combi pack# CHLORINE HR (KI)/ACIDIFYING GP Dilution set for sample preparation	Tablet / 100 Tablet / 100 each 100 each 250 1 set	4515480 4513000 4517721 4517722 414470
-	no reagents required	-	-
SO_4	VARIO Sulpha 4 / F10	Powder Pack / 100	4532160
SO_4	SULFATE T	Tablet / 100	4515450BT
S	SULFIDE No. 1 SULFIDE No. 2	Tablet / 100 Tablet / 100	502930 502940

[a] determination of free, combined and total
[b] Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)
[c] AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)
[d] Spectroquant® is a Merck KGaA Trademark
[e] alternative reagent, used instead of DPD No.1 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity
[f] additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine
[g] Reagent recovers most insoluble iron oxides without digestion
[h] additionally required for samples with hardness values above 300 mg/l $CaCO_3$
[i] high range by dilution
[j] Vacu-vials® is a Chemetrics Trademark
including stirring rod

Reagents

Test	Range	Wave lengths λ / nm AL100	AL200	AL400 & AL410	AL450	AL800	Method	Cuvette
Sulphite	0.1 - 5 mg/l 0.1 - 10 mg/l 0.05 - 4 mg/l	- - -	- - -	430 - -	430 - -	- 405 405	DTNB	24 mm ø 10 mm o 24 mm ø
Surfactants (anionic)	0.05 - 2 mg/l	-	-	-	-	653	Methylene blue [1]	16 mm ø
Suspended solids	0 - 750 mg/l	660 -	- -	660 -	660 -	- 660	Turbidity/Attenuated Radiation	24 mm ø 50 mm ❑
TOC [b)]	50 - 800 mg/l	-	-	-	-	596	H_2SO_4/ Indicator	16 mm ø
Triazoles (UV lamp required)	1 - 16 mg/l	430	-	430	-	-	Catalyzed UV Digestion	24 mm ø
Turbidity	5 - 500 0 - 1000	- -	- -	- 530	- 530	860 -	Attenuated Radiation Method Attenuated Radiation Method	50 mm ❑ 24 mm ø
Urea	0.1 - 2.5 mg/l 0.2 - 5 mg/l [i)] 0.1 - 2 mg/l	610 610 -	610 610 -	610 - -	610 - -	- - 676	Urease / Indophenol	24 mm ø
Zinc	0.02 - 1 mg/l 0.02 - 0.5 mg/l	- -	- -	610 -	610 -	- 616	Zincon[3]/EDTA	24 mm ø
Zinc	0.1 - 2.5 mg/l	610	-	610	-	-	Zincon[3]/EDTA	24 mm ø

Material safety data sheets: www.aqualytic.de

For other reagent quantities please see our current price list.

Legend

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[4] Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980
[5] Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
SO_3	SULFITE LR	Tablet / 100	4518020BT
MBAS	Spectroquant® 1.14697.0001d)	Tube test / 25	420755
-	no reagents required	-	-
TOC	Spectroquant® 1.14879.0001d)	Tube test / 25 Aluminium screwcaps / 6 pc.	420756 420757
Benzotriazole	VARIO Triazole Rgt F25		4532200
FAU FAU	no reagents required	-	-
CH_4N_2O	UREA Reagent 1 UREA Reagent 2 AMMONIA No. 1 AMMONIA No. 2 Combi pack# AMMONIA No.1 / No.2 Combi pack# AMMONIA No.1 / No.2 (without Urea Reagent 1 and 2, please order seperately UREA PRETREAT (compensates for the interference of free Chlorine up to 2 mg/l)	Liquid reagent / 15 ml Liquid reagent / 10 ml Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100	459300 459400 4512580BT 4512590BT 4517611BT 4517612BT 4516110BT
Zn	COPPER/ZINC LR EDTA DECHLOR (in case of high levels of residual chlorine)	Tablet / 100 Tablet / 100 Tablet / 100	4512620BT 4512390BT 4512350BT
Zn	KS243 (Zinc Reagent 1) KP244 (Zinc Reagent 2)	Liquid reagent / 65 ml Powder / 20 g **Set**	56L024365 56L024420 56R023965

[a] determination of free, combined and total
[b] Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)
[c] AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)
[d] Spectroquant® is a Merck KGaA Trademark
[e] alternative reagent, used instead of DPD No.1 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity
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[#] including stirring rod

Powder Dispenser PD250

Precise and repeatable dosing of Powder Reagents

The PD250 is designed for easy and controlled dosage of DPD powder reagents. One click gives the exact amount of reagent required for a 10 ml sample. The PD 250 is the perfect alternative to the Powder Packs for those carrying out a number of tests, saving time while also reducing the amount of packaging waste.

The reagent is supplied in sealed glass vials, sufficient for up to 250 tests. The protective sealing enables a shelf life of up to 5 years although, once the vial has been opened, the contents should be used within 6 months.
The vials can be changed quickly and easily. Furthermore, the dispenser can be thoroughly cleaned and the ergonomic design allows for comfort during operation.

Highlights

- Determination of chlorine according to ISO 7393-2:2000 (free + total)
- 250 tests
- 5 years reagent shelf life (unopened vial)
- Easy handling
- Precise dosage

Refill Packs

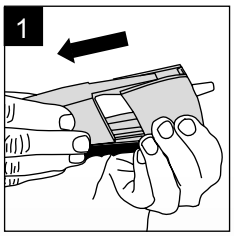
Article	Order code
VARIO Chlorine **Free** 10 ml 2 reagent vials	4530140
VARIO Chlorine **Total** 10 ml 2 reagent vials	4530150
VARIO Chlorine **Free + Total** 10 ml one reagent vial each	4530 60

Delivery Content

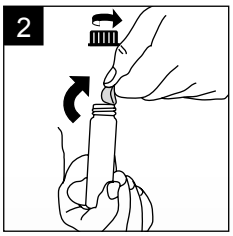
PD 250 in carton
including 1 reagent vial and instruction manual.

Article	Order code
PD 250 Set 1 - **Free Chlorine** Content: 1 powder dispenser "Free Chlorine" 1 reagent vial "Free Chlorine" 1 instruction manual 1 protective sleeve (rubber)	4194900
PD 250 Set 2 - **Total Chlorine** Content: 1 powder dispenser "Total Chlorine" 1 reagent vial "Total Chlorine" 1 instruction manual 1 protective sleeve (rubber)	4194910

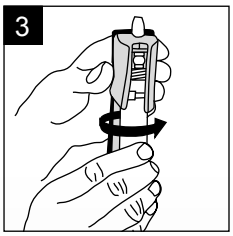
Easy Handling



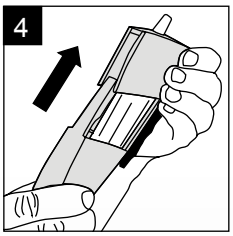
Remove the dispenser cover.



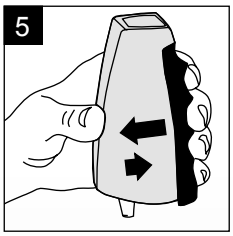
Uncap the reagent vial and remove the seal. Use material within 6 months of removing the seal.



Hold the dispenser with the tip upright and screw the vial on to the dispenser.



Slide the cover into the grooves until the lower end snaps into place.



To use: Hold with the tip down and press the blue handle towards the dispenser body. Release quickly. Releasing the handle quickly helps prevent powder build up.

Reagents also compatible in

VARIO Powder Packs (PP) and Reagents for Photometry

Test	Range	Reagent	Liquid Reagent	Tube Tests	Powder Pack
Aluminium	0 – 0.22 mg/l Al	VARIO Aluminium Reagent, Set F20 consists of: VARIO Aluminium ECR VARIO Aluminium Hexamine VARIO Aluminium Masking Rgt	■		■ ■
Ammonia	0 – 0.5 mg/l N	VARIO Ammonia Nitrogen, Set F10 consists of: VARIO Ammonia Salicylate, F10 VARIO Ammonia Cyanurate, F10			■ ■
Ammonia LR	0 – 2.5 mg/l N	VARIO Am tube test Reagent, Set LR, F5 consists of: VARIO Ammonia Salicylate, F5 VARIO Ammonia Cyanurate, F5 VARIO Am Diluent Reagent Low Range		■	■ ■
Ammonia HR	0 – 50 mg/l N	VARIO Am tube test Reagent, Set HR, F5 consists of: VARIO Ammonia Salicylate, F5 VARIO Ammonia Cyanurate, F5 VARIO Am Diluent Reagent High Range		■	■ ■
Bromine	0.05 – 4.5 mg/l Br	VARIO Chlorine TOTAL-DPD, F10 VARIO Chlorine TOTAL-DPD, F10			■ ■
Chlorine free, combined and total **Chlorine dioxide**	Visual Test Kit up to 3.5mg/l Cl_2 0.01 – 2 mg/l Cl_2 0 – 5 mg/l Cl_2	VARIO Chlorine FREE-DPD, F5 VARIO Chlorine FREE-DPD, F5 VARIO Chlorine TOTAL-DPD, F5 VARIO Chlorine TOTAL-DPD, F5 VARIO Chlorine FREE-DPD, F10 VARIO Chlorine FREE-DPD, F10 VARIO Chlorine TOTAL-DPD, F10 VARIO Chlorine TOTAL-DPD, F10 VARIO Chlorine FREE-DPD, F25 VARIO Chlorine FREE-DPD, F25 VARIO Chlorine TOTAL-DPD, F25 VARIO Chlorine TOTAL-DPD, F25			■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
COD LR	0 –150 mg/l O_2	COD VARIO 0 - 150 mg/l		■ ■ ■	
COD MR	0 –1500 mg/l O_2	COD VARIO 0 - 1500 mg/l		■ ■ ■ ■	
COD HR	0 –15000 mg/l O_2	COD VARIO 0 - 15000 mg/l		■ ■ ■	
Copper	0 – 5 mg/l Cu	VARIO CU1, F10 VARIO CU1, F10			■ ■
DEHA	20 - 500 µg/l DEHA	VARIO DEHA REAGENT SET consists of: VARIO OXYSCAV 1 RGT VARIO DEHA 2 RGT	■		■

* HACH® is a registered trademark of Hach Company, Loveland, Colorado. The use of the HACH® trademark does not imply any affiliation with or approval by Hach Company regarding the formulation, testing or compatibility of these products for use in HACH® brand spectrophotometers or other devices or systems.

Hach® devices*

Method	Applications	Quantity	Code
		1 Set	4535000
Eriochrome cyanine R	Water	100 100 25 ml	
Salicylate	Water, waste water, seawater	**1 Set**	4535500
		2 x 100 2 x 100	
		1 Set	4535600
Salicylate	Water, waste water, seawater	50 50 50 tubes	
		1 Set	4535650
Salicylate	Water, waste water, seawater	50 50 50 tubes	
DPD-Method: **USEPA** accepted for drinking water analysis	Water, waste water, seawater	100 1000	4530120 4530123
DPD-Method: **USEPA** accepted for drinking water analysis	Water, waste water, seawater	100 1000 100 1000	4530090 4530093 4530080 4530083
DPD-Method: **USEPA** accepted for drinking water analysis	Water, waste water, seawater	100 1000 100 1000	4530100 4530103 4530120 4530123
DPD-Method: **USEPA** accepted for drinking water analysis	Water, waste water, seawater	100 1000 100 1000	4530110 4530113 4530130 4530133
Dichromate Reactor, Digestion	Water, waste water, seawater	25 tubes 150 tubes 25 tubes, mercury free	420720 420725 420710
Dichromate Reactor, Digestion	Water, waste water, seawater	25 tubes 150 tubes 25 Küv., quecksilberfrei 150 tubes, mercury free	420721 420726 420711 420716
Dichromate Reactor, Digestion	Water, waste water, seawater	25 tubes 150 tubes 25 tubes, mercury free	420722 420727 420712
Bicinchoninate	Water, waste water, seawater	100 1000	4530300 4530303
		1 Set	4536000
PPST		100 100 ml	

Material safety data sheets: www.aqualytic.de

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Reagents also compatible in

VARIO Powder Packs (PP) and Reagents for Photometry

Test	Range	Reagent	Liquid Reagent	Tube Tests	Powder Pack
Hydrazine	0.005 –0.6 mg/l N_2H_4	VARIO Hydra2 Reagent	■		
Iron (Fe^{2+}, Fe^{3+}), dissolved	0 – 3 mg/l Fe 0 – 1.8 mg/l Fe	VARIO Ferro, F10 VARIO IRON TPTZ			■ ■
Manganese LR	0 – 0.7 mg/l Mn	VARIO Manganese Reagent, Set LR, F10 consists of: VARIO Alkaline-Cyanide Reagent Solution VARIO Ascorbic Acid VARIO PAN Indicator Solution	■ ■		■
Manganese HR	0 – 20 mg/l Mn	VARIO Manganese Reagent, Set HR, F10 consists of: VARIO MANGANESE CITRATE BUFFER, F10 VARIO SODIUMPERIODATE, F10			■ ■
Molybdate LR	0.5 – 5 mg/l MoO_4	VARIO MOLYBDENUM LR, Set, F10 consists of: VARIO Molybdenum 1 LR, F10 VARIO Molybdenum 2 LR, F10			■ ■
Molybdate HR	0 – 35 mg/l Mo	VARIO MOLYBDENUM HR, Set F10 consists of: VARIO MOLYBDENUM HR1, F10 VARIO MOLYBDENUM HR2, F10 VARIO MOLYBDENUM HR3, F10			■ ■ ■
	0 – 35 mg/l Mo	VARIO MOLYBDENUM HR, Set F25 consists of: VARIO MOLYBDENUM HR1, F25 VARIO MOLYBDENUM HR2, F25 VARIO MOLYBDENUM HR3, F25			■ ■ ■
Nitrate	0 – 30 mg/l N	VARIO NITRA X Reagent, Set consists of: VARIO NITRA X Test vials VARIO NITRA NITROGEN NITRATE Reag. B Deionised water		■	■
Nitrogen, total LR	0 – 25 mg/l N	VARIO TOTAL NITROGEN LR, Set consists of a) und b): **a)** VARIO TOTAL NITROGEN HYDROX. LR, Set VARIO TOTAL NITROGEN HYDROX. LR, tubes VARIO TOTAL N PERSULFATE Reagent, **b)** VARIO TOTAL NITROGEN ACID LR/HR, Set VARIO TOTAL NITROGEN Reag. A VARIO TOTAL NITROGEN Reag. B VARIO TOTAL NITROGEN ACID LR/HR tubes Deionised water	■	■ ■	■ ■ ■
Nitrogen, total HR	5 – 150 mg/l N	VARIO TOTAL NITROGEN HR, Set consists of a) und b): **a)** VARIO TOTAL NITROGEN HYDROX. HR, Set VARIO TOTAL NITROGEN HYDROX. HR, tubes VARIO TOTAL N PERSULFATE Reagent, **b)** VARIO TOTAL NITROGEN ACID LR/HR, Set VARIO TOTAL NITROGEN Reag. A VARIO TOTAL NITROGEN Reag. B VARIO TOTAL NITROGEN ACID LR/HR tubes Deionised water	■	■	■ ■ ■

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Hach® devices*

Method	Applications	Quantity	Code
4-(Dimethylamino)-benzaldehyde	Water, waste water, seawater	100 ml	4531200
Iron, total: 1, 10-phenantroline Iron, total: TPTZ	Water, waste water, seawater Water, waste water, seawater	100 100	4530560 4530550
PAN	Water, waste water	**1 Set** 60 ml 100 60 ml	4535090
Periodate oxidation	Water, waste water	**1 Set** 100 100	4535100
Mercaptoacetic acid	Water, waste water	**1 Set** 100 100	4535450
Mercaptoacetic acid	Water, waste water	**1 Set** 100 100 100	4535300
Mercaptoacetic acid	Water, waste water	**1 Set** 100 100 100	4535400
Chromotropic acid	Water, waste water	**1 Set** 50 50 100 ml	4535580
Persulfate digestion	Water, waste water	**1 Set** 50 50 50 50 50 100 ml	4535550
Persulfate digestion	Water, waste water	**1 Set** 50 50 50 50 50 100 ml	4535560

Material safety data sheets: www.aqualytic.de

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Reagents also compatible in

VARIO Powder Packs (PP) and Reagents for Photometry

Test	Range	Reagent	Liquid Reagent	Tube Tests	Powder Pack
Nitrite LR	0 – 0.3 mg/l N	VARIO NITRI3, F10 VARIO NITRI3, F25			■ ■
Phosphate	0 – 2.5 mg/l PO_4	VARIO PHOSPHATE RGT, F10			■
Phosphate, ortho	0.06 - 5 mg/l PO_4	VARIO REACTIVE PHOSPHATE REAGENT SET consists of: VARIO PHOSPHATE DILUTION TUBE TEST VARIO PHOSPHATE RGT, F10 Deionised water	■	■	■
Phosphate, Acid hydrolyzable and total	acid hydrolyzable: 0.02 - 1.6 mg/l P ≙ 0.06 - 5 mg/l PO_4 total: 0.02 - 1.1 mg/l P ≙ 0.06 - 3.5 mg/l PO_4	VARIO TOTAL & ACID HYDROLYZABLE PHOSPHATE REAGENT SET consists of: VARIO PHOSPHATE ACID REAG. TUBE TEST Deionised water VARIO PHOSPHATE RGT, F10 VARIO SODIUM HYDROXID 1N VARIO SODIUM HYDROXID 1,54N VARIO POTASSIUM PERSULFATE	 ■ ■ ■	 ■ 	 ■ ■
Phosphate, total	0.02 - 1.1 mg/l P ≙ 0.06 - 3.5 mg/l PO_4	VARIO TOTAL PHOSPHATE REAGENT SET consists of: VARIO PHOSPHATE ACID REAG. TUBE TEST VARIO PHOSPHATE RGT, F10 Deionised water VARIO SODIUM HYDROXID 1,54N VARIO POTASSIUM PERSULFATE	 ■ ■	 ■ 	 ■ ■
Phosponate	0.02 - 125 mg/l PO_4	VARIO PHOSPHONATE REAGENT SET consists of: VARIO Potassium Persulfate F10 VARIO PHOSPHATE RGT, F10			 ■ ■
Silica, LR	0 – 1.6 mg/l SiO_2	VARIO SILICA Reagent LR, Set F10 consists of: VARIO LR SILICA AMINO ACID F VARIO SILICA CITRIC ACID VARIO MOLYBDATE 3 Reagent solution	 ■		 ■ ■
Silica, HR	0 – 100 mg/l SiO_2	VARIO SILICA Reagent HR, Set F10 consists of: VARIO SILICA HR MOLYBDATE, F10 VARIO SILICA HR ACID RGT, F10 VARIO SILICA CITRIC ACID, F10			 ■ ■ ■
Silica, UHR	0 – 200 mg/l SiO_2	VARIO SILICA Reagent HR, Set F25 consists of: VARIO SILICA HR MOLYBDATE, F25 VARIO SILICA HR ACID RGT, F25 VARIO SILICA HR CITRIC ACID, F25			 ■ ■ ■
Sulphate	0 – 70 mg/l SO_4	VARIO Sulpha 4, F10 VARIO Sulpha 4, F25			 ■ ■
Triazoles	1 - 16 mg/l	VARIO Triazole Rgt F25			■

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Hach® devices*

Method	Applications	Quantity	Code
Diazotiation	Water, waste water	100 100	4530980 4530970
Phosphomolybdic acid/Ascorbic acid	Water, waste water, seawater	100	4531550
Phosphomolybdic acid/ Ascorbic acid	Water, seawater	**1 Set** 50 50 100 ml	4535200
Phosphomolybdic acid/ Ascorbic acid	Water, seawater	**1 Set** 50 50 100 ml 100 ml 100 ml 50	4535250
Phosphomolybdic acid/ Ascorbic acid	Water, seawater	**1 Set** 50 50 100 ml 100 ml 50	4535210
Persulfate UV-Oxidation	Water	**1 Set** 100 200	4535220
Heteropoly blue	Water, seawater	**1 Set** 100 100 50 ml	4535690
Silicomolybdate	Water, seawater	**1 Set** 100 100 100	4535700
Silicomolybdate	Water, seawater	**1 Set** 100 100 100	4535900
USEPA accepted for waste water analysis	Water, waste water, seawater	100 100	4532160 4532150
Catalyzed UV Digestion	Water	100	4532200

Material safety data sheets: www.aqualytic.de

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BOD Measurement System BD 600

Accurate, automatic & direct control of your wastewater samples

Biochemical Oxygen Demand (BOD)

BOD – biochemical oxygen demand – is an expression for the quantity of oxygen required for biological degradation of organic matter in a waste water sample. BOD measurement is therefore used as a basis for the detection of biologically degradable organic matter in water. The difference between BOD and chemical oxygen demand (COD) is that COD additionally registers biologically non-degradable organic matter.

