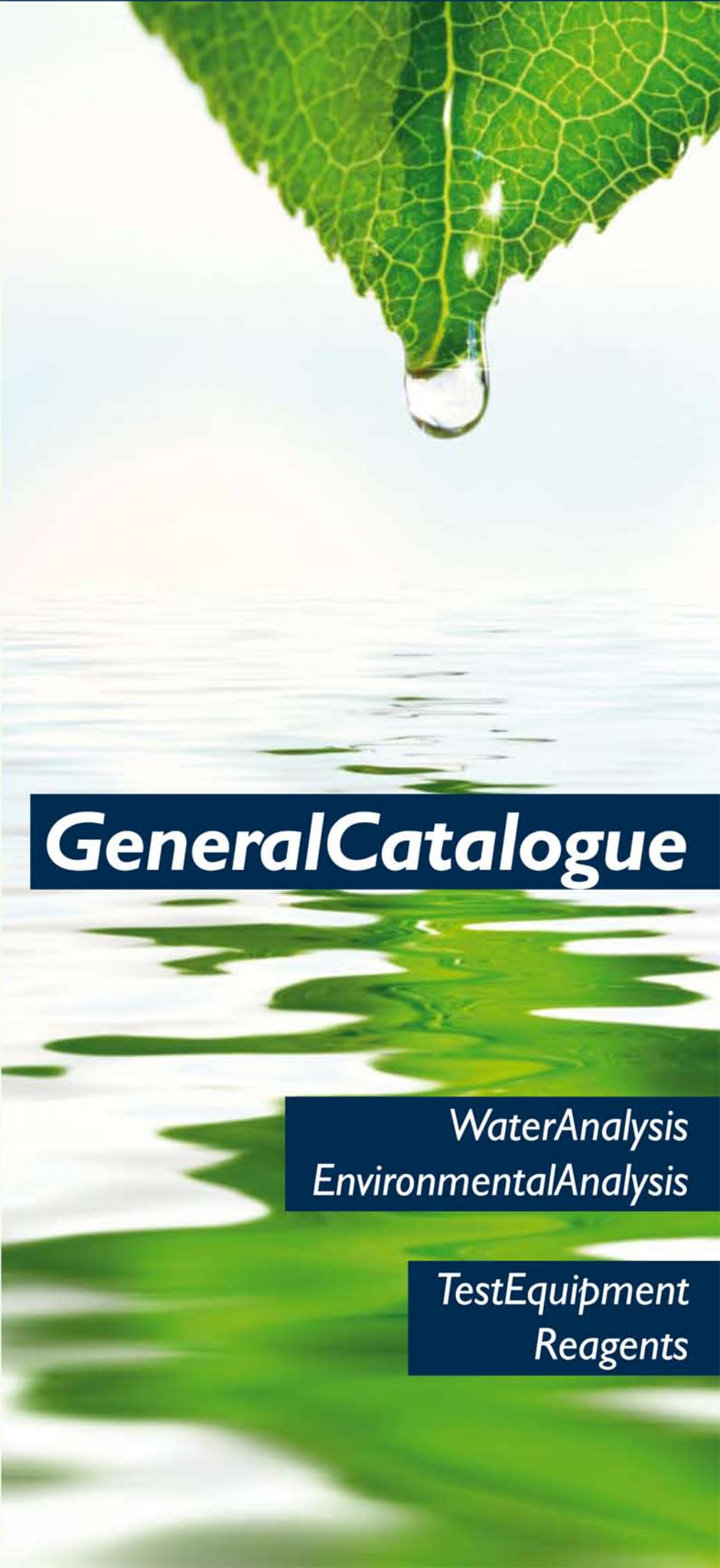


AQUA[®]
LYTIC



General Catalogue

Water Analysis
Environmental Analysis

Test Equipment
Reagents

Photometer

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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 **AL250** for measuring a single parameter, through the **AL250+** for multiple parameters, to the **AL800** spectrophotometer.

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 pocket sized format photometer **AL100**.