BOD measurement is an important measurement of the effects of domestic and industrial waste water on sewage plants and outflow points.

Respirometric BOD measurement using BD 600

The AQUALYTIC® sensor system BD 600 is a 6 sample system that allows precise measurements of BOD based on the manometric principle. Manometric respirometers relate oxygen uptake to the change in pressure caused by oxygen consumption while maintaining a constant volume. Due to the modern integral pressure sensors, it is not necessary to use mercury for the measurements.

Highlights

- User friendly
- Large, illuminated & brilliant graphic display
- Graphical representation of measured values
- USB & SD Card data transfer
- Mercury-free, environmentally-friendly
- Remote control
- User-selectable time span from 1 to 28 days
- Free individual programming of each of the six samples
- Inductive stirring system, 100 - 240 V / 50 - 60 Hz

Measuring ranges and sample volumes

The BOD level of a sample depends on the quantity of organic matter present, which can vary considerably. The BOD measuring system BD 600 is therefore calibrated for the various sample volumes and the corresponding measuring ranges listed in the table below. The overall measuring range of the system is 0 – 4000 mg/l.

For all measuring ranges, BOD is shown directly in mg/l.

Range mg/l BOD	Sample Volume ml
0 – 40	428
0 – 80	360
0 – 200	244
0 – 400	157
0 – 800	94
0 – 2000	56
0 – 4000	21,7

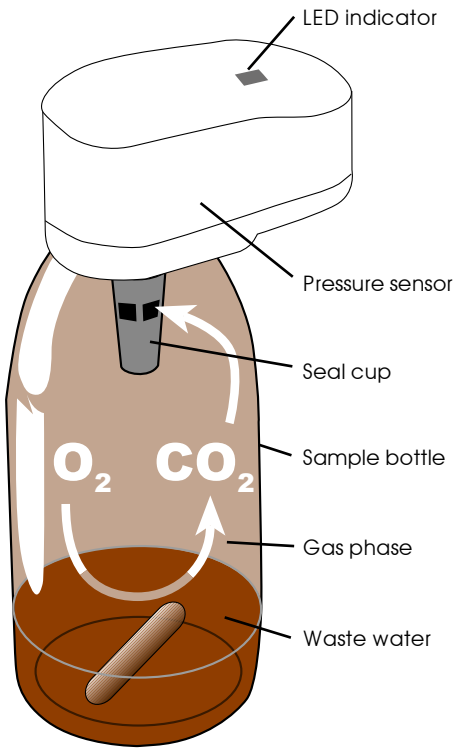
BD 600 Principle

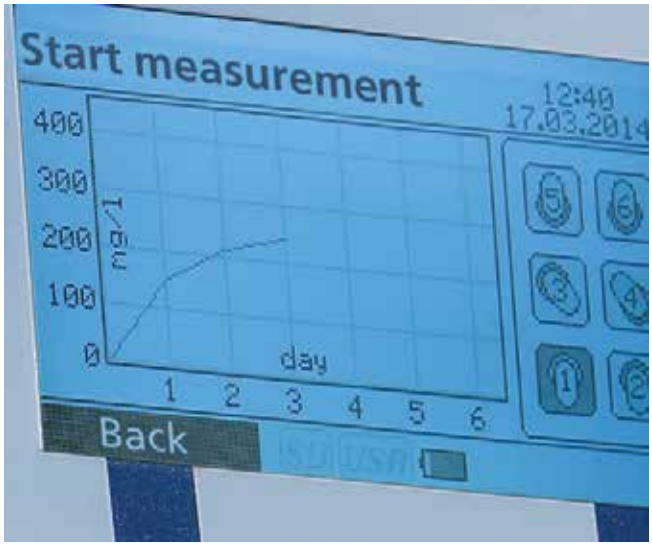
Respirometric methods provide direct measurements of the oxygen consumed by microorganisms from an air or oxygen-enriched environment in a closed vessel under conditions of constant temperature and agitation. Carbon dioxide produced metabolically by the bacteria is chemically bound by the potassium hydroxide solution contained in the seal cup in the bottle.

The result is a pressure drop in the system, which is directly proportional to the BOD value and is measured by the BOD sensor. The BOD level is then displayed directly in mg/l.

The BOD values are stored automatically in the sensor memory in regulary intervals and can be called up on the large-format display at any time without the need for time-consuming conversion using factors. This means that test series that end on a Sunday can be evaluated during the following week without any problem. Measurement series can be stored on USB stick/SD card or transfered via USB cable to evaluate the datas on a computer.

The measurement period is user-selectable between 1 and 28 days to suit the application. While short measurement periods are useful for scientific applications, standard BOD measurements typically extend over a period of 5 days – and manometric determination of OECD, for example, generally takes place over a period of 28 days.





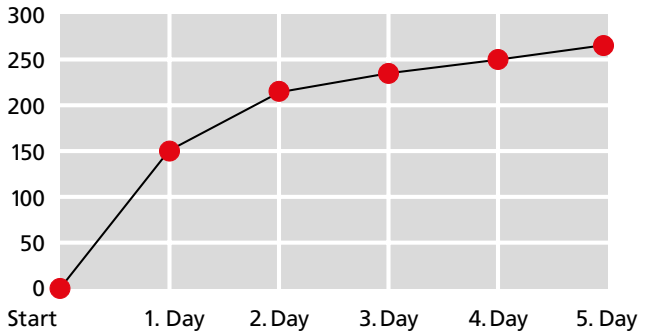
Applications

- Waste Water
- Determination of Biological Activity
- Waste Water Treatment Plants
- Analytical Laboratories
- Scientific & Research

Evaluation of measurements

The BD 600 measuring system records a measurement once every hour, independent of the length of the measuring period. This way the quality of the series of measurement can be evaluated in an early stage. Current values and stored values may be called up at any time. Stored value can be displayed numerically or graphically. The table/graph below illustrates an example of BOD_5 evaluation. The development of BOD over a period of five days is easily seen.

Day	Display
1. day	150 mg / l
2. day	220 mg / l
3. day	240 mg / l
4. day	250 mg / l
5. day	260 mg / l



BOD_5 Diagram

Automatic start function

Variations in sample temperature prior to testing result in pressure variations within the measuring system during the temperature equalisation period in the thermostatically controlled cabinet (if BOD measurement is to take place at 20°C, for example). Such variations would normally cause errors during manometric measurement. In order to prevent such errors, the AQUALYTIC® BD 600 BOD meter is equipped with an automatic start feature:
measurement does not commence until the temperature in the samples is the same as that in the thermostatically controlled cabinet. This rules out the possibility of temperature (and hence pressure) fluctuations that are not related to the manometric measurement.

The complete BD 600 measuring system

In addition to the BOD unit for measurement and storage of BOD levels, the BD 600 measuring system includes sample bottles, measuring sensors, non-wearing inductive stirring system, overflow measuring flasks for metering of sample volumes, nitrification inhibitor and potassium hydroxide as an absorbent.

Delivery Content BD 600

- BD 600, complete unit
  with 6 sensor heads and control unit with batteries
- Power supply unit incl. Y-cable for common power supply of BD 600 and stirring unit
- 1 x USB-cable
- 1 x remote control
- Inductive stirring unit
- 6 sample bottles, 6 rubber gaskets, 6 magnetic stirring rods
- 1 overflow flask, 157 ml
- 1 overflow flask, 428 ml
- 1 bottle, 50 ml potassium hydroxide solution
- 1 bottle, 50 ml nitrification inhibitor solution
- 1 instruction

Order code: 444460

Delivery Content BD 606

- 2 x BD 600, complete unit
  each with 6 sensor heads and control unit with batteries
- 2 x power supply unit incl. Y-cable for common power supply of BD 600 and stirring unit
- 2 x USB-cable
- 1 x remote control
- 2 x Inductive stirring unit
- 12 sample bottles, 12 rubber gaskets, 12 magnetic stirring rods
- 1 overflow flask, 157 ml
- 1 overflow flask, 428 ml
- 1 bottle, 50 ml potassium hydroxide solution
- 1 bottle, 50 ml nitrification inhibitor solution
- 1 instruction

Order code: 444465

Technical data

Meas. principle	Manometric; mercury-free; electronic pressure sensor
Ranges [mg/l O_2]	0 - 40, 0 - 80, 0 - 200, 0 - 400, 0 - 800, 0 - 2000, 0 - 4000 mg/l
Applications	BOD_5, BOD_7, OECD 301 F ...
Display	128 x 240 pixel, 45 x 84 mm, backlit
Measurement period	User-selectable, between 1 and 28 days
Auto result storage	Up to 672 results, depending on measurement period
Storage interval	– hourly (1 day) – every 2 hours (2 days) – daily (3-28 days)
Automatic start function	– After temperature equalisation of samples – Can be switched off
Power supply	3 alkaline-manganese batteries ("Baby" cells/size "C") or via power supply unit using y-cable togehter with stirring unit
Interface	USB host port (USB stick) USB device port (computer) SD card
Clock	Real-time clock
Protection class	IP 54 (sensor head)
Dimensions (L x W x H)	375 x 181 x 230 mm including stirring unit
Weight	4100 g, unit with bottles & batteries 5775 g, complete with stirring unit
Housing	ABS
Approval	CE

Accessories

Item	Order code
Sensor head	2444470
BOD sample bottle Brown glass, 500 ml	418644
BOD sample bottles, Brown glass, 500 ml, set of 6 bottles	418645
Inductive stirring system for 6 samples, 110-240 V / 50-60 Hz	2444456
Stirring rod	418633
Stirring rod remover	418638
Rubber gasket	418636
Chemicals: **Potassium hydroxide solution** 45 %, 50 ml **Nitrification inhibitor** (N-ATH) 50 ml	 418634 418642
Overflow flask, 21.7 ml	418664
Overflow flask, 56 ml	418655
Overflow flask, 94 ml	418656
Overflow flask, 157 ml	418657
Overflow flask, 244 ml	418658
Overflow flask, 360 ml	418659
Overflow flask, 428 ml	418660
Complete set overflow flasks	418654
Test set, BOD CM test tablets, box with 8 tablets	418328
USB-cable, length 3 meter	2444482
Y-cable	2444475
Remote control	2444481

Inductive stirring system

The microprocessor-controlled AQUALYTIC® inductive stirring system is non-wearing and maintenance-free. In other words, there are no moving parts in the system.

At regular intervals, the magnetic stirring rods are accelerated and slowed down again, taking them up to maximum speed and back down again. This ensures the centralization of the stirring rods.

Stirring rods that move away from the centre of the bottle are re-centered quickly and reliably.

The inductive actuation system guarantees maintenance-free operation (no need to replace drive belts or burnt-out drive motors) for many years.

Highlights

- Maintenance-free and non-wearing
- Regular change in stirring speed
- Automatic centering of stirring rods
- No mechanical components in the stirring system

Test set for BD 600

We also supply a test set to check for correct operation of the BD 600 BOD meter. The set contains 8 BOD CM1 test tablets that cause a defined oxygen consumption.

The tablets are easy to use. Simply place a tablet in the BOD bottle, start the measurement process, read off the BOD value after 5 days, and then compare with the defined value. If this value is within the quoted tolerance, this means that the BOD measuring system is functioning correctly.

Temperature equalisation during BOD measurement

Temperature equalisation is essential prior to biological testing, as temperature has a major effect on biological activity. BOD measurements, for example, are always performed in a thermostatically controlled cabinet at a temperature of 20°C.

For temperature equalisation, we recommend AQUALYTIC® thermostatically controlled cabinets with a user-selectable temperature from 2°C to 40°C.

Thermostatically controlled incubators - TC series

with standard / glass door

The TC series of thermostatically controlled cabinets is used for continuous temperature control over a range of 2 °C to 40 °C. This makes them ideal for a wide range of different applications in industrial and research laboratories.

In particular they are ideal for the temperature-controlled storage of samples or BOD determination in effluent analysis work.

The temperature can be set in steps of 0.1 °C and an LED display shows both the set temperature and the current temperature in the cabinets. Devices such as magnetic agitators, which require a power supply, can be connected to sockets incorporated in the interior of the cabinet. The integral temperature control unit meets the requirements of the EMC directive issued as IEC 61326: "Electrical devices for measurement, monitoring and for use in laboratories".

Improved, robust, insulated housing and highly efficient components provide maximum energy efficiency.

There are 4 models available with standard doors from 135 to 445 litres net capacity, and 2 models with glass doors with 140 and 255 litres net capacity.

Highlights

- Temperature range 2 °C to 40 °C, continuously adjustable in steps of 0.1 °C
- Low power consumption
- Illuminated LED display of preset and current temperatures
- Ideal for BOD determination at 20 °C
- Power sockets inside the incubator
- 6 models in 4 sizes
- Standard door or glass door

Temperature control unit

The temperature controll unit fulfills the EMC requirements according IEC 61326 : Electrical equipment for measurement, control and laboratory use.

Technical Data

Design	Fully insulated cabinet with universal temperature control unit
Lock	existing
Models with glass door	Insulating glass door in an ABS frame. Ceiling lighting, separately switchable
Operation	Splash-proofed keypad, 2 buttons with tactile feedback
Control range	+ 2 °C to + 40 °C, steps of 0.1 °C
Climate class	+ 10 °C to + 32 °C,
Temperature tolerance	± 1 °C, specified for a stirred 500 ml water sample. For BOD (T=20 °C ±0,5 °C)
Display	Backlit LED display, Resolution 0.1 °C
Fan	Axial, output 320 m^3/h
Cooling/Heating	Integrated powerful cooling and heating
Power supply	220 - 240 V / 50 Hz
Sockets	CEE 7/5, type E with hinged lid, 230 V / 16 A, 2p + E, IP 44
Coolant	R134a
Approval	CE

Models with standard door

TC 135 S

3 metal racks + 1 bottom grid + 4 sockets
Consumption: approx. 1.35 kWh / 24 h*
I. D. (approx.): 513 W x 441 D x 702 H mm
Net capacity: approx. 135 l
O. D. (approx.):
600 W x 600 D x 850 H mm with work top
600 W x 600 D x 819 H mm without work top
Suitable for built under applications
Weight: approx. 39.0 kg
Order code: 438200

TC 175 S

3 metal racks + 1 bottom grid + 5 sockets
Consumption: approx. 1.23 kWh / 24 h*
I. D. (approx.): 470 W x 440 D x 1062 H mm
Net capacity: approx. 175 l
O. D. (approx.): 600 W x 610 D x 1250 H x mm
Weight: approx. 51.0 kg
Order code: 438220

TC 255 S

4 metal racks + 1 bottom grid + 7 sockets
Consumption: approx. 1.54 kWh / 24 h*
I. D. (approx.): 470 W x 440 D x 1452 H mm
Net capacity: approx. 255 l
O. D. (approx.): 600 W x 610 D x 1640 H x mm
Weight: approx. 61.0 kg
Order code: 438230

TC 445 S

4 metal racks + 1 bottom grid + 9 sockets
Consumption: approx. 1.42 kWh / 24 h*
I. D. (approx.): 600 W x 560 D x 1452 H mm
Net capacity: approx. 445 l
O. D. (approx.): 750 W x 730 D x 1640 H x mm
Weight: approx. 78.5 kg
Order code: 438240

* Ambient temperature 25 °C
Target temperature 20 °C
Variations possible

Models with glass door

TC 140 G

3 metal racks + 1 bottom grid + 4 sockets
Consumption: approx. 1.77 kWh / 24 h**
I. D. (approx.): 513 W x 441 D x 702 H mm
Net capacity: approx. 140 l
O. D. (approx.):
600 W x 600 D x 850 H x mm with work top
600 W x 600 D x 819 H mm without work top
Suitable for built under applications
Weight: approx. 48.0 kg
Order code: 438210

TC 256 G

4 metal racks + 1 bottom grid + 7 sockets
Consumption: approx. 1.56 kWh / 24 h**
I. D. (approx.): 470 W x 440 D x 1452 H mm
Net capacity: approx. 255 l
O. D. (approx.): 600 W x 610 D x 1640 H x mm
Weight: approx. 77.0 kg
Order code: 438235

** Ambient temperature 25 °C
Target temperature 20 °C
with interior lighting switched on (15 W)
Variations possible

Space for BOD BD 600 systems in thermostatically controlled incubators

Model	systems, standard[1)]	systems, comfort[2)]
TC 135 S / TC 140 G	3	2
TC 175 S	5	2
TC 255 S / TC 256 G	7	3
TC 445 S	12	9

[1)] Change of bottles **by** removing racks.
[2)] Change of bottles **without** removing racks.

Applications

- BOD-Measurement
- Microbiological Research
- Food Industry
- Dairies
- Laboratories
- Research Centres
- Universities

Spark-free* cabinets - EX series

with a spark-free* interior

* spark-free interiors reduce risk of internal explosion

Contents not supplied

The German guidelines „Working Safely in Laboratories BG-I 850-0" stipulates that interior spaces must be explosion-protected where hazardous, explosive atmospheres can develop (for example, due to the presence of flammable liquids).

The AQUALYTIC® cabinets in the EX range meet the requirements of these guidelines and are fully equipped for daily laboratory use.

The cabinet consist of a sturdy sheet steel housing with impact-proof and jolt-resistant powder coating. Improved, robust, insulated housing and highly efficient components provide maximum energy efficiency.

The robust interior is made of high-quality, strong white plastic material (PS).

The door is lockable and supplied with a right-hand hinge as standard (but can easily be converted to a left-hand hinge). A tight door seal is ensured by an all-round magnetic gasket.

The temperature in the refrigerator can be continuously adjusted over the range +1°C to +15°C; a room thermostat ensures constant control. The digital temperature display enables the interior temperature to be easily read. The high performance fan provides for an even temperature distribution inside.

The models EX 220, EX 300 and EX 490 have a "fan stop" function, which switches the fan off when the door is opened.

Highlights

- Spark-free according to BG-I 850-0
- Dynamic cooling system
- 1 °C to 15 °C, continuously adjustable
- Digital temperature display
- High energy efficiency
- Robust materials
- Lockable

Applications

- Laboratories
- Research Centres
- Universities

EX 160

220 - 240 V ~ / 1 A

Consumption:	0.898 kWh / 24 h
Temperature regulation:	continuous 1 °C to 15 °C
Lockable door, changeable door stop	
4 storage levels (3 height-adjustable glass shelves)	
I. D. (approx.):	513 W x 441 D x 702 H mm
Net capacity:	approx. 160 l
O. D. (approx.):	600 W x 600 D x 860 H x mm
Weight:	approx. 41.0 kg
Order code:	422105

EX 220

220 - 240 V ~ / 1 A

Consumption:	0.786 kWh / 24 h
Temperature regulation:	continuous 1 °C to 15 °C
Lockable door, changeable door stop	
5 storage levels (4 height-adjustable glass shelves)	
I. D. (approx.):	470 W x 440 D x 1062 H mm
Net capacity:	approx. 220 l
O. D. (approx.): mm	600 W x 610 D x 1250 H x
Weight:	approx. 53.0 kg
Order code:	422115

EX 300

220 - 240 V ~ / 1,5 A

Consumption:	0.947 kWh / 24 h
Temperature regulation:	continuous 1 °C to 15 °C
Lockable door, changeable door stop	
6 storage levels (5 height-adjustable glass shelves)	
I. D. (approx.):	470 W x 440 D x 1452 H mm
Net capacity:	approx. 300 l
O. D. (approx.):	600 W x 610 D x 1640 H mm
Weight:	approx. 64.0 kg
Order code:	422125

EX 490

220 - 240 V ~ / 1,5 A

Consumption:	0.983 kWh / 24 h
Temperature regulation:	continuous 1 °C to 15 °C
Lockable door, changeable door stop	
6 storage levels (5 height-adjustable glass shelves)	
I. D. (approx.):	600 W x 560 D x 1452 H mm
Net capacity:	approx. 490 l
O. D. (approx.):	750 W x 730 D x 1640 H mm
Weight:	approx. 84.0 kg
Order code:	422135

Technical data

Cooling	Powerful compressor unit, mounted on low noise, vibration-free bearings
Coolant	R600a
Defrost	Automatic defrost - condensation drains into a collection bowl within the refrigerator
Temperature	1 °C to 15 °C
Climate class	EX 160: SN, 10 °C to 32 °C EX 220, EX 300, EX 490: SN-T, 10 °C to 43 °C
Lock	existing
Power supply	220 - 240 V / 50 Hz
Height adjustment	Adjustable front feet
Approval	CE
EX-safety	Spark-free interior

The product complies with the following european directives and regulations:
2006/42/EC, 2006/95/EC, 94/9/EC, 2004/108/EC, 2011/65/EU.

Accessories

Safety- and collecting tub (PP) for EX 160
Order code: 422155

Safety- and collecting tub (PP) for EX 220, 300
Order code: 422156

Safety- and collecting tub (PP) for EX 490
Order code: 422157

Glass shelves for EX 160
Order code: 422165

Glass shelves for EX 220, 300
Order code: 422166

Glass shelves for EX 490
Order code: 422167

Turbidity meters

Turbidity Measurement

The term "turbidity“ is used to describe the cloudy or milky appearance of liquid or solid media such as water (drinking, mineral, bathing or waste water), beverages (beer, wine or soft drinks) or window glass (translucent glass).

In physical terms, turbidity is due to particles of varying sizes scattering or absorbing light, giving the medium in question a cloudy appearance.

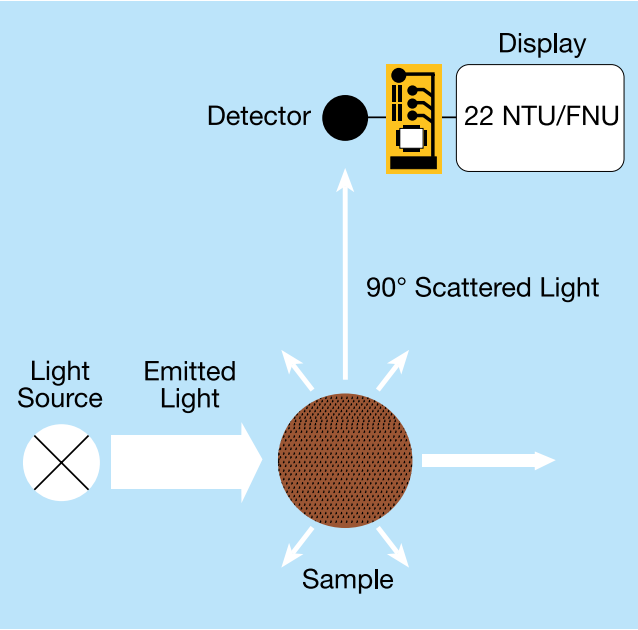
This turbidity is caused by suspended particles such as sludge, limestone, yeast or microorganisms.

In former days, researchers attempted to use visual systems as a means of turbidity measurement. "Jackson Turbidity Units" (JTU), for example, were based on a defined volume of dissolved silicic acid from diatomaceous earth in water. Turbidity was measured using a candle turbidity meter, apparatus comprising a candle and a glass vessel that permitted visual comparison of the suspension with the silicic acid solution.

Today, it is still common practice to test water samples using a white "sight disc“ made of cast bronze; the disc is lowered into the water until it can no longer be seen. The turbidity is then calculated on the basis of immersion depth.

Today, the phenomenon of turbidity is measured using optoelectronic meters. An artificial light source emits a known intensity of light through a sample. The suspended particles scatter or absorb the light. The scattered light is then recorded on a photodetector.

Nowadays, the scattered light is generally measured at an angle of 90°. This measurement principle is known as nephelometry. A nephelometer is therefore a turbidity meter that measures scattered light at an angle of 90°. The results are shown in NTU (Nephelometric Turbidity Unit).



AL250T-IR with infra-red light source

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AL450T-IR with infra-red light source
Page 72

To obtain defined, reproducible results, turbidity meters are calibrated and adjusted using formazine solutions (reference standard).

These meters display their results in FNUs (Formazine Nephelometric Units).

The result measured by a meter operating on the transmitted light principle is shown in FAUs (Formazine Attenuation Units).

There are two standards for turbidity measurement that are widely accepted at an international level.

EN ISO 7027, "Water quality, determination of turbidity" outlines all the possible methods for turbidity measurement.

All optoelectronic methods require an infrared light source. This also permits testing of coloured samples.

In its method 180.1, "Determination of turbidity by nephelometry", the EPA in the US
describes solely the nephelometric (scatter light) method using a so-called white light source (tungsten halogen lamp).

The results measured by different units using the two aforementioned methods cannot be compared.

AL400T-WL with white light source
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Turbidity meter AL450T-IR

with infra-red light source (EN ISO 7027)

Highlights

- Meets EN ISO 7027
- Automatic overall range adjustment with Standard-Set T-Cal
- Auto-ranging
- High accuracy
- Laboratory and mobile use
- RS 232 interface
- Storage for up to 1000 data-sets
- Real-time clock
- Waterproof sample chamber and housing

Turbidity is measured according to EN ISO 7027 by nephelometric means (90° scattered light). The infra-red light-source permits measurement of coloured and colour-free samples.

The automatic measurement range detection facility (Autorange) enables direct turbidity measurement from 0.01 to 1100 NTU with an accuracy of ± 2% up to 500 NTU and ± 3% thereafter.

A large graphic display, a choice of several different languages and user-friendly operating instructions make the device extremely easy to use.

Software updates (for example: languages) can be downloaded free of charge from our website www.aqualytic.de

Technical data

Principle	nephelometric (90° scattered light)
Light source	IR-LED (860 nm)
Keypad	conditional acid and solvent resistant; membrane switch keypad with audible feedback
Auto – Off	automatic switch off approx. 20 minutes after last key press
Display	Graphic-Display
Update	Software update via Internet
Clock	real time clock
Memory capacity	1000 data sets with date, time and registration number
Sample volume	approx. 12 ml
Range	0.01 – 1100 NTU (Auto range)
Resolution (NTU)	0.01 from 0.01 - 9.99 0.1 NTU from 10.0 - 99.9 1 NTU from 100 - 1100
Accuracy (NTU)	± 2 % of reading or 0.01 (0 - 500) ± 5 % of reading (500 - 1100)
Ambient conditions	temperature: 5-40°C at 30-90% relative humidity (non condensing)
Interface	RS232 for printer and PC-connection; 9-pin D-sub-mail connector; data format ASCII
Power supply	7 NiCd rechargeable batteries (Type AA/Mignon with 1100mAh); wall plug mains adapter (Input: 100-230V, 50-60Hz; Output: 15V;530mA) and Lithium battery (CR 2032, 3V) for data storage and real time clock.
Weight (instrument)	approx. 1000 g including batteries and power pack
Dimensions (L x W x H)	approx. 265 x 195 x 70 mm
Specification	meets ISO 7027
Approval	CE

Delivery Content

The AL450T-IR is supplied complete and ready-to-use incl. 1 Set Turbidity Standards T-CAL, 7 rechargeable batteries, mains charger, 100-240 V, 1 lithium battery, PC connection cable, 4 x 24 mm vials, instruction manual and warranty sheet in a plastic carrying case with water resistance foam.

Order code: 4194000-B
Order code: 4194000 (as above, but without lithium battery)

Accessories

Set of 12 sample vials with black lid, height 55 mm, ø 24 mm	197655
Cleaning cloth for vials	197635
Rubber seal cap, black for interface and power plug-in	19801716
Sample chamber lid, black	19801119
Mains charger, 100 - 240 V, 50 - 60 Hz, with international adapters	193010
Universal adapter for sockets, international	192065
Connection cable connection to PC, serial 9-pins	198198
Akku AA Mignon, 1100 mAh (7 pc.)	1950020
Lithium battery	1950017
Formazin Stock Solution (4000 NTU), 100 ml	1941 41
Formazin Stock Solution (4000 NTU), 250 ml	194142
Set Turbidity Standards T-CAL (< 0.1, 20, 200, 800 NTU)	4194150
Paper printer DPN 2335	198075
Roll of paper for printer DPN 2335	198062
Pack of accus for printer DPN 2335	198066
Ribbon cartridge for printer DPN 2335	198067

Turbidity meter AL250T-IR

with infra-red light source (EN ISO 7027)

The compact AQUALYTIC® infrared turbidity meter AL250T-IR is designed to allow fast, precise on-site testing. The unit measures the scattered light at an angle of 90°, as stipulated in EN ISO 7027.

The wide measuring range from 0.01-1100 TE/F = NTU = FNU makes the instrument suitable for various applications, ranging from drinking water to waste water.

As infrared light is used for measurement purposes, the unit can be used to test both coloured and colourless liquids.

The standards required for calibration of the unit are also supplied. A second adjustment mode allows alternative adjustment with user-defined turbidity standards.

Technical data

Measurement cycle	approx. 8 seconds
Display	backlit LCD (on keypress)
Optics	temperature-compensated LED and photosensor amplifier in water proof sample chamber, infrared light
Keypad	polycarbonate membrane, splash proof
Power supply	9 V power pack battery
Auto - OFF	automatic switch-off
Storage	internal ring memory for 16 data sets
Additional feature	real time clock and date
Range	0,01 - 1100 NTU (Auto-range)
Resolution	0.01 - 9.99 NTU = 0.01 NTU 10.0 - 99.9 NTU = 0.1 NTU 100 - 1100 NTU = 1 NTU
Accuracy	± 2,5 % of reading or ± 0.01 NTU (0 - 500 NTU) ± 5 % (500 - 1100 NTU)
Housing	ABS
Dimensions (L x W x H)	190 x 110 x 55 mm
Weight	approx. 0.4 kg (base unit)
Ambient conditions	Temperature: 5 – 40 °C rel. humidity: 30 – 90%
Approval	CE

Accessories

Article	Code
Turbidity standard set T-CAL (< 0.1, 20, 200, 800 NTU)	4194150
Set empty vials, 24 mm ø (12 pc.)	197655
Cleaning cloth for vials	197635
Sample chamber lid	19801100
Battery, 9 V	1950012
Formazin Stock Solution (4000 NTU), 100 ml	194141
Formazin Stock Solution (4000 NTU), 250 ml	194142

Highlights

- Range from 0.01 - 1100 NTU
- Measurement with infrared light at an angle of 90°
- Measurement of coloured liquids also
- Easy handling
- 600 tests without battery change

Delivery Content

AL250T-IR turbidity meter as described above, complete with 4 turbidity standards < 0.1, 20, 200 and 800 NTU, battery, vials, warranty information, certificate of compliance, instruction manual in case.
Order code: 4266020

Turbidity meter AL400T-WL

with white light source (US EPA 180.1)

The AL400T-WL allows easy turbidity measurement in either the field or in the laboratory. Using a „white light" source and 90° detection, the AL400T-WL meets the specifications for EPA turbidity measurement (EPA Standard 180.1).

A power efficient micro-circuit design allows the instrument to yield 5000 tests on 4-AA alkaline batteries with an estimated 7-10 year bulb life. Integrated diagnostics confirm proper operation and accuracy.

The instrument features an Auto-Ranging feature that automatically selects the correct turbidity range for your sample. Calibration is simple with the included calibration standards.

Technical data

Display	large LCD display
Keypad	5 key polycarbonate membrane, splash proof
Power supply	4 AA Alkaline batteries for approx. 20 h continuous operation or 3500 tests
Range	0.01 to 1100 NTU
Accuracy	± 2% of reading or 0.01 NTU (0-500 NTU) ± 3% of reading (500-1100 NTU)
Resolution	0.01 NTU to 99.99 NTU 0.1 NTU from 100.0 to 999.9 NTU 1.0 NTU from 1000 to 1100 NTU
Housing	ABS
Dimensions	210 x 95 x 45 mm
Weight	approx. 0,45 kg (base unit)
Ambient conditions	Temperature: 0 – 50 °C rel. humidity: 0 – 90%
Approval	CE

Highlights

- Ideal for regulatory monitoring, process control or field use
- Simple operation
- Easy calibration
- Auto-Ranging
- Meets USEPA

Delivery content

The AL400T-WL comes ready to use in a sturdy handy case with following accessories:

2 sample vials, 3 turbidity standards, 4 batteries, instruction manual and warranty information

Order code: 4194200

Accessories

Set of secondary standards 0.02, 10, 1000 NTU
Order code: 194280

Set of 3 sample vials with black lid
Order code: 194290

Electrochemistry Meters
SD 300 pH & SD 320 Con (IP 67 waterproof)

pH/Redox/Temperature
Conductivity, TDS, Salinity, Temperature

Highlights

- Rugged, water resistant (IP 67) designed for field use
- PC interface (USB / serial or analog)
- Automatic buffer detection (SD 300 pH)
- Data logger and alarm function (min./max.)
- Good Laboratory Practice (GLP-features)
- Clear, concise result reading: easy-to-read backlit LCD display
- Automatic temperature compensation
- High resolution (0.001 pH / 0.1 mV) (SD 300 pH)
- Dirt-insensitive up-to-date 4-pole conductivity cell offering highest precision (SD 320 Con)

Applications

- Drinking Water
- Cooling/Boiler Water
- Waste Water
- Pool Water
- Surface Water

Features SD 300 pH

Min / Max Value Memory
highest and lowest measured value is saved.

Auto Hold
freeze and display measurement.

Auto Power Off
if unused, the meter automatically switches off after a selected period (0 to 120 min, or deactivated)

Additional Display for pH Electrode and Battery
Bar graph display

Low Battery Display
"BAT"

Automatic Temperature Compensation
Automatic Temperature Compensation (ATC) in pH mode (in the range of 0 - 105 °C) when the temperature probe is connected.
Temperature can be input manually, when the temperature probe is not attached.

pH Calibration
Automatic Buffer Recognition.
Permissible electrodes' data: Asymmetry:
± 55 mV / Slope: 45 ... 62 mV/pH
The condition of pH Electrode is checked at each calibration.
1, 2 or 3 point calibration with Lovibond® Standard Buffer, DIN 19266 Buffer or any manually entered Buffer values.

Redox Measurement (ORP)
2 options:
"mV" Standard Redox or mV measurement
"mVH" Conversion to hydrogen systems according to DIN38404 Part 6

rH Measurement
The rH value is calculated from a measured Redox value and a manually input pH value

Features SD 320 Con

Min / Max Value Memory
highest and lowest measured value is saved

Auto Hold
freeze and display measurement

Auto Power Off
if unused, the meter automatically switches off after a selected period (0 to 120 min, or deactivated)

Low Battery Display
"BAT"

Automatic temperature compensation
As conductivity depends strongly on temperature, each conductivity value is only valid at the corresponding temperature. Therefore the device supports temperature compensation, i.e. referring the conductivity to a reference temperature (selectable: 20 °C or 25 °C).

Salinity measurement
Salinity means the sum of amount of all dissolved salts in water. The unit is g / kg.

TDS measurement (total dissolved solids)
TDS means the mass concentration of dissolved media in a liquid. The unit is mg/l.

SD 300 pH

Technical data

Measuring ranges

pH	- 2.000 ... 16.000 pH
Redox /mV	- 1999.9 ... 1999.9 mV
Temperature	- 10.0 ... + 110.0 °C + 14.0 ... + 230.0 °F
rH	0.0 ... 70.0 rH

Accuracy

pH	± 0.005 pH
Redox / mV	± 0.05 % FS (mV or mVH)
Temperature	± 0.2 °C - 5.0 ... + 100.0 °C
rH	± 0.1 rH

Connections

pH, Redox	BNC female connector, compatible to standard BNC plugs and waterproof BNC plugs, additional banana-jack (4 mm) for separate reference electrode input resistance: 10^{12} Ohm
Temperature	2 banana jacks (4 mm) for temperature probe (Pt1000 or NTC 30K)
Interface / Supply	4-pole bayonet connector for serial interface and supply (with accessory USB 300)
Display	two 4.5 - digit seven-segment display (15 mm and 12 mm)

pH Calibration

Automatically	1, 2 or 3 point calibration, Aqualytic® Standard Buffer or Buffer to DIN19266
Manually	1, 2 or 3 point calibration
Protection class	IP67 (housing and connections)
Dimensions	164 x 128 x 37 mm (H x W x D) incl. protection cover
Weight	250 g incl. battery and protection cover
Housing	impact resistant ABS housing with pop-up clip
Power supply	2 x AAA-battery (included) power consumption: 2.0 mA
Battery life	500 hours

Delivery Content

SD 300 pH, Order Code: 4724600
instrument in carrying case, **without** electrode, with batteries, protective armouring, instruction manual and warranty information

SD 300 pH (SET 1), Order Code: 4724610
instrument in carrying case, with batteries, pH/temp. plastic-electrode type 231, pH-buffer-set (pH 4.00/7.00/10.00), in case, manual and warranty information

SD 300 pH (SET 2), Order Code: 4724611
as SET 1, but with pH / temperature plastic-electrode type 226, temperature sensor Pt 1000, manual and warranty information

Accessories

Code	Article
721231	pH/temp.-electrode type 231 plastic/gel/temperature NTC30kOhm (SET 1)
721226	pH-electrode plastic/gel-type 226 (SET 2)
721235BNC	pH-electrode glass/gel-type 235
721240BNC	Redox-electrode plastic-type 240
721245	PT1000Temperature sensor (SET 2)
418609	KCl-solution, 3 molar saturated with AgCl, 100 ml
721250	pH buffer-set 4.00/7.00/10.00 (25°C)
721252	pH buffer 4.00 (25°C) 1 litre
721254	pH buffer 7.00 (25°C) 1 litre
721256	pH buffer 10.00 (25°C) 1 litre
195070	Redox calibration solution, 470 mV, 100 ml
724620	USB 300 cable, for connection to a computer
724625	GSOFT 3050 data transmission software with logger for setting, reading and printing of stored data
725060	Case with foam inlet

SD 300 pH in carrying case

SD 320 Con

Technical Data

Measuring ranges

Number	5
Smallest range	0.000 ... 5.000 µS / cm * or 0.0 ... 500.0 µS / cm **
biggest range	0 ... 5000 µS / cm * or 0 ... 1000 mS / cm **
Resistivity	0.005 ... 500.0 kOhm / cm (depends on cell constant)
TDS	0 ... 5000 mg/l (depends on cell constant)
Salinität	0.0 ... 70.0 (g salt / kg water equals PSU = Practical Salinity Unit)
Temperature	- 5.0 ... + 150.0 °C, Pt1000 or NTC (10kOhm)
Supported cell constants	4.000 ... 15.000 / cm^{-1} 0.4000 ... 1.5000 / cm^{-1} 0.04000 ... 0.15000 / cm^{-1} 0.004000 ... 0.015000 / cm^{-1}

Accuracy

Conductivity	± 0.5 % of reading ± 0.1 % FS (depends on electrode)
Temperature	± 0.2 °C (- 5.0 ... + 100.0 °C)

Connection

Conductivity, Temperature	1 x 7 pole bayonet connector for connection of different measuring cells
Supported temperature sensors	Pt1000 or NTC (10k)
Interface / ext. supply	4-pole bayonet connector for serial interface and supply (with accessory USB 300)
Display	two 4.5 - digit seven-segment display (15 mm and 12 mm)
Protection class	IP67 (housing and connections)
Dimensions	164 x 128 x 37 mm (W x H x D) incl. protection cover
Weight	250 g incl. battery and protective armouring
Housing	impact resistant ABS housing with pop-up clip
Power supply	2 x AAA-battery (included) power consumption: < 6,25 mA
Battery life	160 hours

depends on cell constant of used electrode
* cell constant 0.01 / cm
** cell constant 0.1 ... 1.2 / cm

Accessories

Order code	Article
19805040	Conductivity cell LC 12, measuring range 0 - 200 mS/cm
19805045	Conductivity cell LC 16, measuring range 0 - 1000 mS/cm
722250	Calibration solution 1413 µS/cm
724620	USB 300 cable, for connection to a computer
724625	GSOFT 3050 data transmission software with logger for setting, reading and printing of stored data
725060	Case with foam inlet

Delivery Content

SD 320 Con (SET 1), Order Code: 4724700
instrument in carrying case with batteries, conductivity cell LC 12 (measuring range 0 - 200 mS/cm), manual and warranty information

SD 320 Con (SET 2), Order Code: 4724720
instrument in carrying case with batteries, conductivity cell LC 16 (measuring range 0 - 1000 mS/cm), manual and warranty information

SD 320 Con in carrying case

Electrochemistry Meter AL20Oxi (IP 67 waterproof)

The microprocessor-controlled electrochemistry meter AL20 from AQUALYTIC® meets the day-to-day demands for sturdy and reliable systems for the measurement of temperature and dissolved oxygen.

The water-tight housing complies with **IP67** and is equipped as standard with protective armouring and built-in electrode holder ensuring reliable operation even in extreme ambient conditions.

The support can be flipped up to hang the meter on pipes or branches.

A direct, easily understood user interface, outlining the required configuration options for all three systems, facilitates meter operation both outdoors and in the laboratory.

The automatic Hold function "freezes" stable measuring data in the display and indicates the presence of stable and reproducible results.

The internal memory allows storage of 20 data sets to facilitate subsequent evaluation.

The integral automatic switch-off feature, varying from 1 to 120 minutes, increases the operating life of the units.