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	AL250	AL250+	AL400	AL450	AL800	also suitable for Hach-Photometer
Alkalinity-m (total)	■		■	■	■	■	
Alkalinity-p				■	■	■	
Aluminium		■		■	■	■	see page 50
Ammonia	■	■		■	■	■	see page 50
Ammonia, free	■			■	■		see page 50
Arsenic						■	
Boron				■	■	■	
Bromine	■		■	■	■	■	
Cadmium						■	
Calcium Hardness	■		■	■	■		
Chloride		■		■	■	■	
Chlorine	■	■	■	■	■	■	see page 50
Chlorine Dioxide	■		■	■	■	■	see page 50
Chromium						■	
COD	■	■		■	■	■	see page 50
Copper	■	■	■	■	■	■	see page 50
Cyanide				■	■	■	
Cyanuric Acid	■		■	■	■	■	
DEHA		■		■	■	■	see page 50
Fluoride	■	■		■	■	■	
Formaldehyde						■	
Hazen (Pt-Co-Units ; APHA)		■		■	■	■	
Hydrazine		■		■	■	■	see page 52
Hydrogen Peroxide		■		■	■	■	
Iodine				■	■	■	
Iron (Fe ²⁺ , Fe ³⁺), soluble	■	■	■	■	■	■	see page 52
Langelier Water Balance System				■	■		
Lead						■	
Manganese	■	■		■	■	■	see page 52

4



AL100



AL250



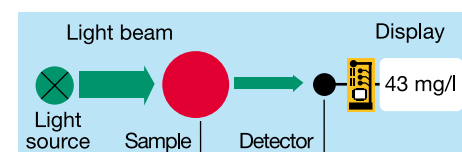
AL400

Parameter	AL100	AL250	AL250+	AL400	AL450	AL800	also suitable for Hach-Photometer
Molybdate				■	■	■	see page 52
Monochloramine	■			■	■		see page 52
Nickel						■	
Nitrate				■	■	■	see page 52
Nitrite		■		■	■	■	see page 54
Oxygen, active				■	■		
Oxygen, dissolved				■	■		
Ozone		■		■	■	■	
pH-value	■		■	■	■	■	
Phenols						■	
PHMB (Biguanide)				■	■		
Phosphate	■	■		■	■	■	see page 54
Phosphonate				■	■		see page 54
Potassium				■	■	■	
Silica	■	■		■	■	■	see page 54
Sodiumhypochlorite				■	■		
Spectral Absorption-Coefficient						■	
Sulphate				■	■	■	see page 54
Sulphide				■	■	■	
Sulphite				■	■	■	
Surfactants (anionic)						■	
Suspended Solids		■		■	■		
TOC						■	
Total Hardness		■		■	■	■	
Total Nitrogen				■	■	■	see page 54
Turbidity (nephelometric)		■					
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

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 transparent 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 (**One Time Zero - OTZ**). The zero setting can be confirmed whenever it is useful.

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 32 onwards**

Highlights

- Waterproof*)
- Automatic Switch-Off
- Real-Time-Clock and Date
- Calibration Mode
- Backlit Display
- Storage Function
- Suitable for use as a testing instrument

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

AL100

Test	Code
Ammonia , tablet reagents 0.02 - 1.0 mg/l N	4276060
Ammonium , powder reagents 0.01 - 0.8 mg/l N	4276065
Ammonia, free powder reagents 0.01 - 0.5 mg/l N	4276070
Monochloramine 0.04 - 4.5 mg/l Cl ₂	
Chlorine , tablet reagents (OTZ) 0.01 - 6.0 mg/l Cl ₂ / 0,1 - 10 mg/l Cl ₂ ⁺ alternatively with liquid reagents 0.02 - 4 mg/l Cl ₂	4276000
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 dioxide , tablet reagents 0.02 - 11 mg/l ClO ₂	4276030
Chlorine dioxide , powder reagents 0.02 - 3.8 mg/l ClO ₂	4276035
COD , tube tests 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)	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
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
Monochloramine powder reagents 0.04 - 4.5 mg/l Cl ₂	4276070
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

AL100 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 , 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

AL100 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 ; 2 - 160 mg/l Cyanuric acid	4278010
Chlorine, pH, Alkalinity, total (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 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) 0.05 - 11 mg/l ClO ₂	4278000

AL100 4in1

Chlorine, pH, Cyanuric acid, Alkalinity, total (M) tablet reagents (OTZ) 0.02 - 6.0 mg/l Cl ₂ / 0,1 - 10 mg/l Cl ₂ ⁺ 6.5 - 8.4 pH ; 2 - 160 mg/l Cyanursäure 5 - 200 mg/l CaCO ₃ (TA)	4278070
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AL100 5in1

Chlorine, pH, Cyanuric acid, Alkalinity, total (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 ; 2 - 160 mg/l Cyanursäure 5 - 200 mg/l CaCO ₃ (TA) ; 0 - 500 mg/l CaCO ₃ (CaH)	4278080
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AL100 6in1