The power consumption of all three units has been reduced to a minimum. As a result, the 4 x 1.5 V integrated batteries have an operating life of up to 12,000 hours, depending on the unit version.

The galvanic, membrane-covered oxygen sensor with built-in temperature sensor allows instant measurement without the need for time-consuming polarisation.

AL20Oxi

- Oxygen partial pressure,
  Oxygen concentration,
  Oxygen saturation,
  Temperature measurement
- Automatic absolute air pressure measurement
- Auto Hold function
- Easy calibration against oxygen in air
- Salinity correction
- Self-polarising galvanic oxygen probe, allows instant measurement after the system is switched on
- Low battery and battery change indicator
- Sensor evaluation in the display
- Accessories for depth measurement
- Battery operation period up to 12000 hours
- Shock-absorbing rubber protective armouring
- Waterproof

AL20Oxi

- Dissolved Oxygen (O_2)
  O_2 Concentration in mg/l
  O_2 Saturation in %
  °C/°F

AL20Oxi

Technical Data

O_2 partial pressure	0.0...570.0 hPa, 0...1200 hPa 0.0...427.5 mm Hg, 0...900 mm Hg
O_2 concentration	0.00...25.00 mg/L, 0.0...70.0 mg/L
O_2 saturation	0.0...250.0 %, 0...600 %
Accuracy	± 1.5% ± 0.2 mg/L (0...25 mg/L) ± 2.5% ± 0.3 mg/L (25...70 mg/L) ±1Digit
Temperature	-5.0 ... + 50.0 °C / 23.0 ... 122.0 ° F
Accuracy	± 0.1 °C
Abs. air pressure	500..1100 hPa
Accuracy	± 0.5% full scale
Nominal temperature	25 °C
Operating temperature	0 to +50 °C
Storage temperature	-20 to +70 °C
Power supply	4 x 1.5 V battery, Type AA Operating time up to 12.000 h
Power consumption	max. 0.25 mA
Auto-Off function	0 - 120 minutes
Dimensions	175 x 140 x 45 mm (L x W x H)
Weight	approx. 580 g
Electrode	Self-polarising oxygen electrode with integrated NTC sensor Connection: 7-pin DIN socket Installation diameter: 12.0 ± 0.2 mm Overall length: approx. 220 mm (incl. kink protection) Operating temperature: 0...40 °C
Approval	CE

AL20Oxi in carrying case

Delivery Content AL20Oxi

Code	Article
4723220	AL20Oxi with batteries, oxygen sensor (1.5 m cable), electrolyte (KOH), 3 interchangeable membrane heads, in case, manual, warranty information
4723221	AL20Oxi as above, but with oxygen sensor 10 m cable
4723222	AL20Oxi as above, but with oxygen sensor 30 m cable

Applications

- Drinking Water
- Cooling/Boiler Water
- Waste Water
- Pool Water
- Surface Water
- Water Treatment Companies
- Industrial and Governmental Laboratories

Accessories AL20Oxi

Code	Article
723201	Oxygen sensor, 1.5 m cable
723210	Oxygen sensor, 10 m cable
723230	Oxygen sensor, 30 m cable
723250	Service Set Oxygen sensor 3 interchangeable membrane heads, 100 ml plastic bottle KOH-solution 3 mol/l
723260	Protection cap for depth measurement
725020	Case with foam inlet

Electrochemistry Meter AL15

dissolved Oxygen (O_2) | O_2-concentration in mg/l
Conductivity/TDS | pH/Redox | °C/°F - All in One

Applications

- Drinking Water
- Cooling/Boiler Water
- Waste Water
- Pool Water
- Surface Water
- Water Treatment Companies
- Industrial and Governmental Laboratories

The AL15 combines the features of several electrochemistry meters. It is designed for multi purpose operation and measures pH/Redox, dissolved oxygen and conductivity/TDS.

The AL15 incorporates an intuitive user interface, large, easy to read display and is supplied with a sturdy handy case with electrodes, buffer solution and accessories.

AL15

Display	Large LCD display with contrast adjustment
Measurement	pH: 0 to 14.00 pH ORP: ± 1999 mV Conductivity: 200 µS / 2 mS / 20 mS / 200 mS TDS (Total Dissolved Solids): Dissolved Oxygen: 0 to 20.0 mg/l
Data Logger	Real time data logger
Data Memory	Auto or manual data memory, 16000 data sets
Data Hold	Max, Min
Interface	USB, RS232
Probes	pH, ORP, Conductivity/TDS, Dissolved Oxygen and ATC
Power off	Auto shut off or manual off
Data Output	RS 232 PC serial interface
Power Supply	DC 1,5 V battery (UM3, AA) x 4 PCs or DC 9V adapter in
Software	Data acquisition software Data logger software
Approval	CE

pH/Redox

Range	pH 0 to 14 PH mV -1999 mV to 1999 mV
Resolution	0 - 14 pH, 0.01 pH 0 - 1999 mV, 1 mV
Accuracy	0 - 14 pH, ± 0.02 pH + 2 digits 0 - 1999 mV, ± 0.5 % + 2 digits
Temperature Compensation	manual 0 - 100 °C automatic (ATC)
pH Calibration	pH 7, pH 4, and pH10, 3 points calibration

Oxygen

Range	Dissolved Oxygen 0 to 20.0 mg/l (liter) Oxygen in Air 0 to 100.0 % Temperature 0 to 50 °C
Resolution	Dissolved Oxygen 0.1 mg/l 0.1 % O_2 Temperature 0.1 °C
Accuracy (23± 5 °C)	Dissolved Oxygen ± 0.4 mg/l Oxygen in Air ± 0.7% O2 Temperature ± 0.8 °C / 1.5 °F
Salinity Correction	0 to 39 % Salt
Air Pressure Comp.	0 to 8900 meter

Conductivity/TDS

Range/ Resolution	**Conductivity** (µS, mS) 0 - 200.0 µS / 0.1 µS 0.2 - 2.000 mS / 0.001 mS 2 - 20.00 mS / 0.01 mS 20 - 200.00 mS / 0.1 mS **TDS** (Total Dissolved Solids) 0 - 132 ppm / 0.1 ppm 132 - 1,320 ppm / 1 ppm 1,320 - 13,200 ppm / 10 ppm 13,200 - 132,000 ppm / 100 ppm
	Temperature 0 - 60 °C / 0.1 °C ; 32 - 140 °F / 0.1 °F
Accuracy	± 2 % F.S. + 1 digit ; ± 0.8 °C / ± 1.5 °F
Function	Conductivity (µS, mS) TDS (Total Dissolved Solids, PPM) Temperature (°C,°F)

Delivery Content

Code	Article
4724200	AL15 Set pH / Con / Oxi instrument, batteries, pH electrode, temperature probe, conductivity probe, oxygen sensor, pH buffer set 4,00 / 7,00, electrolyte, membrane heads, instruction manual, warranty information, in case
4724210	AL15 Set pH / Con instrument, batteries, pH electrode, temperature probe, conductivity probe, pH buffer set 4,00 / 7,00, instruction manual, warranty information, in case
4724220	AL15 Set pH / Oxi instrument, batteries, pH electrode, temperature probe, oxygen sensor, pH buffer set 4,00 / 7,00, electrolyte, membrane heads, instruction manual, warranty information, in case
4724230	AL15 Set pH / Redox instrument, batteries, pH electrode, temperature probe, redox electrode, pH buffer set 4,00 / 7,00, instruction manual, warranty information, in case

Accessories

Code	Article
721330	Spare electrode plastic/gel type BNC-plug
721250	pH buffer set 4.00/7.00/10.00 (25°C)
721247	pH buffer, 4.00 (25°C), 90 ml
721248	pH buffer, 7.00 (25°C), 90 ml
721249	pH buffer, 10.00 (25°C), 90 ml
721252	pH buffer 4.00 (25°C) 1 litre
721254	pH buffer 7.00 (25°C) 1 litre
721256	pH buffer 10.00 (25°C) 1 litre
721242	Redox electrode plastic/gel type BNC-plug
195070	Redox calibration solution, 470 mV, 100 ml
724400	Conductivity probe
722250	Calibration solution 1413 µS/cm
724410	Oxygen sensor
724460	Spare membrane for oxygen sensor
724470	Spare electrolyte for oxygen sensor
724420	Temperature probe PT1000
724500	RS232 cable, for connection to a computer
724510	USB cable, for connection to a computer
724540	Power supply
725050	Case incl. foam
4724520	Data Retrieve Software Software which enables the user to transmit data stored on the instrument to a computer
4724530	Data Logger / Aquisition Software Software which enables the user to monitor and log data on a computer (online measurement)

Highlights

- pH/Redox
  Conductivity
  Dissolved Oxygen etc.
- All in one
- Real time data logger
- Large digital display
- Protective casing
- RS 232 / USB

Electrochemistry Meters Series AL10

Determination of pH, Conductivity

Highlights

- High measuring accuracy
- Light weight
- Protective casing
- Large digital display
- "Low battery" indicator
- Two-Point Calibration

AL10pH

The AL10pH is a high quality, portable, battery operated pH meter. The instrument is equipped as standard with protective casing and built-in electrode holder.

The gel electrode of the AL10pH is temperature resistant over the range 0 - 80 °C. It is fitted with a BNC connector as standard.

Technical data AL10pH

Range	0 - 14 pH
Resolution	0.01 pH
Temperature compensation	not necessary
Accuracy	± 0.07 pH (pH5-pH9) ± 0.1 pH (pH4-pH10) ± 0.2 pH (pH1-pH3.9) ± 0.2 pH (pH10,1-pH13) 23 ± 5 °C, after calibration
Ambient conditions:	0 - 50 °C 0 - 80 % rel. humidity (non condensing)
Battery	9 V block
Dimensions	208 x 110 x 34 mm (L x W x H)
Weight	approx. 380 g
Approval	CE
Order Code	4721300

Delivery Content

AL10pH, battery, pH-buffer (4.0 / 7.0), pH plastic electrode-type 110, in case, instruction manual and warranty information.

Accessories AL10pH

Code	Article
721330	pH-electrode plastic/gel, type pH110
721247	pH-buffer, 4.00 (25°C), 90 ml
721248	pH-buffer, 7.00 (25°C), 90 ml
721249	pH-buffer, 10.00 (25°C), 90 ml

AL10Con

The AL10Con is a compact and versatile meter. The unit is extremely easy to use and is equipped as standard with a protective casing and built-in electrode holder.

It is equipped with a LC display showing two or three decimal places and a measuring range either of 0.001 – 1.999 or 0.01 – 19.99 mS/cm.

The AL10Con can be calibrated and adjusted using a potentiometer.

Technical data AL10Con

Range	0.001 - 1.999 mS/cm 0.01 - 19.99 ms/cm
Resolution	0.001 / 0.01 mS/cm
Temperature compensation	0 - 100 °C automatically 2 %/K, 25 °C
Accuracy	± 3 % Full Scale ± 1 Digit (23 ± 5 °C)
Ambient conditions	0 - 50 °C 0 - 80 % rel. humidity (non condensing)
Battery	9 V-Block
Dimensions	208 x 110 x 34 mm (L x W x H)
Weight	approx. 380 g
Approval	CE
Order code	4722300

Delivery Content

AL10Con, battery, conductivity sensor, in case, instruction manual and warranty information.

Accessories AL10Con

Code	Article
722250	Conductivity calibration solution, 1413 µS/cm, 500 ml

Electrochemistry Meters Series SD (IP 67 waterproof)

The new AQUALYTIC® SD series comprises a range of compact, easy-to-use, hand-held instruments for the accurate measurement of pH, ORP, Con, TDS or Salt. With robust housing and fully waterproof (IP67) casing, these testers are the ideal solution for in-situ testing in environmental, industrial or pool & spa applications.

The intuitive scroll-bar functionality and backlit display enable the easy measurement and simultaneous display of

Result I Temperature I Date & Time I Other Measurement Details.

With 25 sets of data storage, each with date and time stamp, the units also enable the easy recalling of data for record keeping requirements.

Designed and manufactured according to AQUALYTIC® quality standards, the devices are equipped with replaceable electrodes to ensure long-life functionality in the field.

Delivery Content

Each device is delivered with Batteries/without batteries (depending on the order code), lanyard and instruction manual in robust plastic case with hanger.

SD 50 pH additionally:
pH 4, 7, 10 buffer tablets (1 strip of 10 tablets each)

Highlights

- Portable Hand-Held Meter
- Scroll-Through Functionality
- Compact & Robust
- Storage Function
- Backlit Display
- Waterproof (IP67)

Variants

- SD 50 pH
- SD 60 ORP/Redox
- SD 70 Con
- SD 80 TDS
- SD 90 Salt

SD 50 pH

Range	0 - 60 °C, 0 - 14 pH
Resolution	0.01 pH
Accuracy	± 0.05 pH
Resolution temperature	0.1 °C; Accuracy: ± 1 °C, selectable °C / °F system
Selectable buffer system	pH 7.00 or pH 6.86
Calibration	1, 2, or 3 points calibration with auto-recognition (NIST / IUPAC)
Temperature compensation	Automatic
Memory	Time and date display / stamp with 25 sets of data storage (non-volatile)
Display	22 x 22 mm LCD screen, with yellow/green backlight
Power supply	2 x CR2032 batteries
Battery life	> 25 hours (continuous use, backlight OFF), low battery indicator on LCD screen
Auto-off	8 minutes non-use
Approval	CE
Order code	4194800 without batteries 4194800-B with batteries
Spare electrode	194820

SD 60 ORP

Range	0 - 60 °C, -1800 ~ 1800mV
Resolution	0.1 mV (within ± 1000 mV) 1 mV (outside ± 1000 mV)
Accuracy	± 20 mV
Resolution temperature	0.1 °C; Accuracy: ± 1 °C, selectable °C / °F system
Calibration	1 point calibration with ± 150 mV adjustable ORP value
Temperature compensation	Automatic
Memory	Time and date display / stamp with 25 sets of data storage (non-volatile)
Display	22 x 22 mm LCD screen, with yellow/green backlight
Power supply	2 x CR2032 batteries
Battery life	> 25 hours (continuous use, backlight OFF), low battery indicator on LCD screen
Auto-off	20 minutes non-use
Conformity	CE
Order code	4194801 without batteries 4194801-B with batteries
Spare electrode	194821

SD 70 Con

Range	0 - 60 °C, < 20.00 mS [1]
Resolution	1 µS (<= 1999 µS) 0.01 mS (2.0 - 20.00 mS
Accuracy	± 3 % FS
Resolution temperature	0.1 °C; Accuracy: ± 1 °C, selectable °C / °F system
Auto switch over µS and mS	µS: 1 - 1999 mS: 2.00 - 20.00
Calibration	1 or 2 points calibration for **auto** mode Standard: 1413 µS or Standard: 12.88 mS up to 2 points calibration for **manual** mode ± 50 % adjustable value
Temperature compensation	Automatic
Memory stamp	Time and date display / with 25 sets of data storage (non-volatile)
Display	22 x 22 mm LCD screen, with yellow/green backlight
Power supply	2 x CR2032 batteries
Battery life	> 25 hours (continuous use, backlight OFF), low battery indicator on LCD screen
Auto-off	8 minutes non-use
Conformity	CE
Order code	4194802 without batteries 4194802-B with batteries
Spare electrode	194822

SD 80 TDS

Range	0 - 60 °C, < 10.00 ppt [2]
Resolution	1 ppm (<= 999 ppm) 0.01 ppt (1.0 - 10.00 ppt)
Accuracy	± 3 % FS
Resolution temperature	0.1 °C; Accuracy: ± 1 °C, selectable °C / °F system
Auto switch over ppm and ppt	ppm: 0 - 999 ppt: 1.00 - 10.00
Calibration	up to 2 points calibration **manual** mode ± 50 % adjustable value
Temperature compensation	Automatic
Memory stamp	Time and date display / with 25 sets of data storage (non-volatile)
Display	22 x 22 mm LCD screen, with yellow/green backlight
Power supply	2 x CR2032 batteries
Battery life	> 25 hours (continuous use, backlight OFF), low battery indicator on LCD screen
Auto-off	8 minutes non-use
Conformity	CE
Order code	4194803 without batteries 4194803-B with batteries
Spare electrode	194822

SD 90 Salt

Range	0 - 60 °C, < 20.00 ppt ≙ 2.00 % [3]
Resolution	0.01 % (when set to "P" % unit)
	1 ppm (< 2000 ppm) 0.01 ppt (2.0 - 20.00 ppt)
Accuracy	± 3 % FS
Resolution temperature	0.1 °C; Accuracy: ± 1 °C, selectable °C / °F system
Auto switch over ppm and ppt	ppm: 0 - 1999 ppt: 2.00 - 20.00
Calibration	up to 2 points calibration **manual** mode ± 50 % adjustable value
Selectable unit system	"P" % or ppt / ppm
Temperature compensation	Automatic
Memory stamp	Time and date display / with 25 sets of data storage (non-volatile)
Display	22 x 22 mm LCD screen, with yellow/green backlight
Power supply	2 x CR2032 batteries
Battery life	> 25 hours (continuous use, backlight OFF), low battery indicator on LCD screen
Auto-off	8 minutes non-use
Conformity	CE
Order code	4194804 without batteries 4194804-B with batteries
Spare electrode	194822

Conversion table

[1] 0 - 20.00 mS/cm = 0 - 20,000 µS/cm

[2] 0 - 10.00 ppt TDS = 0 - 10,000 ppm TDS

[3] 0 - 20.00 ppt NaCl = 0 - 20,000 ppm NaCl
0 - 20.00 ppt NaCl = 0 - 2 % NaCl
0 - 20.00 ppt NaCl = 0 - 20 g/l NaCl

ppm = Parts per Million = mg/l
ppt = Parts per Thousand = g/l

Jar Tester

Jar tester with continuously variable stirring speed for laboratory and field use

Flocculation testers are designed for a range of applications – such as testing the efficiency of flocculation or precipitation agents.

The AL40 model with 4 stirring places and the AL50 model with 6 stirring places are fitted with an illuminated back panel for glare-free observation of the samples and are suitable for laboratory use.

The flocculation tester AL30 with 4 stirring places is primarily designed for field use. The 4 stirring points are arranged in a circle around a lamp making it easier to observe the flocculation process.

State-of-the-art technology ensures maximum operating convenience and makes the unit maintenance-free. The main features of the laboratory jar testers are the continuously variable stirring speed, the digital display of stirring rpm, the timer function, the illuminated back panel, and the height adjustment option for the stirring blades during operation.

AL30 requires 1000 ml beakers of low form.
AL40 and AL50 require 1500 ml beakers of low or high form.
The beakers are not included.

Highlights

- Continuously variable stirring speed
- Digital display
- Height adjustment of the stirring blades during operation
- Timer feature

Technical data AL30 (portable/field)

Stirring places	four
Stirring speed control	20 - 40 - 50 - 100 - 120 revolutions per minute
Timer	1 - 30 minutes (continuous)
Power supply	100 – 240 V / 50 - 60 Hz
Weight	approx. 4.8 kg
Dimensions (L x W x H)	250 x 320 x 250 mm
Approval	CE
Order code	419150

Technical data AL40 (laboratory)

Stirring places	four
Stirring speed control	10 - 300 revolutions per minute
Resolution	1 revolution
Timer	1 - 999 minutes or 0 - 99 hours (continuous)
Power supply	100 – 240 V / 50 - 60 Hz
Weight	approx. 13 kg
Dimensions (L x W x H)	645 x 347 x 260 mm
Approval	CE
Order code	419155

Technical data AL50 (laboratory)

Stirring places	six
Stirring speed control	10 - 300 revolutions per minute
Resolution	1 revolution
Timer	1 - 999 minutes or 0 - 99 hours (continuous)
Power supply	100 – 240 V / 50 - 60 Hz
Weight	approx. 17 kg
Dimensions (L x W x H)	935 x 347 x 260 mm
Approval	CE
Order code	419160

Accessories

Code	Article
419165	Measuring beaker, **glass**, low form 1000 ml
419165	Measuring beaker, **PP**, low form 1000 ml
419151	Bag for transport of AL30

Applications

- Flocculant Manufacturer
- Waste Water Treatment Plants
- Laboratories
- Research Centres
- Universities

MINIKIT

Accurate and easy to handle rapid tests

The methods

The MINIKITs are designed for rapid water testing. Most MINIKITS are based on titrimetric methods.

Tablet count method

In the tablet count method, the liquid titration solution and indicator are replaced by AQUALYTIC® tablet reagents. A specific number of tablets is added to a defined sample volume until a chemically induced colour change takes place. The concentration of the parameter being measured is calculated from the number of tablets required. The measuring range can be expanded by varying the sample volume.