Chlorine, Bromine, pH, Cyanuric acid, Alkalinity, total (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 2 - 160 mg/l Cyanursäure ; 5 - 200 mg/l CaCO ₃ (TA) 0 - 500 mg/l CaCO ₃ (CaH)	4278090
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* Delivery without reagents for measuring range 0.1 - 10 mg/l Cl₂



Photometer AL100



Technical Data

Optics

LEDs, interference filters (IF) and photo sensors in transparent sample chamber. Depending on the version, up to 3 different interference filters are used. Wavelength specifications of interference filters:

430 nm	$\Delta\lambda = 5 \text{ nm}$
530 nm	$\Delta\lambda = 5 \text{ nm}$
560 nm	$\Delta\lambda = 5 \text{ nm}$
580 nm	$\Delta\lambda = 5 \text{ nm}$
610 nm	$\Delta\lambda = 6 \text{ nm}$
660 nm	$\Delta\lambda = 5 \text{ nm}$

Wavelength Accuracy	$\pm 1 \text{ nm}$
Photometric Accuracy⁴⁾	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)

CE-Conformity

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.

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 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 4215670

Accessories

Item	Code
Set of 12 round vials with cap Height 48 mm, Ø 24 mm	197620
Set of 5 round vials with cap Height 48 mm, Ø 24 mm	197629
Set of 10 round vials with cap 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	197600
Cleaning cloth for vials	197635
Measuring beaker, volume 100 ml	384801
Plastic funnel with handle	471007
Cleaning brush, 11 cm length	380230
Plastic stirring rod, 13 cm length	364100
Plastic stirring rod, 10 cm length	364109
4 micro batteries (AAA)	1950026
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, tablet reagents and/or liquid reagents or VARIO powder reagent, guarantee sheet, certificate (COC) 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 printer¹⁾ or alternative 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 alternative a printer with a serial plug-in connected to the IRiM.

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



Photometer AL250



The AL250 models each offer one test method, while the AL250+ units are programmed for a number of different parameters. 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 AL250 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.

N.I.S.T Traceability

The instruments have 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)

Manufacturers Test Certificate M

Besides the "Certificate of Compliance" which is supplied with the AL250, 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.

Delivery Content

Each AL250 is supplied in a case complete with 9 V battery, 3 round vials with lids, 1 stirring rod, 1 brush, 1 syringe, tablets and/or liquid reagents or VARIO Powder Packs, accessories, instruction manual, guarantee sheet and a certificate of compliance.



**Reagents (order codes),
please see pages 32 onwards**

Highlights

- Waterproof
- Automatic Switch-Off
- Real-Time-Clock and Date
- Calibration Mode
- Backlit Display
- Storage Function
- Suitable for use as a testing instrument

Technical data

Optics	temperature-compensated LEDs and photosensor amplifier in water proof sample chamber
Power supply	9 V powerpack battery providing 40 hours operation
Auto - OFF	automatic switch-off
Display	backlit LCD (on keypress)
Storage	internal ring memory for 16 data sets
Additional feature	real time clock and date
Calibration	factory calibration and user calibration. Reset to factory calibration possible
Dimensions (W x D x H)	190 x 110 x 55 mm
Weight	0.4 kg (base unit)
Environmental conditions	Temperature: 5–40 °C rel. humidity: 30–90% (non condensing)
CE-conformity	

Accessories

Item	Code
Set of 12 round vials with cap Height 48 mm, Ø 24 mm	197620
Set of 5 round vials with cap Height 48 mm, Ø 24 mm	197629
Set of 12 round vials with cap Height 90 mm, Ø 16 mm	197665
Adapter for round vials Ø 16 mm	19801094
Lid for adapter	19801100
Cleaning cloth for vials	197635
Cleaning set for sample chamber	124060
Measurement beaker, 100 ml	384801
Plastic funnel with handle	471007
Cleaning brush, 11 cm length	380230
Plastic stirring rod, 13 cm length	364100
Plastic stirring rod, 10 cm length	364109
Battery lid with accessories	19801163
9 V-battery	1950012

Reference Standard Kit for AL250

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

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 Tablet/Liquid Test 0.2* and 1.0* mg/l	4205600
Kit Chlorine Tablet/Liquid Test 0.5* and 2.0* mg/l	4205605
Kit Chlorine Tablet-/Liquid Test 1.0* and 4.0* mg/l	4205606
Kit Chlorine Powder Reagent Test (VARIO) 0.2* and 1.0* mg/l	4205640
Kit pH Tablet/Liquid Test 7.45 pH	4205610
Kit Cyanuric acid Tablet test 80 mg/l	4205620