Speed test

The speed test is based on reverse titration. After adding a reagent tablet to a calibrated test tube, the water sample is added slowly until the colour of the solution changes (e.g. from red to blue). The user can then obtain the result from the liquid level.

Yes/No test

A Yes/No test tells the user whether a specific ingredient is present in the water and/or if its concentration is higher or lower than a defined level.

Turbidity method

A two-section calibrated test tube is filled with the water sample and a reagent tablet added. The reagent creates a level of turbidity that is proportional to the concentration of the parameter being measured. The inner tube, which has a black dot on its base, is lowered until the dot is obscured by the turbidity. The result is read off from the water level in the inner tube.

			Methods				
Analysis	**Type**	**Range**	Tablet Count	Speed Test	Yes/No Test	Turbidity	**Order code**
Alkalinity Total	AF 444	20 - 800 mg/l $CaCO_3$ ≅ 0.4 - 16 mmol/l		■			414440
Alkalinity Caustic/P	AF 415	20 - 500 mg/l $CaCO_3$	■				414150
Alkalinity, P	AF 414	20 - 500 mg/l $CaCO_3$	■				414140
Alkalinity, Total (M)	AF 413	10 - 500 mg/l $CaCO_3$ ≅ 0.1 - 5 mmol/l	■				414130
Calcium Hardness	AF 446	20- 800 mg/l $CaCO_3$ ≅ 0.4 - 16 mmol/l		■			414460
Calcium Hardness	AF 416	10- 500 mg/l $CaCO_3$ ≅ 0.1 - 5 mmol/l	■				414160
Chloride	AF 418	5 - 5000 mg/l Cl	■				414180
Cleaning Acid Strength	AF 410	0.75-10% acid	■				414100
Cyanuric Acid	AF 422	20 - 200 mg/l				■	414220
Hardness Total (very low range)	AF 426	1 - 10 mg/l $CaCO_3$ ≅ 0.01 - 0.1 mmol/l	■				414260
Hardness Total (low range)	AF 425	1 - 50 mg/l $CaCO_3$ ≅ 0.01 - 0.5 mmol/l	■				414250
Hardness Total (Yes/No)	AF 423	Limit 4 mg/l, 8 mg/l or 20 mg/l $CaCO_3$ ≅ 0.04 or 0.08 or 0.2 mmol/l			■		414230
Hardness Total	AF 445	20 - 800 mg/l $CaCO_3$ ≅ 0.4 - 16 mmol/l		■			414450
Hardness Total	AF 424	5 - 500 mg/l $CaCO_3$ ≅ 0.05 - 5 mmol/l	■				414240
Nitrite	AF 427	70 -1500 mg/l $NaNO_2$	■				414270
Organo-Phosphonate	AF 411	1 - 20 mg/l active O-P	■				414110
QAC (Quaternary Ammonium Comp.)	AF 417	0 - 500 mg/l active QAC Limit 200 mg/l (Yes/No)	■		■		414170
Sulphate (low range)	AF 432	20 - 200 mg/l Na_2SO_4	■				414320
Sulphate	AF 431	40 - 200 mg/l SO_4 (40 - 4000 mg/l by dilution)				■	414310
Sulphite (low range)	AF 434	2 - 50 mg/l Na_2SO_3	■				414340
Sulphite (high range)	AF 435	20 - 500 mg/l Na_2SO_3	■				414350
Tannin Index	AF 436	2 - 20 units	■				414360

*BW: Boiler Water

Reagent	Order code	Quantity
ALK-TEST	4515570BT	100
ALKALINITY-P-Tablets	4515101BT	250
ALKALINITY-P ($BaCl_2$)-Tablets	4515110	100
ALKALINITY-P-Tablets	4515101	250
TOTAL ALKALINITY-tablets	4515321	250
ALKALINITY-P ($BaCl_2$)-Tablets	4515110	100
CAL-TEST	4515580	100
CALCIUM HARDNESS	4515191BT	250
CHLORIDE	4515131	250
ACID CONCENTRATION	505420	100
CyA-TEST	4511370BT	100
HARDNESS VLR	4515351BT	250
HARDNESS LR (BW)*	4515171BT	250
HARDNESS YES / NO	4515361BT	250
T HARDNESS-TEST	4515590	100
TOTAL HARDNESS	4515161BT	250
NITRITE No. 1	4515201	250
NITRITE No. 2	4515211BT	250
ORGANO-PHOSPHONATE No. 2	465351	100 ml
ORGANO-PHOSPHONATE No. 1	4512961BT	250
QAC-Test	4515410	100
	4515411	250
SULFATE No. 1	4515221	250
SULFATE No. 2	4515231	250
SULFATE T	4515451BT	250
SULFITE No. 1	4515271BT	250
SULFITE No. 2 HR	4515281BT	250
SULFITE No. 2 LR (BW)*	4515331BT	250
TANNIN No. 1	503500	100
TANNIN No. 2	503511	250

Material safety data sheets: www.aqualytic.de

AQUALYTIC® Test Kits

Determination of Boiler-, Cooling- and Industrial Process Water

Highlights

- Fast quantitative determination
- For testing boiler, cooling and industrial process water
- Suitable for field and laboratory testing
- Cost-effective use due to keenly priced refill packs

These AQUALYTIC® test kits are specially developed for testing boiler, cooling and industrial process water. They make use of both colorimetric and titrimetric techniques. Each test kit contains all the necessary chemicals and reagents in liquid or powder form to conduct the tests. The detailed instructions contain a step-by-step explanation of the test procedure. The kits are supplied in a sturdy, compact plastic case. Keenly priced refill reagent packs are available for all AQUALYTIC® test kits.

Analysis	Range mg/l	Method	No. of Tests (approx.)	Order Code
Alkalinity PM-1 (p- + m-value)	1 drop = 1 or 0.5 mmol/l[1)]	titrimetric	75	418501
Carbonic Acid CO-2	1 drop = 5 or 2.5 mg/l CO_2[1)]	titrimetric	70	418518
Chloride LR CD-1	1 drop = 5 or 2.5 mg/l Cl^-[1)]	titrimetric	100	418504
Chloride HR CD-2	1 drop = 50 or 25 mg/l Cl^-[1)]	titrimetric	100	418506
DEHA	0.05 – 1 mg/l DEHA	colorimetric	50	4157580
Hardness Carbonate (new version)	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	25	418413
Hardness Carbonate KH-1	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	50	418695
Hardness Residual RH-1	1 drop = 0.1 or 0.05 °dH*[1)]	titrimetric	50	418694
Hardness Total (new version)	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	25	418411
Hardness Total GH-1	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	50	418692
Hardness Total (new version) **+ Carbonate GKH-1**	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	25	418412
Iron FE-2	0.1 – 2 mg/l Fe, 0.5 – 8 mg/l Fe	colorimetric	250	418440
Phosphate (Total) PO-2 (ortho, poly, organic)	2.5 – 25 mg/l PO_4^{3-}	colorimetric	90	418523
Phosphate (ortho) PO-3	2.5 – 25 mg/l PO_4^{3-}	colorimetric	70	418544
Sulphite SUL-1	1 drop = 5 or 2.5 mg/l Na_2SO_3[1)]	titrimetric	80	418532
Sulphides Volatile SD-1	0.05 – 5 mg/l S^{2-}	colorimetric	25	418528

* 1.0°dH = 0.18 mmol/l ; 5.6° dH = 1.0 mmol/l
** 1.0° fH = 0.1 mmol/l ; 10° fH = 1.0 mmol/l
[1)] depending on sample volume

Complete AQUALYTIC® Test Sets

Analysis	Range mg/l	Method	No. of Tests (approx.)	Order Code
Boiler Water-Set KW-3				418453
Alkalinity (p + m value)	1 drop = 1 or 0.5 mmol/l[1)]	titrimetric	75	
Residual Hardness	1 drop = 0.1 or 0.05 °dH*[1)]	titrimetric	50	
Phosphate (ortho)	2.5 – 25 mg/l PO_4^{3-}	colorimetric	70	
pH-value	pH 7.0 – 14	indicator strips	100	
Sulphite	1 drop = 5 or 2.5 mg/l Na_2SO_3[1)]	titrimetric	80	
Boiler Water-Set KW-5				418457
Alkalinity (p + m value)	1 drop = 1 or 0.5 mmol/l[1)]	titrimetric	75	
Conductivity	0 - 2000 µS/cm ; 0 - 20 mS/cm	SD 70 Con		
Residual Hardness	1 drop = 0.1 or 0.05 °dH*[1)]	titrimetric	50	
Phosphate (ortho)	2.5 – 25 mg/l PO_4^{3-}	colorimetric	70	
pH-value	pH 7.0 – 14	indicator strips	100	
Sulphite	1 drop = 5 or 2.5 mg/l Na_2SO_3[1)]	titrimetric	80	
Drinking- and Industrial Water-Set TB-1				418558
Carbonate Hardness	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	50	
Carbonic Acid	1 drop = 5 or 2.5 mg/l CO_2[1)]	titrimetric	70	
Chloride	1 drop = 5 or 2.5 mg/l Cl^{-}[1)]	titrimetric	100	
Total Hardness	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	50	
Phosphate (ortho)	2.5 – 25 mg/l PO_4^{3-}	colorimetric	70	
pH-value, Phenol Red	pH 6.9 – 8.2	colorimetric	50	
Warm Water-Set W-1				418455
Total Hardness	1 drop = 1 or 0.5 °dH*[1)]	titrimetric	50	
Phosphate (ortho)	2.5 – 25 mg/l PO_4^{3-}	colorimetric	70	
pH-value	pH 0 – 14	indicator strips	100	
Sulphite	1 drop = 5 or 2.5 mg/l Na_2SO_3[1)]	titrimetric	80	

* 1.0° dH = 0.18 mmol/l ; 5.6° dH = 1.0 mmol/l

[1)] depending on sample volume

Arsenic Test Kit (highly sensitive)

The arsenic test is due to its high sensitivity suitable for the determination of arsenic in drinking water.

The advantages at one view

- Sensitivity is according to the requirements of the WHO for drinking water quality. This test detects 0.005 mg/l Arsenic.
- The removal of the interfering sulfide ions is integrated in the test procedure. To minimize the potential danger for the user of the test kit it doesn't use the highly toxic lead acetate for the sulfide removal.
- A solid acid substance is used in order to avoid any irritation by a corrosive acid on the user's hands.
- The unbreakable plastic reaction vessel is more convenient and safe for on-site testing.
- During the test procedure the reaction vessel is tightly closed. The developing arsine gas cannot escape and therefore does not harm the user.
- The test kit contains a water-proof colour chart which also includes the brief instruction for use in pictograms. Even if there is a lack of knowledge in foreign languages everybody can now handle the test kit.

Resolution:
0 - 0.005 - 0.01 - 0.025 - 0.05 - 0.1 - 0.25 - 0.5 mg $As^{3+/5+}$/l

Kit for 100 measurements in case.
Order code: 400700

Arsenic Test Kit, ready to use

CHECKIT®Comparator

with continuous colour scale (Discs)

easy | low cost | precise | reliable

CHECKIT®Comparator

The AQUALYTIC® CHECKIT®Comparator is a compact, handy colorimetric unit which is suitable both for mobile and stationary analysis work. Supplied with a generous number of different colour scales, it provides the basis for a comprehensive, easy-to-use colorimetric analysis system.

The CHECKIT®Comparator D55 enables the use of large path lengths. The mirror optics makes use of the view through the entire length of the cell.

CHECKIT®Disc

Each CHECKIT®Disc contains a continuous colour scale which makes it possible to achieve an exact colour match between the colour standard and the sample. These CHECKIT®Discs are specially manufactured in selected materials to remain colour-stability over a long period and guarantee reliable, reproducible measurement results.

Instruction manuals explaining the various stages of analysis in simple, straightforward terms, are supplied with each CHECKIT®Disc.

Test Kits

Together with the CHECKIT®Comparator, each test kit includes CHECKIT®Discs, cells, stirring rod and AQUALYTIC® tablet reagents (for 30 tests) for the desired test.

The test kits are supplied in a sturdy and handy plastic case.

The operating instructions provide a step-by-step explanation of how to conduct the water test, ensuring that even "non-chemists" can achieve reliable and accurate measurements in the minimum of time.

Test Kits 2 in 1	Order Code
Chlorine 0 – 1.0 mg/l Cl_2 **pH value** 6.5 – 8.4 pH	147015
Chlorine 0.1 – 2.0 mg/l Cl_2 **pH value** 6.5 – 8.4 pH	147045
Chlorine 0 – 4.0 mg/l Cl_2 **pH value** 6.5 – 8.4 pH	147025
Bromine 0 – 5,0 mg/l Br **pH value** 6.5 – 8.4 pH	147285
Copper 0 – 1.0 mg/l Cu **pH value** 6.5 – 8.4 pH	147235

Test Kit 5 in 1	Order Code
Chlorine 0 – 4.0 mg/l Cl_2 **pH value** 6.5 – 8.4 pH **Cyanuric acid** (Turbidity method)* 20 – 200 mg/l Cys **Calcium hardness** (Speed-Test)* 20 – 800 mg/l $CaCO_3$ **Total Alkalinity (M)** (Speed-Test)* 20 – 800 mg/l $CaCO_3$	147028

Disc readings see following pages.
All test kits for chlorine are for "free, combined and total chlorine".
*Reagents for turbidity method and speed test (Test-Kit 5 in 1) see MINIKIT.

Testpak

The Testpak is a simple and cost-effective means of extending the use of an existing CHECKIT®Comparator instrument to a new test parameter.

Each Testpak contains the required CHECKIT®Disc, tablet reagents (normally for 30 tests), two cells, stirring rod and detailed instructions for the desired method.

Please contact our sales departments for further information: sales@aqualytic.de

Test	Range* (Accuracy ±5% F.S.)	Order Code
Alkalinity-M	20 - 240 mg/l $CaCO_3$	147450
Aluminium	0 - 0.3 mg/l Al	147200
Ammonia	0 - 1 mg/l N	147210
Ammonia, Powder Pack	0 - 0.5 mg/l N	147211
Bromine	0 - 5 mg/l Br	147280
Chlorine (DPD)** free, combined, total	0.02 - 0.3 mg/l Cl_2	147000
Chlorine (DPD) free, combined, total	0 - 1 mg/l Cl_2	147010
Chlorine (DPD) free, combined, total	0 - 2 mg/l Cl_2	147040
Chlorine, free (DPD), Powder Pack	0 - 3.5 mg/l Cl_2	147050
Chlorine, total (DPD), Powder Pack	0 - 3.5 mg/l Cl_2	147051
Chlorine, free + total (DPD), Powder Packs	0 - 3.5 mg/l Cl_2	147052
Chlorine (DPD) free, combined, total	0 - 4 mg/l Cl_2	147020
Chlorine KI	10 - 300 mg/l Cl_2 (total)	147030
Chlorine dioxide**	0.01 - 0.2 mg/l ClO_2	147330
Copper, free (Cu^{2+})	0 - 1 mg/l Cu	147230
Copper HR, free + total	0 - 5 mg/l Cu	147430
Copper HR, free, Powder Pack	0 - 5 mg/l Cu	147431
Copper LR**, free + total	0 - 1 mg/l Cu	147440
Copper LR**, free, Powder Pack	0 - 1 mg/l Cu	147441
DEHA	0 - 0.5 mg/l DEHA	147370
Fluoride, Testpak available only	0.2 - 2 mg/l F	
Iron HR	1 - 10 mg/l Fe	147320
Iron LR	0.05 - 1 mg/l Fe	147220
Iron (TPTZ), Powder Pack	0 - 1.8 mg/l Fe	147470
Manganese LR, Testpak available only	0.1 - 0.7 mg/l Mn	
Manganese VLR, Testpak available only	0.02 - 0.2 mg/l Mn	
Molybdate LR**	0 - 10 mg/l MoO_4	147291
Molybdate HR	0 - 100 mg/l MoO_4	147290
Molybdate HR	50 - 500 mg/l MoO_4	147295
Nitrate LR, Testpak available only	0 - 1 mg/l NO_3	
Nitrite LR	0- 0.5 mg/l N	147300
Nitrite, Powder Pack	0 - 0.3 mg/l N	147301
Ozone (DPD), in the presence of chlorine	0 - 1.0 mg/l O_3	147270
Ozone (DPD)	0 - 1.0 mg/l O_3	147275
pH value (Phenol red)	6.5 - 8.4 pH	147100
pH value (Bromocresol purple)	5.2 - 6.8 pH	147110
pH value (Bromothymol blue)	6.0 - 7.6 pH	147120
pH value (Universal)	4 - 10 pH	147130
Phosphate, Powder Pack	0 - 2.5 mg/l PO_4	147480
Phosphate HR	0 - 80 mg/l PO_4	147250
Phosphate LR	0 - 4 mg/l PO_4	147240
Silica LR	0.25 - 4 mg/l SiO_2	147350
Silica HR, Powder Pack	0 - 100 mg/l SiO_2	147351
Silica VLR**	0 - 1 mg/l SiO_2	147360
Sodiumhypochlorite	2 - 18 %	147490
Sulfite LR	0.5 - 10 mg/l SO_3	147380
Zinc LR	0 - 1 mg/l Zn	147340

* Disc readings see following pages
** Only with CHECKIT®Comparator D55 with mirror optics (path length 55 mm)

CHECKIT®Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
Alkalinity-M	20 - 240 mg/l $CaCO_3$	20 /30 / 40 / 50 / 60 / 70 / 80 / 90 / 100 / 110 / 120 / 130 140 / 150 / 160 / 170 / 180 / 190 / 200 / 220 / 240	147450
Aluminium	0 - 0.3 mg/l Al	0 / 0.01 / 0.02 / 0.03 / 0.04 / 0.05 / 0.06 / 0.07 / 0.08 / 0.09 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3	147200
Ammonia	0 - 1 mg/l N	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.55 / 0.6 / 0.65 / 0.7 / 0.75 / 0.8 / 0.9 / 0.95 / 1.0	147210
Ammonia VARIO	0 - 0.5 mg/l N	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5	147211
Bromine	0 - 5 mg/l Br	0 / 0.2 / 0.4 / 0.6 / 0.8 / 1.0 / 1.2 / 1.4 / 1.6 / 1.8 / 2 / 2.5 / 3 / 3.5 / 4 / 4.5 / 5	147280
Chlorine free, combined**, total	0 - 1 mg/l Cl_2	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.55 / 0.6 / 0.65 / 0.7 / 0.75 / 0.8 / 0.85 / 0.9 / 0.95 / 1.0	147010
Chlorine free, combined**, total	0 - 2 mg/l Cl_2	0.1 / 0.2 / 0.3 / 0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0 / 1.1 / 1.2 / 1.3 / 1.4 / 1.6 / 1.8 / 2.0	147040
Chlorine free, combined**, total	0 - 4 mg/l Cl_2	0 / 0.2 / 0.4 / 0.6 / 0.8 / 1.0 / 1.2 / 1.4 / 1.6 / 1.8 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0	147020
Chlorine free, combined**, total	0 - 3.5 mg/l Cl_2	0 / 0.2 / 0.4 / 0.6 / 0.8 / 1 / 1.2 / 1.4 / 1.6 / 1.8 / 2 / 2.2 / 2.4 / 2.6 / 2.8 / 3 / 3.2 / 3.4 / 3.5	147052

* RAPID: fast dissolving tablet, # including stirring rod

Testpak	Disc	Reagents	Quantity	Code
147950	146450	ALKACHECK	100 250	4513200BT 4513201BT
147700	146200	ALUMINIUM No.1 ALUMINIUM No.2 Combi pack# ALUMINIUM No.1 / No.2	100 250 100 250 each 100 each 250	4515460BT 4515461BT 4515470BT 4515471BT 4517601BT 4517602BT
147710	146210	AMMONIA No.1 AMMONIA No.2 Combi pack# AMMONIA No.1 / No.2	100 250 100 250 each 100 each 250	4512580BT 4512581BT 4512590BT 4512591BT 4517611BT 4517612BT
147711	146211	VARIO Ammonia Salicylate F10 VARIO Ammonia Cyanurate F10	Powder Pack / 200 Powder Pack / 200 **Set**	 4535500
147780	146280	DPD No.1-RAPID*	100 250 500	4511310BT 4511311BT 4511312BT
147510	146010	DPD No.1-RAPID* DPD No.3-RAPID* DPD No.4-RAPID*	100 250 500 100 250 500 100 250 500	4511310BT 4511311BT 4511312BT 4511290BT 4511291BT 4511292BT 4511570BT 4511571BT 4511572BT
147540	146040	DPD No.1/3/4-RAPID*		
147520	146020	DPD No.1/3/4-RAPID*		
147550, free 147551, total	146050	VARIO Chlorine Free DPD F5 VARIO Chlorine Total DPD F5	100 100	4530090 4530080

Material safety data sheets: www.aqualytic.de

f) additionally required for determination of chlorine dioxide / ozone in the presence of chlorine

CHECKIT®Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
Chlorine free, combined**, total ** maybe calculated by deducting free from total chlorine	0.02 - 0.3 mg/l Cl_2	0.02 / 0.03 / 0.04 / 0.05 / 0.06 / 0.07 / 0.08 / 0.09 / 0.1 / 0.11 / 0.12 / 0.13 / 0.14 / 0.15 / 0.16 / 0.17 / 0.18 / 0.19 / 0.2 / 0.22 / 0.24 / 0.26 / 0.28 / 0.3 only with CHECKIT®Comparator D55 with mirror optics (path length 55 mm)	147000
Chlorine KI total only	10 - 300 mg/l Cl_2	10 / 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90 / 100 / 110 / 120 / 130 / 140 / 150 / 160 / 170 / 180 / 190 / 200 / 250 / 300	147030
Chlorine dioxide	0.01 - 0.2 mg/l ClO_2	0.01 / 0.02 / 0.03 / 0.04 / 0.05 / 0.06 / 0.07 / 0.08 / 0.09 / 0.1 / 0.11 / 0.12 / 0.13 / 0.14 / 0.15 / 0.16 / 0.17 / 0.18 / 0.19 / 0.2 only with CHECKIT®Comparator D55 with mirror optics (path length 55 mm)	147330
Copper, free (Cu^{2+})	0 - 1 mg/l Cu	0 / 0.1 / 0.2 / 0.3 / 0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0	147230
Copper HR free and total	0 - 5 mg/l Cu	0 / 0.5 / 1.0 / 1.5 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0 / 4.5 / 5.0	147430
Copper HR, free only	0 - 5 mg/l Cu	0 / 0.5 / 1 / 1.5 / 2 / 2.5 / 3 / 3.5 / 4 / 5	147431
Copper LR free and total	0 - 1 mg/l Cu	0 / 0.1 / 0.2 / 0.3 / 0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0 only with CHECKIT®Comparator D55 with mirror optics (path length 55 mm)	147440
Copper LR, free only	0 - 1 mg/l Cu	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0 only with CHECKIT®Comparator D55 with mirror optics (path length 55 mm)	147441
DEHA	0 - 0.5 mg/l DEHA	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5	147370

* RAPID: fast dissolving tablet, # including stirring rod

Testpak	Disc	Reagents	Quantity	Code
147500	146000	DPD No.1	100	4511050BT
			250	4511051BT
			500	4511052BT
		DPD No.3	100	4511080BT
			250	4511081BT
			500	4511082BT
		Combi pack#	each 100	4517711BT
		DPD No.1 / No.3	each 250	4517712BT
147530	146030	CHLORINE HR (KI)	100	4513000BT
			250	4513001BT
		ACIDIFYING GP	100	4515480BT
			250	4515481BT
		Combi pack	each 100	4517721BT
		CHLORINE HR (KI)/ACIDIFYING GP	each 250#	4517722BT
147830	146330	DPD No. 1	100	4511050BT
			250	4511051BT
		DPD Glycine f)	100	4512170BT
			250	4512171BT
		Combi pack#	each 100	4517731BT
		DPD No.1 / GLYCINE	each 250	4517732BT
147730	146230	COPPER/ZINC LR	100	4512620BT
			250	4512621BT
147930	146430	COPPER No. 1	100	4513550BT
			250	4513551BT
		COPPER No. 2	100	4513560BT
			250	4513561BT
		Combi pack#	each 100	4517691BT
		COPPER No.1 / No.2	each 250	4517692BT
147931	146431	Vario Cu1 F10	100	4530300
147940	146440	COPPER No. 1	100	4513550BT
			250	4513551BT
		COPPER No. 2	100	4513560BT
			250	4513561BT
		Combi pack#	each 100	4517691BT
		COPPER No.1 / No.2	each 250	4517692BT
147941	146441	Vario Cu1 F10	100	4530300
147870	146370	DEHA	100	4513220BT
			250	4513221BT
		DEHA solution	15 ml	461185
		DEHA solution	100 ml	461181
		Plastic funnel with handle	1	471007

Material safety data sheets: www.aqualytic.de

f) additionally required for determination of chlorine dioxide / ozone in the presence of chlorine

CHECKIT®Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
Fluoride Testpak available only	0.2 - 2 mg/l F	0.2 / 0.4 / 0.6 / 0.8 / 1.0 / 1.2 / 1.4 / 1.6 / 1.8 / 2.0	-----
Iron LR	0 - 1 mg/l Fe	0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.55 / 0.6 / 0.65 / 0.7 / 0.75 / 0.8 / 0.9 / 1.0	147220
Iron HR	1 - 10 mg/l Fe	1 / 1.5 / 2 / 2.5 / 3 / 3.5 / 4 / 4.5 / 5 / 5.5 / 6 / 6.5 / 7 / 7.5 / 8 / 8.5 / 9 / 10	147320
Iron (TPTZ)	0 - 1.8 mg/l Fe	0.1 / 0.2 / 0.3 / 0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1 / 1.1 / 1.2 / 1.3 / 1.4 / 1.5 / 1.6 / 1.7 / 1.8	147470
Manganese LR Testpak available only	0.1 - 0.7 mg/l Mn	0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.55 / 0.6 / 0.65 / 0.7	------
Manganese VLR Testpak available only	0.02 - 0.2 mg/l Mn	0.02 / 0.03 / 0.04 / 0.05 / 0.06 / 0.07 / 0.08 / 0.09 / 0.1 / 0.11 / 0.12 / 0.13 / 0.14 / 0.15 / 0.16 / 0.18 / 0.2 only with CHECKIT®Comparator D55 with mirror optics (path length 55 mm)	-----
Molybdate HR	0 - 100 mg/l MoO_4	0 / 5 / 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 65 / 70 / 75 / 80 / 85 / 90 / 95 / 100	147290
Molybdate HR	50 - 500 mg/l MoO_4	50 / 100 / 150 / 200 / 250 / 300 / 500	147295

* RAPID: fast dissolving tablet, # including stirring rod

Testpak	Disc	Reagents	Quantity	Code
147890	146390	SPADNS reagent solution	250 ml	467481
			500 ml	467482
		Help for pipette	1	365055
		Pipette 2 ml	1	365050
147720	146220	IRON LR (Fe^{2+} and Fe^{3+})	100	4515370BT
			250	4515371BT
		IRON (II) LR (Fe^{2+})	100	4515420BT
147820	146320	IRON HR	100	4515380BT
			250	4515381BT
147970	146470	Vario Iron TPTZ F10	100	4530550
147910	146410	VARIO Manganese Reagent, LR F10	1 Set	4535090
		consists of:		
		VARIO Alkaline-Cyanide Solution	60 ml	
		Vario Ascorbic Acid	100	
		Vario PAN Indicator Solution	60 ml	
		Accessories:		
		VARIO Rochelle Salt Solution needs for samples with hardness values above 300 mg/l $CaCO_3$	30 ml	4530640
147920	146420	VARIO Manganese Reagent, LR F10	1 Set	4535090
		consists of:		
		VARIO Alkaline-Cyanide Solution	60 ml	
		Vario Ascorbic Acid	100	
		Vario PAN Indicator Solution	60 ml	
		Accessories:		
		VARIO Rochelle Salt Solution needs for samples with hardness values above 300 mg/l $CaCO_3$	30 ml	4530640
147790	146290	MOLYBDATE No. 1 HR	100	4513060BT
			250	4513061BT
		MOLYBDATE No. 2 HR	100	4513070BT
			250	4513071BT
		Combi pack#	each 100	4517631BT
		MOLYBDATE No.1 HR / No.2 HR	each 250	4517632BT
147795	146295	MOLYBDATE No. 1 HR	100	4513060BT
			250	4513061BT
		MOLYBDATE No. 2 HR	100	4513070BT
			250	4513071BT
		Combi pack#	each 100	4517631BT
		MOLYBDATE No.1 HR / No.2 HR	each 250	4517632BT

Material safety data sheets: www.aqualytic.de

f) additionally required for determination of chlorine dioxide / ozone in the presence of chlorine

CHECKIT®Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
Molybdate LR	0 - 10 mg/l MoO_4	0 / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10	147291
		only with CHECKIT®Comparator D55 with mirror optics (path length 55 mm)	
Nitrate LR Testpak available only	0 - 1 mg/l N	0 / 0.1 / 0.2 / 0.3 / 0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0	-----
Nitrite LR	0 - 0.5 mg/l N	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5	147300
Nitrite VARIO	0 - 0.3 mg/l N	0 / 0.01 / 0.02 / 0.03 / 0.04 / 0.05 / 0.06 / 0.07 / 0.08 / 0.09 / 0.10 0.11 / 0.12 / 0.13 / 0 .14 / 0.15 / 0.16 / 0.17 / 0.18 / 0.19 / 0.20 0.21 / 0.22 / 0.23 / 0.24 / 0.25 / 0.26 / 0.27 / 0.28 / 0.29 / 0.30	147301
Ozone (DPD) in the presence of chlorine	0 - 1.0 mg/l O_3	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.55 / 0.6 / 0.65 / 0.7 / 0.75 / 0.8 / 0.9 / 1.0	147270
Ozone (DPD)	0 - 1.0 mg/l O_3	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.55 / 0.6 / 0.65 / 0.7 / 0.75 / 0.8 / 0.9 / 1.0	147275
pH	5.2 - 6.8 pH	5.2 / 5.3 / 5.4 / 5.5 / 5.6 / 5.7 / 5.8 / 5.9 / 6.0 / 6.1 / 6.2 / 6.3 / 6.4 / 6.5 / 6.6 / 6.7 / 6.8	147110
	6.0 - 7.6 pH	6.0 / 6.1 / 6.2 / 6.3 / 6.4 / 6.5 / 6.6 / 6.7 / 6.8 / 6.9 / 7.0 / 7.1 / 7.2 / 7.3 / 7.4 / 7.5 / 7.6	147120
	6.5 - 8.4 pH	6.5 / 6.6 / 6.7 / 6.8 / 6.9 / 7.0 / 7.1 / 7.2 / 7.3 / 7.4 / 7.5 / 7.6 / 7.7 / 7.8 / 7.9 / 8.0 / 8.1 / 8.2 / 8.3 / 8.4	147100
pH-Universal	4 - 10 pH	4 / 4.5 / 5 / 5.5 / 6 / 6.5 / 7 / 7.5 / 8 / 8.5 / 9 / 9.5 / 10	147130
Phosphate HR	0 - 80 mg/l PO_4	0 / 5 / 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 55 / 60 / 65 / 70 / 75 / 80	147250
Phosphate LR	0 - 4 mg/l PO_4	0 / 0.25 / 0.5 / 0.75 / 1.0 / 1.25 / 1.5 / 1.75 / 2.0 / 2.25 / 2.5 / 2.75 / 3.0 / 3.25 / 3.5 / 3.75 / 4.0	147240

* RAPID: fast dissolving tablet, # including stirring rod

Testpak	Disc	Reagents	Quantity	Code
147791	146291	MOLYBDATE No. 1 HR	100	4513060BT
			250	4513061BT
		MOLYBDATE No. 2 HR	100	4513070BT
			250	4513071BT
		Combi pack#	each 100	4517631BT
		MOLYBDATE No.1 HR / No.2 HR	each 250	4517632BT
147810	146310	NITRITE LR	100	4512310BT
			250	4512311BT
		NITRATE-Test tablets	100 (bottle)	502810
		NITRATE Test powder	15 g	465230
		NITRATE Test tube	1	366220
147800	146300	NITRITE LR	100	4512310BT
			250	4512311BT
147801	146301	VARIO Nitri 3 F10	Powder Pack / 100	530980
147770	146270	DPD No. 4	100	4511220BT
			250	4511221BT
		DPD Glycine f)	100	4512170BT
			250	4512171BT
147775	146275	DPD No. 4	100	4511220BT
			250	4511221BT
147610	146110	BROMOCRESOL PURPLE	100	4511730
			250	4511731
147620	146120	BROMOTHYMOL BLUE	100	4511640BT
			250	4511641BT
147600	146100	PHENOL RED-RAPID*	100	4511790BT
			250	4511791BT
147630	146130	UNIVERSAL PH	100	4515440
			250	4515441
147750	146250	PHOSPHATE HR	100	4511980
			250	4511981
147740	146240	PHOSPHATE No. 1 LR	100	4513040
		PHOSPHATE No. 2 LR	100	4513050BT
		Combi pack#	each 100	4517651BT
		PHOSPHATE No.1 LR / No.2 LR		

Material safety data sheets: www.aqualytic.de

f) additionally required for determination of chlorine dioxide / ozone in the presence of chlorine

CHECKIT®Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
Phosphate	0 - 2.5 mg/l PO_4	0 / 0.1 / 0.2 / 0.3 / 0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1 / 1.1 / 1.2 1.3 / 1.4 / 1.5 / 1.6 / 1.7 / 1.8 / 1.9 / 2 / 2.1 / 2.2 / 2.3 / 2.4 / 2.5	147480
Silica LR	0.25 - 4 mg/l SiO_2	0.25 / 0.5 / 0.75 / 1.0 / 1.25 / 1.5 / 1.75 / 2.0 / 2.5 / 3.0 / 3.5 / 4	147350
Silica HR VARIO	0 - 100 mg/l SiO_2	0 / 10 / 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90 / 100	147351
Silica VLR	0 - 1 mg/l SiO_2	0 / 0.05 / 0.1 / 0.15 / 0.2 / 0.25 / 0.3 / 0.35 / 0.4 / 0.45 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0	147360
Sodiumhypochlorite	2 - 18 %	2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12 / 13 / 14 / 15 / 16 / 18	147490
Sulfite LR	0.5 - 10 mg/l SO_3^{2-}	0.5 / 1 / 1.5 / 2 / 2.5 / 3 / 3.5 / 4 / 4.5 / 5 / 6 / 7 / 8 / 9 / 10	147380
Zinc LR	0 - 1 mg/l Zn	0 / 0.1 / 0.2 / 0.3 / 0.4 / 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0	147340

* RAPID: fast dissolving tablet, # including stirring rod

Testpak	Disc	Reagents	Quantity	Code
147980	146480	Vario PHOS 3 F10	100	531550
147850	146350	SILICA No. 1	100	4513130
			250	4513131
		SILICA No. 2	100	4513140
			250	4513141
		Combi pack#	each 100	4517671
		SILICA No.1 / No.2	each 200	4517672
		SILICA PR	100	4513150
			250	4513151
147851	146351	Vario Silica HR Molybdate F10	Powder Pack / 100	
		Vario Silica HR Acid Rgt F10	Powder Pack / 100	
		Vario Silica HR Citric Acid F10	Powder Pack / 100	
			Set	535700
147860	146360	SILICA No. 1	100	4513130
			250	4513131
		SILICA No. 2	100	4513140
			250	4513141
		Combi pack#	each 100	4517671
		SILICA No.1 / No.2	each 200	4517672
		SILICA PR	100	4513150
			250	4513151
147990	146490	CHLORINE HR (KI)	100	4513000BT
			250	4513001BT
		ACIDIFYING GP	100	4515480BT
			250	4515481BT
		Combi pack#	each 100	4517721BT
		CHLORINE HR (KI)/ACIDIFYING GP	each 250	4517722BT
		Dilution set for sample preparation	1	414470
147880	146380	SULFITE LR	100	4518020
147840	146340	COPPER/ZINC LR	100	4512620BT
			250	4512621BT
		EDTA	100	4512390BT
			250	4512391BT
		DECHLOR	100	4512350BT
			250	4512351BT

Material safety data sheets: www.aqualytic.de

f) additionally required for determination of chlorine dioxide / ozone in the presence of chlorine

Comparator 2000+

The system for colorimetric water analysis

Comparator 2000+

With its accessories, the AQUALYTIC® Comparator 2000+ is an extremely versatile, modular system for testing water. It is simple to use yet is uncompromising in terms of precision and reproducibility of results. It is compact and portable. The integrated prism brings the glass standards of the test discs and the coloured sample into the same field of view.

Highlights

- More than 400 different test discs are available
- Compensation for coloured and turbid samples
- Guaranteed constancy of the coloured glass standards
- Integrated prism

Test discs

The required accuracy of results is only ensured if stable, fade-free colour standards are used.

Glass colour standards are fade-free, resistant to chemicals and scratchproof. AQUALYTIC® standards are made from coloured glass filters. They comply with international standards, e.g. ISO 7393/2.

Please see the table on page 110 for information on the various test discs or refer to our **L 213 test disc catalogue**.

Lighting unit

We recommend the use of the battery-operated AQUALYTIC® lighting unit in variable lighting conditions. This guarantees uniform lighting conditions, and ensures greater test accuracy.

Cells

We manufacture precision plastic and optical glass cells in line with the highest quality standards. The cells ensure high precision and reproducibility of results.

Comparator 2000+

Test disc with colour-stable glass standards

Tablet reagents in foil blister strip (BT)

Nessleriser 2150 and Comparator with lighting unit

Applications

- Water Treatment (e.g. Drinking Water)
- Pool-Water
- Research Centres
- Universities
- Special Applications
- Laboratory and Field Testing

Comparator 2000+

Test Kits – Complete kits for water analysis

Scope of delivery for standard kits

Comparator test kits are supplied as a complete system in a sturdy plastic case. Together with the Comparator 2000+ and test discs, each kit includes all the necessary cells, accessories and AQUALYTIC® tablet reagents (for 100 measurements) to achieve reliable results.

The table to the right shows a selection of the most popular standard test kits.

Customised equipment

In addition to supplying standard test kits, we can construct customised kits to suit individual requirements.

Based on the desired test parameters and measuring ranges we will draw up a detailed offer to suit your application.

Combi Test Kits

Type	Designation/Combi	Test	Range*	Code
AF 270	**Mini Lab Pool Water**	Aluminium Ammonia Chlorine Chloride Cyanuric acid Iron pH-value Total Alkalinity Sulphate	0 - 0.5 mg/l Al 0 - 0.4 mg/l N 0.1 - 1.0 mg/l Cl_2 1.0 - 4.0 mg/l Cl_2 5 - 5000 mg/l Cl 0 - 80 mg/l 0.1 - 1.0 mg/l Fe 5.2 - 6.8 pH 6.8 - 8.4 pH 20 - 800 mg/l $CaCO_3$ 40 - 4000 mg/l SO_4	412700
AF 357	**Drinking Water**	Chloride (salinity) Chlorine Hardness Total Fluoride Hazen Colour pH-value	0 - 5000 mg/l Cl 0.02 - 0.3 mg/l Cl_2 0.2 - 4 mg/l Cl_2 0 - 500 mg/l $CaCO_3$ 0 - 1.6 mg/l F 10 - 90 mg/l Pt 6 - 8.4 pH	413570
AF 358	**Sewage and Domestic Effluents**	Ammonia Chlorine Nitrite Permanganate (BOD) pH-value Sulphide	0 - 1 mg/l N 0.1 - 1 mg/l Cl_2 1 - 10 mg/l Cl_2 0.05 - 0.5 mg/l N 0 - 60 mg/l 4 - 8 ; 8 - 9.6 pH 0 - 0.5 mg/l S	413580
AF 368	**Mini Lab Heavy Metals**	Chromium Copper Cyanide Nickel Zinc	10 - 100 µg Cr 2.5 - 50 µg Cu 0.05 - 1 mg/l Cn 1 - 10 mg/l Ni 0 - 50 µg Zn	413680

* Disc readings see following pages

Optional accessory

All test kit versions allow integration of the battery-operated portable lighting unit TK 102 and charger TK 102/ 1.

Operating instructions

The operating instructions provide a step-by-step explanation of how to conduct the water test, ensuring that even "non-chemists" can achieve reliable and accurate measurements in the minimum of time.