* Approximate figure, actual figure specified in Certificate of Analysis



Applications

- Water Treatment
- Waste Water
- Cooling/Boiler Water
- Pool-Water
- Beverage Industry
- Laboratory and Field Testing

Photometer AL250

Each AL250 is programmed for one test method



Test Methods AL250

Test	λ (nm)	Formula	Range	Reagent	Code
Aluminium	528	Al ³⁺	0.05–0.3 mg/l	ALUMINIUM No.1 / No.2	4206400
Ammonia	660	NH ₄ ⁺	0.02–1 ; 0.2–10 mg/l*	AMMONIA No.1 / No.2	4206500
Chlorine DPD¹⁾ free, combined, total	528	Cl ₂	0.01–6 mg/l	DPD No.1 / No.3	4266900
Chlorine DPD²⁾ free, combined, total	528	Cl ₂	0.01 – 4 mg / l	DPD Liquid Reagents	4267000
Chlorine PP⁴⁾ free, combined, total	528	Cl ₂	0.01–2 mg/l	VARIO DPD Powder Chlorine FREE-DPD/F10 Chlorine TOTAL-DPD/F10	4269950
Chlorine HR (KI)	470	Cl ₂	5–200 mg/l	ACIDIFYING GP CHLORINE HR (KI)	4267100
Chloride	528	Cl ⁻	0.5–25 ; 5–250 mg / l*	CHLORIDE T1 / T2	4206800
COD³⁾	430 605 605	O ₂ O ₂ O ₂	0 – 150 mg / l 0– 1500 mg / l 0 – 15 000 mg / l	Supplied without tube tests and reactor	4269250
COD	430 605 605	O ₂ O ₂ O ₂	0– 150 mg / l 0– 1500 mg / l 0 – 15 000 mg / l	Supplied with tube tests (2 ranges) and reactor	4269240
Copper	528	Cu	0.05–5 mg/l	COPPER No.1 / No.2	4267200
Copper / Zinc	580	Cu/ Zn	0.02–1 mg / l	COPPER / ZINC LR / EDTA	4207210
DEHA	528		0.02 – 0.5 mg / l	DEHA-Reagents	4209700
Fluoride	580	F ⁻	0.05 – 2.0 mg / l	SPADNS-Reagent Solution ⁶⁾	4209300
Hardness, total	528	CaCO ₃	50–500 mg / l*	HARDCHECK P	4208010
Hazen	470	Pt-Co Units	0 - 500 mg Pt/l	No reagents required	4207240
Hydrazin	470	N ₂ H ₄	0.05 - 0.5 mg/l	HYDRAZINE TEST POWDER ⁷⁾	4207300
Hydr.Peroxide	528	H ₂ O ₂	0.05–3 mg / l	HYDROGEN PEROXIDE LR	4208600
Iron (II, III)	528	Fe	0.02–1 ; 0.2–10 mg / l*	IRON LR	4207400
Manganese	430	Mn	0.05 – 4 mg / l	MANGANESE LR 1 / LR 2	4209400
Nitrite LR	528	NO ₂	0.02–0.5 mg / l	NITRITE LR	4207600
Ozone (Indigo)	605	O ₃	0.05–0.5 mg / l	OZONE	4207700
Phosphate LR	660	PO ₄	0.05–4 mg / l	PHOSPHATE LR No.1 / No.2	4207900
Phosphate HR	470	PO ₄	10–100 mg / l	PHOSPHATE HR No.1 / No.2	4207800
Silica	580	SiO ₂	0.05–4 mg / l	SILICA No.1 / No.2/ P R	4208100
Suspended Solids	605		5–750 mg / l	No reagents required	4209270
Turbidity⁵⁾	860		0.01–1100 NTU (FNU, TE/F)	No reagents required	4266020
Urea	660	CH ₄ N ₂ O	0.1–2.5 ; 0.2–5 mg / l*	UREA-Reagent 1/2 AMMONIA No.1 / No.2	4268500

Zinc, see Copper/Zinc

* High range by dilution ; ¹⁾ Kit with tablet reagents ; ²⁾ Kit with liquid reagents ;

³⁾ AL250 basic unit COD only ; ⁴⁾ PP = VARIO Powder Packs ;