Single Test Kits

Type	Designation/Combi	Test	Range*	Code
AF 274	**Amine**	Amine	1 - 10 mg/l	412740
AF 112A	**Chlorine** free, comb. tot.	Chlorine	0.1 - 1 mg/l Cl_2	411120
AF 112B	**Chlorine** free, comb. tot.	Chlorine	0.2 - 4 mg/l Cl_2	411130
AF 112E	**Chlorine** free, comb. tot.	Chlorine	0.02 - 0.3 mg/l Cl_2	411250
AF 112E/F	**Chlorine** free, comb. tot.	Chlorine Chlorine	0.02 - 0.3 mg/l Cl_2 0.2 - 0.8 mg/l Cl_2	411126
AF 112J/J	**Chlorine** free, comb. tot.	Chlorine pH-value	0.1 - 2.0 mg/l Cl_2 6.8 - 8.4 pH	417246
AF 112N/T	**Chlorine** free, comb. tot.	Chlorine Chlorine	0.1 - 1.0 mg/l Cl_2 1.1 - 2.0 mg/l Cl_2	410120
AF 112ED	**Chlorine dioxide**	Chlorine dioxide	0.04 - 0.57 mg/l ClO_2	410001
AF 112 EF/ED	**Chlorine dioxide**	Chlorine dioxide	0.04 - 1.52 mg/l ClO_2	410007
AF 116A	**Chlorine, pH**	Chlorine pH-value	0.1 - 1 mg/l Cl_2 6.8 - 8.4 pH	411140
AF 116B	**Chlorine, pH**	Chlorine pH-value	0.2 - 4 mg/l Cl_2 6.8 - 8.4 pH	411160
AF 118S	**Chlorine, pH**	Chlorine pH-value	0.1 - 4 mg/l Cl_2 5.2 - 8.4 pH	411181
AF 139	**Sodium hypochlorite**	Sodium hypochlorite	2 - 18 % NaOCl	411390
AF 129	**Water Balance**			411290

* Disc readings see following pages

Comparator 2000+

Tests | Discs | Reagents | Cells

Test	Disc	Disc Readings	Range	Code
Aluminium	3/127 A	0; 0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.4; 0.5 mg/l	0 - 0.5 mg/l	230205
Amine	5/58	1; 2; 3; 4; 5; 6; 7; 8; 10 mg/l	1.0 - 10 mg/l	235800
Amine	3/64	0; 0.25; 0.5; 1; 2 mg/l	0 - 2 mg/l	236400
Ammonia	3/112	0; 0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.35; 0.4 mg/l	0 - 0.4 mg/l NH4	230060
Ammonia	3/113	0; 0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.8; 1 mg/l	0 - 1.0 mg/l N	230070
Ammonia	3/125	0; 1; 2; 3; 4; 5; 6; 8; 10 mg/l	0 - 10 mg/l N	230180
Ammonia	NAA	1; 2; 3; 4; 5; 6; 8; 10 µg	1 - 10 µg NH_3	283110
Ammonia	NAB	10; 12; 14; 16; 18; 20; 22; 24; 26 µg	10 - 26 µg NH_3	283120
Ammonia	NAC	28; 32; 36; 40; 44; 48; 52; 56; 60 µg	28 - 60 µg NH_3	283130
Ammonia	NAD	60; 65; 70; 75; 80; 85; 90; 95; 100 µg	60 - 100 µg NH_3	283140
Bromine	3/53A	0.2; 0.4 ; 0.6; 0.8; 1; 1.2; 1.4; 1.6; 2 mg/l	0.2 - 2.0 mg/l	235310
Bromine	3/53B	1; 2; 3; 4; 5; 6; 7; 8; 10 mg/l	1.0 - 10 mg/l	235320
Bromine	3/53C	0.5; 1; 1.5; 2; 2.5; 3; 4; 5; 6 mg/l	0.5 - 6 mg/l	235330

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
ALUMINIUM No.1	100	4515460BT	13.5 mm cell, 10ml	354243
	250	4515461BT		
ALUMINIUM No.2	100	4515470BT		
	250	4515471BT		
Combi pack#	each 100	4517601BT		
ALUMINIUM No.1 / No.2	each 250	4517602BT		
AMINE	100	4511010	Extraction tube AF260	352600
	250	4511011		
Details on request			13.5 mm cell, 10ml	354243
AMMONIA No.1	100	4512580BT	40 mm cell W680/40	606890
	250	4512581BT		
AMMONIA No.2	100	4512590BT		
	250	4512591BT		
Combi pack#	each 100	4517611BT		
AMMONIA No.1 / No.2	each 250	4517612BT		
AMMONIA No.1/2			13.5 mm cell, 10ml	354243
AMMONIA No.1/2			5 mm cell W680	606790
NESSLER reagent	30 ml	465200	Nessler tubes 113 mm	353060
	100 ml	465201		
SEIGNETTE salt solution	100 ml	466101		
NESSLER reagent SEIGNETTE salt solution			Nessler tubes 113 mm	353060
NESSLER reagent SEIGNETTE salt solution			Nessler tubes 113 mm	353060
NESSLER reagent SEIGNETTE salt solution			Nessler tubes 113 mm	353060
DPD No.1	100	4511050BT	13.5 mm cell, 10ml	354243
	250	4511051BT		
	500	4511052BT		
DPD No.1			13.5 mm cell, 10ml	354243
DPD No.1			13.5 mm cell, 10ml	354243

Comparator 2000+

Tests | Discs | Reagents | Cells

Test	Disc	Disc Readings	Range	Code
Chlorine free, combined, total	3/40E	0.02; 0.04 ; 0.06; 0.08; 0.1; 0.15; 0.2; 0.25; 0.3 mg/l	0.02 - 0.3 mg/l	234060
Chlorine free, comb., total		0.02; 0.04 ; 0.06; 0.08; 0.1; 0.2; 0.3; 0.4; 0.5 mg/l	0.02 - 0.5 mg/l	295920
Chlorine free, comb., total	3/40F	0.2; 0.25 ; 0.3; 0.35; 0.4; 0.5; 0.6; 0.7; 0.8 mg/l	0.2 - 0.8 mg/l	234070
Chlorine free, comb., total	3/40G	1.5; 1.8; 2.0; 2.3; 2.5; 2.7; 3.0; 3.2; 3.5 mg/l	1.5 - 3.5 mg/l	234030
Chlorine free, comb., total	3/40A	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1 mg/l	0.1 - 1.0 mg/l	234010
Chlorine free, comb., total	3/40T	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1 mg/l	0.1 - 1.0 mg/l	234110
Chlorine free, comb., total	3/40N	1.1; 1.2; 1.3; 1.4; 1.5; 1.6; 1.7; 1.8; 2 mg/l	1.1 - 2.0 mg/l	233960
Chlorine free, comb., total	3/40J	0.1; 0.2; 0.3; 0.4; 0.6; 0.8; 1; 1.5; 2 mg/l	0.1 - 2.0 mg/l	234140
Chlorine free, comb., total	3/40B	0.2; 0.4; 0.6; 1; 1.5; 2; 2.5; 3; 4 mg/l	0.2 - 4.0 mg/l	234020
Chlorine free, comb., total	3/40K	0.5; 1; 1.5; 2; 2.5; 3; 4; 5; 6 mg/l	0.5 - 6.0 mg/l	233930
Chlorine free, comb., total	3/40S	1; 1.2; 1.4; 1.6; 1.8; 2; 2.5; 3; 4 mg/l	1.0 - 4.0 mg/l	234090
Chlorine free, comb., total	3/40P	2; 2.3; 2.5; 2.7; 3; 3.2; 3.6; 4; 5 mg/l	2.0 - 5.0 mg/l	233920
Chlorine free, comb., total	3/40HN	2; 3; 4; 5; 6; 7; 8; 9; 10 mg/l	2.0 - 10 mg/l	234081
Chlorine free, comb., total	3/40CZ	0.5; 1; 1.5; 2; 4 mg/l Cl_2 7; 7.4; 7.6; 8 pH	0.5 - 4 mg/l Cl_2 7 - 8 pH	233990
Chlorine free, comb., total	3/2A	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1 mg/l	0.1 - 1.0 mg/l	232010

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
DPD No.1	100	4511050BT	40 mm cell W680/40	606890
	250	4511051BT		
	500	4511052BT		
DPD No.2	100	4511530BT		
	250	4511531BT		
DPD No.3	100	4511080BT		
	250	4511081BT		
	500	4511082BT		
Combi pack#	each 100	4517711BT		
DPD No.1 / No.3	each 250	4517712BT		
DPD No.4	100	4511220BT		
	250	4511221BT		
	500	4511222BT		
DPD No.1/2/3/4			40 mm cell W680/40	606890
DPD No.1/2/3/4			40 mm cell W680/40	606890
DPD No.1/2/3/4			13.5 mm cell, 10ml	354243
DPD No.1/2/3/4			13.5 mm cell, 10ml	354243
DPD No.1/2/3/4			25 mm cell W680/25 13.5 mm cell, 10ml	606860 354243
DPD No.1/2/3/4			25 mm cell W680/25 13.5 mm cell, 10ml	606860 354243
DPD No.1/2/3/4			13.5 mm cell, 10ml	354243
DPD No.1/2/3/4			13.5 mm cell, 10ml	354243
DPD No.1/2/3/4			13.5 mm cell, 10ml	354243
DPD No.1/2/3/4			13.5 mm cell, 10ml	354243
DPD No.1/2/3/4			13.5 mm cell, 10ml	354243
DPD No.1/2/3/4			5 mm cell W680/5	606790
DPD No.1/2/3/4 Phenol red tablets, see pH determination			13.5 mm cell, 10ml 13.5 mm cell, 10ml	354243 354243
Reagents at specialized chemistry dealer			13.5 mm cell, 10ml	354243

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Tests | Discs | Reagents | Cells

Test	Disc	Disc Readings	Range	Code
Chlorine free, comb., total	3/2AB	0.15; 0.25; 0.5; 0.75; 1; 1.25; 1.5; 1.75; 2 mg/l	0.15 - 2.0 mg/l	232020
Chlorine free, comb., total	3/2APC	1; 1.5; 2; 2.5; 3; 3.5; 4; 4.5; 5 mg/l	1.0 - 5.0 mg/l	232050
Chlorine HR total chlorine only	3/2APH	2; 3; 4; 5; 6; 7; 8; 9; 10 mg/l gesamt Cl_2	2 - 10 mg/l	232060
Chlorine HR total chlorine only	3/2ARP	5; 10; 15; 20; 25; 30; 35; 40; 50 mg/l gesamt Cl_2	5.0 - 50 mg/l	232070
Chlorine HR total chlorine only	3/2IOD	5; 10; 25; 50; 75; 100; 150; 200; 250 mg/l gesamt Cl_2	5.0 - 250 mg/l	232090
Chlorine free, combined, total	NDPB	0.01; 0.02; 0.03; 0.04; 0.05; 0.06; 0.07; 0.08; 0.1 mg/l	0.01 - 0.1 mg/l	283450
Chlorine free, combined, total	NDPC	0.02; 0.04; 0.06; 0.08; 0.1; 0.12; 0.14; 0.16; 0.2 mg/l	0.02 - 0.2 mg/l	283460
Chlorine free, combined, total	NDP	0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.35; 0.4; 0.5 mg/l	0.05 - 0.5 mg/l	283440
Chlorine free, combined, total	NDPD	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1 mg/l	0.1 - 1.0 mg/l	283470
Chlorine dioxide	3/40AD	0.19; 0.38; 0.57; 0.76; 0.95; 1.14; 1.33; 1.52; 1.9 mg/l	0.19 - 1.9 mg/l	292260
Chlorine dioxide	3/40ED	0.04; 0.08; 0.11; 0.15; 0.19; 0.28; 0.38; 0.48; 0.57 mg/l	0.04 - 0.57 mg/l	297970
Chlorine dioxide	3/40FD	0.38; 0.48; 0.57; 0.66; 0.76; 0.95; 1.14; 1.33; 1.52 mg/l	0.38 - 1.52 mg/l	298750

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
Reagents at specialized chemistry dealer			13.5 mm cell, 10ml	354243
Reagents at specialized chemistry dealer			5 mm cell W680/5	606790
CHLORINE HR (KI) ACIDIFYING GP Combi pack# CHLORINE HR (KI)/ ACIDIFYING GP	100 250 100 250 each 100 each 250	4513000BT 4513001BT 4515480BT 4515481BT 4517721BT 4517722BT	40 mm cell W680/40	606890
CHLORINE HR (KI) ACIDIFYING GP			13.5 mm cell, 10ml	354243
CHLORINE HR (KI) ACIDIFYING GP			13.5 mm cell, 10ml	354243
DPD No.1 NESSLERISER DPD No.2 NESSLERISER DPD No.3 NESSLERISER DPD No.4 NESSLERISER	100 250 100 250 100 250 100 250	4511230BT 4511231BT 4511240 4511241 4511250BT 4511251BT 4511260BT 4511261BT	Nessleriser 2150 Nessler tubes 113 mm	172150 353060
DPD No.1/2/3/4 NESSLERISER			Nessleriser 2150 Nessler tubes 113 mm	172150 353060
DPD No.1/2/3/4 NESSLERISER			Nessleriser 2150 Nessler tubes 113 mm	172150 353060
DPD No.1/2/3/4 NESSLERISER			Nessleriser 2150 Nessler tubes 113 mm	172150 353060
DPD No.1	100 250	4511050BT 4511051BT	13.5 mm cell, 10 ml	354243
DPD No.1			40 mm cell W680/40	606890
DPD No.1			40 mm cell W680/40	606890

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Tests | Discs | Reagents | Cells

Test	Disc	Disc Readings	Range	Code
Chlorine dioxide	3/157	0.25; 0.5; 0.75; 1; 1.25; 1.5; 2; 3; 5 mg/l	0.25 - 5.0 mg/l	230570
Chromium	3/59	10; 20; 30; 40; 50; 60; 70; 80; 100 µg	10 - 100 µg	235900
Copper	3/106	0; 0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.8; 1 mg/l	0 - 1.0 mg/l	230050
Copper	3/110	0; 0.5; 1; 1.5; 2; 2.5; 3; 3.5; 4 mg/l	0 - 4.0 mg/l	230040
DEHA	3/150	8; 16; 24; 32; 40; 48; 56; 64; 80 µg/l Disc reading should be multiplied by 2 for true DEHA concentration	16 - 160 µg	230460
Fluoride	NOM	0; 0.2; 0.4; 0.6; 0.8; 1; 1.2; 1.4; 1.6 mg/l	0 - 1.6 mg/l	283730
Hardness, total	4/38	0; 5; 10; 15; 20; 25; 30; 40; 60 mg/l	0 - 60 mg/l $CaCO_3$	231070
Hazen/APHA	4/28	50; 75; 100; 150; 200; 250; 300; 400; 500 mg Pt/l	50 - 500 mg/l Pt	242801
Hazen/APHA	NSH	10; 20; 30; 40; 50; 60; 70; 80; 90 mg Pt/l	10 - 90 mg/l Pt	284170
Hazen/APHA	NSB	70; 85; 100; 125; 150; 175; 200; 225; 250 mg Pt/l	70 - 250 mg/l Pt	284120
Hazen/APHA	CAA	0; 2.5; 5; 7.5; 10; 15; 20; 25; 30 mg Pt/l	0 - 30 mg/l Pt	284150
Hazen/APHA	CAB	30; 35; 40; 45; 50; 55; 60; 65; 70 mg Pt/l	30 - 70 mg/l Pt	284160
Hydrazine	3/126	0; 0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.4; 0.5 mg/l	0 - 0.5 mg/l	230190
Hydrazine	3/135	0.02; 0.04; 0.06; 0.08; 0.1; 0.12; 0.14; 0.16; 0.2 mg/l	0.02 - 0.2 mg/l	230290
Hydrazine	3/85	0; 0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.8; 1 mg/l	0 - 1.0 mg/l	238500

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
CHLORINE HR (KI) ACIDIFYING GP Combi pack# CHLORINE HR (KI)/ ACIDIFYING GP	100 250 100 250 each 100 each 250	4513000BT 4513001BT 4515480BT 4515481BT 4517721BT 4517722BT	40 mm cell W680/40	606890
Details on request			13.5 mm cell, 10 ml	354243
COPPER/ZINC LR	100 250	4512620BT 4512621BT	13.5 mm cell, 10 ml	354243
COPPER/ZINC HR	100 250	4512340BT 4512341BT	13.5 mm cell, 10 ml	354243
DEHA DEHA solution	100 250 100 ml	4513220BT 4513221BT 461181	40 mm cell W680/40	606890
FLUORIDE A-Z FLUORIDE EXCESS AL	100 250 100 250	4511400 4511401 4511410 4511411	Nessleriser 2150 Nessler tubes 113 mm	172150 353060
ERIOCHROME HARDNESS powder	100 Tests	462950	13.5 mm cell, 10 ml	354243
Straight colour match to sample			40 mm cell W680/40	606890
Straight colour match to sample			Nessleriser 2150 Nessler tubes 113 mm	172150 353060
Straight colour match to sample			Nessleriser 2150 Nessler tubes 113 mm	172150 353060
Straight colour match to sample			Nessleriser 2250 Nessler tubes 250 mm	172250 354200
Straight colour match to sample			Nessleriser 2250 Nessler tubes 250 mm	172250 354200
HYDRAZINE TEST powder	30 g	462910	13.5 mm cell, 10 ml	354243
HYDRAZINE TEST powder	30 g	462910	40 mm cell W680/40	606890
p-DMAB reagent	100 ml	461261	13.5 mm cell, 10 ml	354243

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Tests | Discs | Reagents | Cells

Test	Disc	Disc Readings	Range	Code
Hydrazine	NOH	0; 0.5; 1; 2; 3; 4; 6; 8; 10 µg	0 - 10 µg/l	283700
Hydrogen peroxide	3/50 A	0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.35; 0.4; 0.5 mg/l	0.05 - 0.5 mg/l	235000
Hydrogen peroxide	3/50 B	0.1; 0.2; 0.3; 0.4; 0.6; 1; 1.5; 2; 3 mg/l	0.1 - 3 mg/l	235010
Hydrogen peroxide	3/50 E	0.01; 0.02; 0.03; 0.04; 0.05; 0.07; 0.09; 0.12; 0.15 mg/l	0.01 - 0.15 mg/l	235020
Iodine	3/77A	0.4; 0.7; 1.1; 1.4; 1.8; 2.2; 2.5; 2.9; 3.6 mg/l	0.4 - 3.6 mg/l	237710
Iodine	3/77B	0.7; 1.4; 2.2; 3.6; 5.4; 7.2; 9.0; 11; 14 mg/l	0.7 - 14 mg/l	237720
Iron, total	3/144	0.02; 0.04; 0.06; 0.08; 0.1; 0.15; 0.2; 0.25; 0.3 mg/l	0.02 - 0.3 mg/l	230380
Iron, total	3/116	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1 mg/l	0.1 - 1.0 mg/l	230100
Iron, total	3/117	1; 2; 3; 4; 5; 6; 7; 8; 10 mg/l	1.0 - 10 mg/l	230110
Iron, total	NOL	0.01; 0.02; 0.03; 0.04; 0.05; 0.06; 0.07; 0.08; 0.10 mg/l	0.01 - 0.1 mg/l	283720
Manganese	3/169	0; 0.5; 1; 1.5; 2; 2.5; 3; 3.5; 4 mg/l	0 - 4.0 mg/l	230690
Molybdate	3/162	0; 1; 2; 3; 4; 5; 6; 8; 10 mg/l	0 -10 mg/l MoO_4	230620
Molybdate	3/137	5; 10; 15; 20; 25; 30; 35; 40; 50 mg/l	5.0 -50 mg/l MoO_4	230320
Molybdate	3/138	10; 20; 30; 40; 60; 80; 100; 120; 150 mg/l	10 -150 mg/l MoO_4	230330

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
p-DMAB reagent	100 ml	461261	Nessler tubes 113 mm	353060
HYDR. PEROXIDE LR	100 250	4512380BT 4512381BT	13.5 mm cell, 10ml	354243
HYDR. PEROXIDE LR			13.5 mm cell, 10ml	354243
HYDR. PEROXIDE LR			40 mm cell W680/40	606890
DPD No.1	100 250	4511050BT 4511051BT	13.5 mm cell, 10 ml	354243
DPD No.1			13.5 mm cell, 10 ml	354243
IRON LR (Fe^{2+} and Fe^{3+})	100 250	4515370BT 4515371BT	40 mm cell W680/40	606890
IRON LR (Fe^{2+} and Fe^{3+}) IRON (II) LR (Fe^{2+})	100 250 100	4515370BT 4515371BT 4515420BT	13.5 mm cell, 10 ml	354243
IRON HR	100 250	4515380 4515381	13.5 mm cell, 10 ml	354243
IRON LR + IRON (II) LR			Nessleriser 2150 Nessler tubes 113 mm	172150 353060
MANGANESE LR 1 MANGANESE LR 2 Combi pack# MANGANESE LR 1/ MANGANESE LR 2	100 250 100 250 each 100 each 250	4516080BT 4516081BT 4516090BT 4516091BT 4517621BT 4517622BT	13.5 mm cell, 10 ml	354243
Details on request			40 mm cell W680/40	606890
MOLYBDATE No.1 HR MOLYBDATE No.2 HR Combi pack# MOLYBDATE No.1 HR / MOLYBDATE No.2 HR	100 250 100 250 each 100 each 250	4513060BT 4513061BT 4513070BT 4513071BT 4517631BT 4517632BT	40 mm cell W680/40	606890
MOLYBDATE No.1 HR MOLYBDATE No.2 HR			13.5 mm cell, 10 ml	354243

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Test	Disc	Disc Readings	Range	Code
Nitrate	3/124	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1 mg/l	0.1 -1.0 mg/l NO3	230170
Nitrate	3/142	10; 20; 30; 40; 50; 60; 70; 80; 100 mg/l	10 -100 mg/l NO3	230360
Nitrite	3/103	0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.35; 0.4; 0.5 mg/l	0.05 - 0.5 mg/l N	230030
Nitrite	NJP	0.002; 0.004; 0.006; 0.01; 0.015; 0.02; 0.03; 0.04; 0.05 mg/l	0.002 - 0.05 mg/l N	283960
Nitrite	NJ	0.05; 0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.8; 1 µg/l	0.05 - 1.0 µg/l N	283580
Oxygen	3/165	2; 3; 4; 5; 6; 7; 8; 10; 12 mg/l	2.0 - 12 mg/l	230650
Oxygen	NOE	0; 0.005; 0.01; 0.015; 0.03; 0.055; 0.08; 0.1; 0.12 mg/l	0 - 0.12 mg/l	283680
Ozone	3/67	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1 mg/l	0.1 - 1.0 mg/l	236700
Ozone	3/67A	0.01; 0.02; 0.03; 0.04; 0.05; 0.06; 0.07; 0.08; 0.1 mg/l	0.01 - 0.1 mg/l	236710
Ozone	3/67S	0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.35; 0.4; 0.45 mg/l	0.05 - 0.45 mg/l	236770
Ozone	3/148	0; 0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.4; 0.5 mg/l	0 - 0.5 mg/l	230440
pH	2/1A	1.2; 1.4; 1.6; 1.8; 2.0; 2.2; 2.4; 2.6; 2.8	1.2 - 2.8 pH	221010
pH	2/1B	2.8; 3; 3.2; 3.4; 3.6; 3.8; 4; 4.2; 4.4	2.8 - 4.4 pH	221030
pH	2/1C	3.6; 3.8; 4; 4.2; 4.4; 4.6; 4.8; 5; 5.2	3.6 - 5.2 pH	221050

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
NITRATE-TEST tablets NITRATE Test powder NITRITE LR	100 (bottle) 15 g 100 250	502810 465230 4512310BT 4512311BT	13.5 mm cell, 10 ml Nitrat-Test tubes	354243 366220
NITRATE No.1 NITRATE No.2 Combi pack# Nitrate No.1 / No.2	100 250 100 250 each 100 each 250	4513110 4513111 4513120 4513121 4517641 4517642	13.5 mm cell, 10 ml	354243
NITRITE LR	100 250	4512310BT 4512311BT	13.5 mm cell, 10 ml	354243
NITRITE LR NITRITE ACIDIFYING	100 250 250 (bottle)	4512310BT 4512311BT 502371	Nessler tubes 113 mm	353060
Details on request			Nessler tubes 113 mm	353060
DO reagent No.1 DO reagent No.2 DO reagent No.3	100 Tests 100 Tests 90 Tests	461150 461160 461170	13.5 mm cell, 10 ml	354243
INDIGO CARMINE	50 (bottle)	501510	Nessleriser 2150 special tubes AF315	172150 353150
DPD No.4	100 250	4511220BT 4511221BT	13.5 mm cell, 10 ml	354243
DPD No.4	100 250	4511220BT 4511221BT	40 mm cell W680/40	606890
DPD No.4	100 250	4511220BT 4511221BT	13.5 mm cell, 10 ml	354243
OZONE-INDIGO	100 250	4513170BT 4513171BT	40 mm cell W680/40	606890
THYMOL BLUE	100 250	4511650 4511651	13.5 mm cell, 10 ml	354243
BROMOPHENOL BLUE	100 250	4511620 4511621	13.5 mm cell, 10 ml	354243
BROMOCRESOL GREEN	100 250	4511760 4511761	13.5 mm cell, 10 ml	354243

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Test	Disc	Disc Readings	Range	Code
pH	2/1E	4.4; 4.6; 4.8; 5; 5.2; 5.4; 5.6; 5.8; 6	4.4 - 6.0 pH	221080
pH	2/1G	5.2; 5.4; 5.6; 5.8; 6; 6.2; 6.4; 6.6; 6.8	5.2 - 6.8 pH	221100
pH	2/1H	6; 6.2; 6.4; 6.6; 6.8; 7; 7.2; 7.4; 7.6	6.0 - 7.6 pH	221110
pH	2/1J	6.8; 7; 7.2; 7.4; 7.6; 7.8; 8; 8.2; 8.4	6.8 - 8.4 pH	221130
pH	2/1K	7.2; 7.4; 7.6; 7.8; 8; 8.2; 8.4; 8.6; 8.8	7.2 - 8.8 pH	221140
pH	2/1L	8; 8.2; 8.4; 8.6; 8.8; 9; 9.2; 9.4; 9.6	8.0 - 9.6 pH	221190
pH	2/1P	4; 5; 6; 7; 8; 9; 9.4; 10; 11	4.0 - 11 pH	221220
pH	NLC	6; 6.2; 6.4; 6.6; 6.8; 7; 7.2; 7.4; 7.6	6.0 - 7.6 pH	281030
pH	NLF	8; 8.2; 8.4; 8.6; 8.8; 9; 9.2; 9.4; 9.6	8.0 - 9.6 pH	281060
Phosphate	3/133	0; 0.25; 0.5; 1; 1.5; 2; 2.5; 3; 4 mg/l	0 - 4.0 mg/l PO4	230270
Phosphate	3/136	0; 5; 10; 15; 20; 25; 30; 35; 40 mg/l	0 - 40 mg/l PO4	230310
Phosphate	3/12	0; 10; 20; 30; 40; 50; 60; 70; 80 mg/l	0 - 80 mg/l PO4	231200
Phosphate	3/70	0; 10; 20; 30; 40; 50; 60; 70; 80; 100 mg/l	0 - 100 mg/l PO4	237000

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
METHYL RED	100 ml	451631	13.5 mm cell, 10 ml	354243
BROMOCRESOL PURPLE	100 250	4511730 4511731	13.5 mm cell, 10 ml	354243
BROMOTHYMOL BLUE	100 250	4511640BT 4511641BT	13.5 mm cell, 10 ml	354243
PHENOL RED	100 250	4511750BT 4511751BT	13.5 mm cell, 10 ml	354243
CRESOL RED	100 250	4511600 4511601	13.5 mm cell, 10 ml	354243
THYMOL BLUE	100 250	4511650 4511651	13.5 mm cell, 10 ml	354243
UNIVERSAL PH Indicator	25 ml 100 ml 250 ml 500 ml	451770 451771 451772 451773	13.5 mm cell, 10 ml	354243
BROMOTHYMOL BLUE PH Indicator	25 ml 100 ml 250 ml 500 ml	451620 451621 451622 451623	Nessler tubes 113 mm	353060
THYMOL BLUE PH Indicator	25 ml 100 ml 250 ml 500 ml	451650 451651 451652 451653	Nessler tubes 113 mm	353060
PHOSPHATE No.1 LR PHOSPHATE No.2 LR Combi pack# PHOSPHATE No.1 LR / No.2 LR	100 100 each 100	4513040 4513050BT 4517651BT	13.5 mm cell, 10 ml	354243
PHOSPHATE HR	100 250	4511980 4511981	13.5 mm cell, 10 ml	354243
Details on request			13.5 mm cell, 10 ml	354243
PHOSPHATE HR	100 250	4511980 4511981	13.5 mm cell, 10 ml	354243

Comparator 2000+

Tests | Discs | Reagents | Cells

Test	Disc	Disc Readings	Range	Code
Phosphate	3/60	10; 20; 30; 40; 50; 60; 70; 80; 100 mg/l	10 - 100 mg/l PO4	236000
Phosphate	NMD	10; 20; 30; 40; 50; 60; 70; 80; 100 µg/l	10 - 100 µg/l PO4	283950
QAC (Quaternary Ammonia Compounds)	3/118	0; 2; 4; 6; 8; 10; 12; 15; 20 mg/l	0 - 20 mg/l	230120
QAC (Quaternary Ammonia Compounds)	3/119	0; 20; 40; 60; 80; 100; 120; 150; 200 mg/l	0 - 200 mg/l	230130
Silica	3/139	0.4; 0.6; 1; 1.5; 2; 2.5; 3; 3.5; 4 mg/l	0.4 - 4.0 mg/l SiO_2	230340
Silica	3/147	1; 2; 3; 4; 5; 6; 7; 8; 10 mg/l	1.0 - 10 mg/l SiO_2	230420
Silica	3/140	0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 1.0 mg/l	0.1 - 1.0 mg/l SiO_2	230250
Silica	3/13	2.5; 5; 7.5; 10; 12.5; 15; 17.5; 20; 25 mg/l	2.5 - 25 mg/l SiO_2	231300
Silica	NN	1; 2; 4; 6; 8; 10; 12; 16; 20 mg/l	1.0 - 20 mg/l SiO_2	283630
Silica	NV	0.2; 0.3; 0.4; 0.5; 0.6; 0.7; 0.8; 0.9; 1.0 mg/l	0.2 - 1.0 mg/l SiO_2	283880
Sodiumhypochlorite	3/2 Hypo	2; 4; 6; 8; 10; 12; 14; 16 %	2 - 16 %	232110
Sugar	3/29A	0; 5; 10; 15; 30; 45; 60; 75; 100 mg/l	0 - 100 mg/l	232910
Sulphide	3/128	0; 0.05; 0.1; 0.15; 0.2; 0.25; 0.3; 0.4; 0.5 mg/l	0 - 0.5 mg/l S	230210
Zinc	3/151	0; 0.1; 0.2; 0.3; 0.4; 0.5; 0.6; 0.8; 1 mg/l	0 - 1.0 mg/l	230470
Zinc	3/102	0; 0.5; 1; 1.5; 2; 2.5; 3; 3.5; 4 mg/l	0 - 4.0 mg/l	230020

Material safety data sheets: www.aqualytic.de, # including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
Vanadomolybdat-reagent	1 litre	468404	13.5 mm cell, 10 ml	354243
Details on request			Nessler tubes 113 mm	353060
QAC LR	100 250	4515390BT 4515391BT	40 mm cell W680/40	606890
QAC HR	100 250	4515400 4515401	13.5 mm cell, 10 ml	354243
SILICA No.1 SILICA No.2 Combi pack# SILICA No.1 / No.2	100 250 100 250 each 100 each 200	4513130 4513131 4513140 4513141 4517671 4517672	13.5 mm cell, 10 ml	354243
SILICA No.1/No.2			13.5 mm cell, 10 ml	354243
Details on request			40 mm cell W680/40	606890
Ammonia molybdate	100 ml	460241	40 mm cell W680/40	606890
Ammonia molybdate	100 ml	460241	Nessleriser 2150 Nessler tubes 113 mm	172150 353060
Details on request			Nessler tubes 113 mm	353060
CHLORINE HR (KI) ACIDIFYING GP Combi pack# CHLORINE HR (KI)/ ACIDIFYING GP	100 250 100 250 each 100 each 250	4513000BT 4513001BT 4515480BT 4515481BT 4517721BT 4517722BT	13.5 mm cell, 10 ml	354243
Details on request			5 mm cell W680/5	606790
SULPHIDE No.1 SULPHIDE No.2	100 (bottle) 100 (bottle)	502930 502940	13.5 mm cell, 10 ml	354243
COPPER/ZINC LR COPPER/ZINC LR	100 250	4512620BT 4512621BT	13.5 mm cell, 10 ml	354243
COPPER/ZINC HR COPPER/ZINC HR	100 250	4512340 4512341	13.5 mm cell, 10 ml	354243

Applications of Reagents

Parameter	Reagent	Application
Acid capacity Ks4.3	ALKA-M-PHOTOMETER	P
Acid concentration	ACID CONCENTRATION	
Alkalinity-m	ALKA-M-PHOTOMETER	
Alkalinity-p	ALKA-P-PHOTOMETER	
Aluminium	ALUMINIUM No. 1 ALUMINIUM No. 2	
Aluminium	VARIO Aluminum ECR/F20 VARIO Aluminum Hexamine/F20 VARIO Aluminum Masking Reagent	
Amine	Amine	B
Ammonia vario	VARIO Ammonia Salicylate F10 VARIO Ammonia Cyanurate F10	
Ammonia	AMMONIA No. 1 AMMONIA No. 2 Conditioning powder	
Ammonia LR	VARIO Ammonia Salicylate F5 VARIO Ammonia Cyanurate F5 VARIO Am Diluent Reagent LR	
Ammonia HR	VARIO Ammonia Salicylate F5 VARIO Ammonia Cyanurate F5 VARIO Am Diluent Reagent HR	
Arsenic (III, IV)	Chemicals see manual	
Boron	BORON No. 1 BORON No. 2	
Bromine	DPD 1 Buffer solution DPD 1 Reagent solution	
Bromine	DPD No. 1 DPD No. 1 HIGH CALCIUM	
Cadmium (Cd^{2+})	Spectroquant® 1.14834.0001	
Chloride	CHLORIDE T1 CHLORIDE T2	
Chloride	RT (Chloride-51 / Chloride-52)	
Chlorine	DPD No. 1 RAPID DPD No. 3 RAPID DPD No. 4 RAPID	

= Water
= Waste Water
= Seawater
B = Boiler Water related
P = Pool Water related
RT = Reagent Test
KT = Tube Test

Parameter	Reagent	Application
Chlorine	DPD No. 1 DPD No. 3 DPD No. 1 HIGH CALCIUM	
Chlorine	DPD 1 Buffer solution DPD 1 Reagent solution DPD 3 Solution	
Chlorine	VARIO Chlorine FREE-DPD/F10 VARIO Chlorine TOTAL-DPD/F10	
Chlorine HR (KI)	ACIDIFYING GP CHLORINE HR (KI)	
Chlorine dioxide	DPD No. 1 DPD No. 3 GLYCINE	
Chlorine dioxide	DPD 1 Buffer solution DPD 1 Reagent solution	
Chromium	PERSULF. RGT FOR CR Chromium Hexavalent	
COD LR	Reaction tube 0-150 mg/l	
COD MR	Reaction tube 0-1500 mg/l	
COD HR	Reaction tube 0-15000 mg/l	
Colour (Spectral Absorption Coefficient)	---	
Copper	COPPER / ZINC LR	
Copper	COPPER / ZINC HR	
Copper	COPPER No. 1 COPPER No. 2	
Copper, free	VARIO Cu 1 F 10	
Cyanide	Reagent test set, consists of: Cyanide-11/ -12 / -13	
Cyanuric acid	CyA-TEST	
DEHA	DEHA Solution DEHA	B
DEHA	VARIO OXYSCAV 1 Rgt VARIO DEHA 2 Rgt Solution	B

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Applications of Reagents

Parameter	Reagent	Application
Fluoride	SPADNS-Reagent Fluoride Standard	
Fluoride	Fluoride A-Z Fluoride Excess Al	
Formaldehyde	Spectroquant® 1.14678.0001	
Formaldehyde	Spectroquant® 1.14500.0001	
Hardness, Calcium	CALCHECK	
Hardness, total	HARDCHECK P	
Hardness, total	Hardness Yes/No	
Hardness, total	T Hardness-Test	
Hardness, total	Total Hardness	
Hazen (Pt-Co-Scale; APHA)	---	
Hydrazine	Hydrazine Test Powder Spoon	B
Hydrazine	Vacu-vials® / Chemetrics K-5003	B
Hydrogen peroxide	HYDROGENPEROXIDE LR	P
Iodine	DPD No. 1	
Iron (II, III) soluble	Vario Ferro F10	
Iron (II, III) soluble	IRON LR IRON (II) LR	
Iron	IRON HR	
Iron (TPTZ)	Vario TPTZ F10	
Lead (Pb^{2+})	Spectroquant® 1.09717.0001	
Lead (Pb^{2+})	Spectroquant® 1.14833.0001	
Manganese	MANGANESE LR 1 MANGANESE LR 2	
Manganese	VARIO Ascorbic Acid VARIO Alkaline-Cyanide VARIO PAN Indicator	
Molybdate	MOLYBDATE No. 1 HR MOLYBDATE No. 2 HR	

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Parameter	Reagent	Application
Nickel	RT (Nickel-51, Nickel-52)	
Nitrate	KT (Nitrate-111)	
Nitrate	VARIO Nitrate Chromotropic VARIO Nitra X Reagent tube VARIO Deionised water	
Nitrate	NITRITE LR Nitrate Test Tablets Nitrate Test Powder	
Nitrate HR	Nitracheck No.1 Nitracheck No.2	
Nitrite	KT (Nitrit-101)	
Nitrite	NITRITE LR	
Nitrite	Nitrite No.1 Nitrite No.2	B
Nitrogen-total	KT (Reagent for digestion, Reagent for compensation, Nitrat-111)	
Nitrogen, total LR	VARIO TN HYDROX. LR tubes VARIO PERSULFATE Reagent VARIO TN Reagent A VARIO TN Reagent B VARIO TN ACID LR/HR tubes VARIO Deionised water	
Nitrogen, total HR	VARIO TN HYDROX HR tubes VARIO PERSULFATE Reagent VARIO TN Reagent A VARIO TN Reagent B VARIO TN ACID LR/HR tubes VARIO Deionised water	
Oxygen, active	DPD No. 4	P
Oxygen, active	INDIGO CARMINE	
Oxygen, dissolved	Vacu-vials / Chemetrics K-7553	
Ozone	DPD No. 1 DPD No. 3 GLYCINE	P
Ozone	Ozone	
Phenoles	Phenole No. 1 Phenole No. 2	

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Applications of Reagents

Parameter	Reagent	Application
PHMB (Biguanide)	PHMB PHOTOMETER	P
Phosphate-Organo	ORGANO-PHOSPHONATE No.1 ORGANO-PHOSPHONATE No.2	B
Phosphate HR	PHOSPHATE HR	B
Phosphate-total* (PMB)	KT (Phosphate-101, Phosphate-102, Phosphate-103)	
Phosphate-total* (PMB)	KT (Phosphate-101, Phosphate-102, Phosphate-103)	
Phosphate-ortho (VM)	KT	
Phosphate LR, ortho	PHOSPHATE LR No. 1 PHOSPHATE LR No. 2	
Phosphate HR, ortho	PHOSPHATE HR No. 1 PHOSPHATE HR No. 2	
Phosphate, ortho	VARIO Phos 3 F10	
Phosphate, ortho	VARIO Dilution Vial VARIO Phos 3 F10 VARIO Deionised water	
Phosphate, acid hydrolyzable	Content see: Phosphate, total, set, additional: VARIO Natriumhydroxid 1,00 N	
Phosphate, total	VARIO Acid Reagent Vial VARIO Phos 3 F10 VARIO Potassium Persulfate VARIO Natriumhydroxid 1,54 N VARIO Deionised water	
pH value	BROMOCRESOLPURPLE/PHOTOM.	
pH value	PHENOLRED RAPID	
pH value	PHENOLRED / PHOTOMETER	
pH value	PHENOLRED Solution	
pH value	THYMOLBLUE/PHOTOMETER	
pH value	METHYL RED	
pH value	CRESOL RED	
pH value	BROMOPHENOL BLUE	
pH value	BROMOCRESOL GREEN	
pH value	M-CRESOLPURPLE	
pH value	UNIVERSAL PH	

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Parameter	Reagent	Application
Potassium	POTASSIUM T	
QAC	QAC Test	
QAC LR	QAC LR	
QAC HR	QAC HR	
Silica	SILICA No. 1 SILICA No.2 SILICA PR	
Silica	VARIO LR Amino Acid F F10 VARIO Citric Acid F10 VARIO Molybdate 3 Rgt Solution	
Silica	VARIO Silica HR Acid Rgt F10 VARIO Silica Citric Acid F10 VARIO Silica Molybdate F10	
Sulphate	SULFATE T	
Sulphate	VARIO Sulpha 4 / F10	
Sulphate	SULFATE No.1 SULFATE No.2	P
Sulphide	SULFIDE No. 1 SULFIDE No. 2	
Sulphite	SULFITE LR	
Sulphite	SULFITE No.1 SULFITE No.2 HR SULFITE No.2 LR	B
Surfactants (anionic)	Spectroquant® 1.14697.0001	
Tannin	TANNIN No.1 TANNIN No.2	B
TOC	Spectroquant® 1.14879.0001	
Turbidity	---	
Urea	UREA-Reagent 1 UREA-Reagent 2 AMMONIA No. 1 AMMONIA No. 2	P
Zinc	COPPER / ZINC LR EDTA DECHLOR	

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