⁵⁾ Turbidity: see pages 64 to 69 ; ⁶⁾ without reagents, must be ordered separately

⁷⁾ required accessories for filtration are not included

Photometer AL250

Each AL250+ is programmed for several test methods



➔ Reagents (order codes), please see pages 32 onwards

Test	λ (nm)	Range	Reagent	Resolution
Alkalinity-m (total)	605	5–200 mg/l CaCO ₃	Alka M-Photometer	1 mg/l CaCO ₃
Bromine	528	0.02 – 13 mg/l	DPD No.1	0.01 mg/l
Calcium Hardness	528	0 – 500 mg/l	Calcio H No.1 / No.2	1 mg/l CaCO ₃
Chlorine free, combined**, total Tablet Reagents	528	0.01 – 6 mg/l	DPD No.1 / No.3	0.01 mg/l
Chlorine free, combined**, total	528	0.01 – 4 mg/l	DPD Liquid Reagents	0.01 mg/l
Chlorine free, combined**, total Free/Total Chlorine***	528	0.01 – 2 mg/l	VARIO DPD Powder	0.01 mg/l
Chlorine HR (KI)	470	5 – 200 mg/l	Acidifying GP/Chlorine HR	1 mg/l
Chlorine Dioxide	528	0.02 – 11 mg/l	DPD No.1	0.01 mg/l
Copper (Biquinoline)	528	0.05 – 5 mg/l	Copper No.1/No.2	0.01 mg/l
Copper (Zincon)	580	0.02 – 1 mg/l	Copper/Zinc LR / EDTA	0.01 mg/l
Cyanuric Acid	528	2 – 160 mg/l*	Cyanuric Acid	1 mg/l
Iron	528	0.02 – 1 mg/l	Iron LR	0.01 mg/l
pH-value	528	6.5 – 8.4 pH	Phenol Red Photometer	0.01 mg/l
Urea	660	0.1 – 2.5 mg/l 0.2 – 5.0 mg/l*	Urease 1/2 AMMONIA No.1/No.2	0.1 mg/l

* by 1:1 sample dilution, ** may be calculated by deducting free from total chlorine

*** VARIO DPD-Powder is also suitable for use with Hach-Photometers

2in1

Item	Test	Code
2 in 1	Chlorine, pH-value with tablet reagents	4268940
2 in 1	Chlorine, pH-value with VARIO DPD Free/Total Chlorine (Powder)	4269960
2 in 1	Copper¹⁾, pH-value	4207230

3in1

Item	Test	Code
3 in 1	Chlorine, pH-value, Bromine	4266180
3 in 1	Chlorine Dioxide, Chlorine LR, HR	4268800
3 in 1	Chlorine, pH-value, Alkalinity, total (M) with tablet reagents	4268900
3 in 1	Chlorine, pH-value, Alkalinity, total (M) with liquid reagents for Chlorine and pH	4268930
3 in 1	Chlorine, pH-value, Cyanuric Acid with tablet reagents for Chlorine and pH	4266010
3 in 1	Chlorine, pH-value, Cyanuric Acid with liquid reagents for Chlorine and pH	4268200

¹⁾ Zincon

4in1

Item	Test	Code
4 in 1	Chlorine, pH-value, Cyanuric Acid, Alkalinity, total (M) with tablet reagents for Chlorine and pH	4266050
4 in 1	Chlorine, pH-value, Cyanuric Acid, Alkalinity, total (M) with liquid reagents for Chlorine and pH	4266054
4 in 1	Chlorine, pH-value, Cyanuric Acid, Urea	4269220
4 in 1	Chlorine, pH-value, Alkalinity, total (M), Urea	4266290

5in1

Item	Test	Code
5 in 1	Chlorine, pH-value, Cyanuric Acid, Alkalinity, total (M), Calcium Hardness	4266120
5 in 1	Chlorine, pH-value, Cyanuric Acid, Alkalinity, total (M), Iron	4206240

6in1

Item	Test	Code
6 in 1	Chlorine, Bromine, pH-value, Cyanuric Acid, Alkalinity, total (M), Calcium Hardness	4266190
6 in 1	Chlorine, pH-value, Cyanuric Acid, Alkalinity, total (M), Copper²⁾, Iron	4206210

²⁾ Biquinoline

COD Set-Up AL250COD 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 AL250 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.

Set-Up AL250COD VARIO

The AQUALYTIC® COD VARIO test set-up allows highly sensitive and precise water testing with minimum effort. It measures 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-up comprises 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 AL250 COD VARIO

complete with photometer, reactor AL125,
2 sets of 25 tubes each 0-150 mg/l and
0-1500 mg/l and tube stand

Order code
4269260

AL250COD VARIO Photometer

With a measuring range from 0 to 15,000 mg/l O₂, the AQUALYTIC® photometer are suitable for waste water testing.

Two LED light sources with long-term stability ($\lambda_1 = 605 \text{ nm}$; $\lambda_2 = 430 \text{ nm}$, according to ISO 15705:2002), a waterproof sample chamber, a large digital display, and the user-friendly keypad ensure maximum operating reliability and convenience.

AL250 COD VARIO

4269250

Ranges

0 – 150 mg/l O₂ ± 3,5%*

0 – 1500 mg/l O₂ ± 3,5%*

0 – 15000 mg/l O₂ ± 3,5%*

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

COD VARIO tube tests

The AQUALYTIC® COD VARIO tube tests are available for the measuring ranges 0-150 mg/l O₂, 0-1500 mg/l O₂ and 0-15000 mg/l O₂. Their chemical properties and a 16 mm tube diameter is suitable also for use with Hach photometers.

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.)	420727

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

Highlights

- ST-COD sealed tubes ready for use
- Suppression of chloride interference up to 1000 mg/l (for not mercury-free tube tests only)
- 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

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 ABS
Protection grid PPS
Lid PC
Block insert PBT
Heating block 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

CE-conformity

For the digestion of:

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

Photometer AL400

Modern, mobile photometer
for rapid, reliable water testing



With the modern design of the AL400 we have succeeded in combining the mobility of a portable photometer with the characteristics of a modern laboratory photometer.

This new unit covers all the important parameters of water analysis, from aluminium to zinc. The high level of accuracy of AQUALYTIC® reagents and the user-friendly nature of the instrument guarantee rapid and reliable analysis of your water samples. Depending on the application, the unit will operate with tablet reagents, powder packs, liquid reagents or tube tests (16 / 13 mm).

The AL400 operates with 6 interference filters and uses long-life LEDs as a light-source. No moving parts are involved.

Of course, the AL400 has a memory, in which up to 1000 data sets can be stored. The infra-red interface* enables data to be transmitted to a computer or printer (RS 232 / USB).

* available as an option : IRIM (infra-red interface module)

18

Highlights

- Automatic wavelength selection
- Easy handling
- User interface in German, English, French, Spanish, Italian, Portuguese (BR), Polish & Indonesian
- Storage
- more than 70 methods
- 35 user defined methods
- Infrared interface
- Waterproof^{*)}
- Mobile

^{*)} 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.com.

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, guarantee sheet, certificate of compliance, instruction manual, carrying case with water resistance foam, **but without reagents**.

Order code: 4214010

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.com

➔ **Reagents (order codes),**
please see pages 32 onwards



Applications

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

Photometer AL400

Technical Data

Display	Graphic-display
Interfaces	Infrared interface for test data transfer ¹ , RJ45 socket for Internet updates ²
Optics	LEDs, interference filters (IF) and photo sensor in transparent sample chamber Wavelength range: 1 = 530 nm IF $\Delta\lambda = 5$ nm 2 = 560 nm IF $\Delta\lambda = 5$ nm 3 = 610 nm IF $\Delta\lambda = 6$ nm 4 = 430 nm IF $\Delta\lambda = 5$ nm 5 = 580 nm IF $\Delta\lambda = 5$ nm 6 = 660 nm IF $\Delta\lambda = 5$ 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 bei max. 30–90% rel. Feuchtigkeit (nicht kondensierend)
Language Selection	German, English, French, Spanish, Italian, Portuguese, Polish, Indonesian; additional languages via Internet update
Memory Capacity	approx. 1000 data sets
CE-Conformity	

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 32 onwards



Accessories

Item	Code
Set of 12 round vials with cap Height 48 mm, Ø 24 mm	197620
Set of 5 round vials with cap Height 48 mm, Ø 24 mm	197629
Set of 10 round vials with cap Height 90 mm, Ø 16 mm	197665
Adapter for round vials Ø 16 mm	19802220
Adapter for round vials Ø 13 mm	19802221
Sealing ring for vial Ø 24 mm (12 pc.)	197626
Cleaning cloth for vials	197635
Plastic funnel with handle	471007
Plastic stirring rod, 13 cm length	364100
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 re-assure 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 printer¹⁾ or alternative a serial printer²⁾. 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 specified¹⁾ USB or alternative a printer with a serial plug-in connected to the IRiM.

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 1200 ; 2400 ; 4800 ; 9600
RS232 interface 19200 ; 38400 ; 57600

Protocol XON/XOFF
RS232 interface 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

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.com.

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, 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

Order code: 4210005 (basic version)
with batteries instead of
rechargeable batteries,
without mains charger and
PC connection cable

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.com



Please see pages 32 onwards for tests, ranges and reagents



Photometer AL450



Technical Data

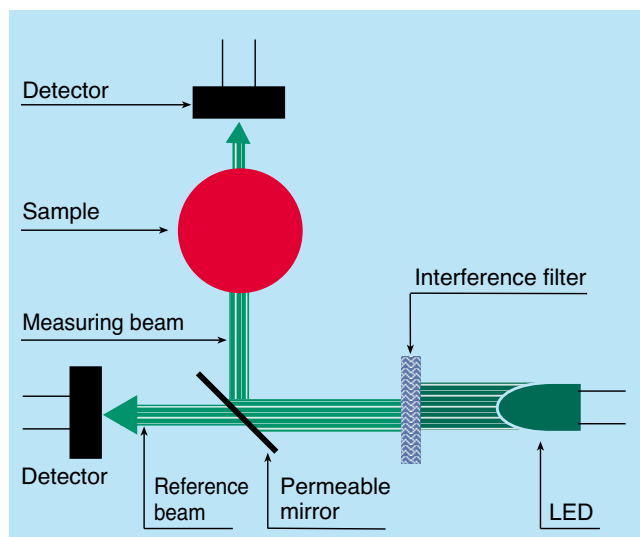
Display	Graphic-display
Optics	6 temperature compensating LED, internal reference channel, photodiode in protected sample chamber
Wavelengths	6 interference filters in one unit, $\lambda_1 = 430 \text{ nm IF } \Delta \lambda \text{ (nm)} = 5$ $\lambda_2 = 530 \text{ nm IF } \Delta \lambda \text{ (nm)} = 5$ $\lambda_3 = 560 \text{ nm IF } \Delta \lambda \text{ (nm)} = 5$ $\lambda_4 = 580 \text{ nm IF } \Delta \lambda \text{ (nm)} = 5$ $\lambda_5 = 610 \text{ nm IF } \Delta \lambda \text{ (nm)} = 6$ $\lambda_6 = 660 \text{ nm IF } \Delta \lambda \text{ (nm)} = 5$ 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
CE-Conformity	

➡ Please see pages 32 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 5 round vials with cap Height 48 mm, Ø 24 mm	197629
Set of 10 round vials with cap Height 90 mm, Ø 16 mm	197665
Adapter for round vials Ø 16 mm	198010 94
Lid for adapter	19801100
Sealing ring for vial Ø 24 mm (12 pc.)	197626
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
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	193000
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 32 onwards for tests, ranges and reagents

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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 process¹⁾, 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 micro-processor 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 be 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.com.

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).

Choice of language

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

Applications

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

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

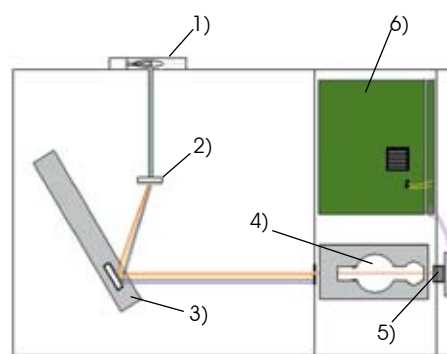
Every result is printed with date, time, reg. no, code no., measuring range and method number.

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 | 4) Sample chamber |
| 2) Monochromator | 5) Silicon photodiode |
| 3) Movable mirror | 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

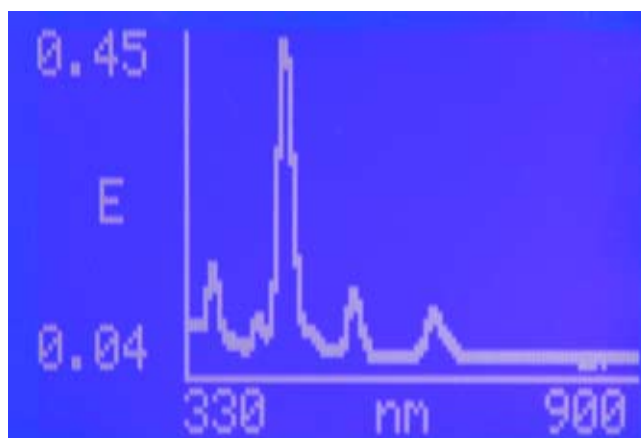
Using this function, the operator can, for example, carry out measurement of standards with different concentrations using the user-selected wavelength in order to obtain the data pairs required for a polynomial. Result output is in Abs and % Transmission.

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

CE-Conformity**Accessories****Code**

Replacement halogen lamp	7110 00
Magnetical pin (for updates)	19801687
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
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
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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 32 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.

DPD reagents

DPD reagents are offered by different manufacturers.

For quality reasons, users should validate the products prior to use.

DPD reagents are produced on the basis of international standard methods and the ISO standard method. The chemicals are of crystalline **white** nature. If a reagent (tablets or powder) is **not white** but has turned grey/brownish or purple in colour, it has deteriorated. DPD liquid reagents which should be colourless when fresh and may turn brownish in colour if the reagent has deteriorated. The use of deteriorated products must be avoided as they will give false results.

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 in the download area at www.aqualytic.com.



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 are suitable also for use with Hach-Photometer-Systems.

 **Please see pages 48 onwards for tests, ranges and reagents**



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: 36 61 50

(covers 25 x 0.45 µm membrane filters and two 20 ml syringes)



Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Acid capacity K_{s4.3}	0.1 - 4 mmol/l	-	-	605	610	610	615	Acid/Indicator ^{1,2}	24 mm ø
Alkalinity-m (total)	5 - 200 mg/l	610	-	605	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	535	Eriochrome cyanine R ²	24 mm ø
Aluminium	0.01 - 0.3 mg/l	-	-	-	530	530	535	Eriochrome cyanine R ²	24 mm ø
	0.05 - 0.3 mg/l	-	528	-	-	-	-		
Ammonia	0.02 - 1 mg/l	610	660	-	610	610	676	Indophenole blue ^{2,3}	24 mm ø
	0.2 - 10 mg/l ^b	-	660	-	-	-	-		
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
Ammonia, free VARIO (Part of method monochloramine)	0.01 - 0.5 mg/l	660	-	-	660	660	-	Indophenol	24 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.com

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
	ALKA-M-PHOTOMETER	Tablet / 100	4513210
CaCO ₃	ALKA-M-PHOTOMETER	Tablet / 100	4513210
CaCO ₃	ALKA-P-PHOTOMETER	Tablet / 100	4513230
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	535000
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	4515460 4515470 4517601 4517602
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 / 100 Tests	4512580 4512590 4517611 4517612 460170
N	VARIO Ammonia Salicylate F10 VARIO Ammonia Cyanurate F10	Powder Pack / 100 Powder Pack / 100 Set	535500
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)	535600
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)	535650
N	VARIO Free Ammonia Reagent Solution VARIO Monochlor FRGT	Bottle 5 ml Powder Pack / 100 Set	535800
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 4515800 4517681 4517682

^{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 chlorine dioxide / 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 CaCO₃

ⁱ⁾ high range by dilution

no BT blister tablets, including stirring rod

Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Bromine	0.05 - 13 mg/l 0.02 - 13 mg/l 0.05 - 1 mg/l 0.1 - 3 mg/l 0.05 - 6.5 mg/l	530 -	- -	- 528	530 -	530 -	- 510 510 510	DPD ⁵	24 mm ø 24 mm ø 50 mm □ 10 mm □ 24 mm ø
Cadmium (Cd²⁺)	0.025 - 0.75 mg/l	-	-	-	-	-	525	Cadion	16 mm ø
Chloride	0.5 - 25 mg/l 5 - 250 mg/l ^{b)}	- -	528 528	- -	530 -	530 -	450 -	Silver nitrate/turbidity	24 mm ø
Chloride	5 - 60 mg/l	-	-	-	-	-	455	Iron (III)-thiocyanate ⁴	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 - - -	528 - - -	528 - - -	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	-	-	-	-	-	DPD ^{1,2}	24 mm ø
Chlorine ^{a)}	0.02 - 4 mg/l 0.02 - 3 mg/l	530	528	528	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	528 -	528 -	530 -	530 -	510 -	DPD ^{1,2}	24 mm ø 24 mm ø multy vial
Chlorine HR (KI)	5 - 200 mg/l	530	470	470	530	530	470	KI / Acid ⁵	16 mm ø
Chlorine dioxide	0.05 - 11 mg/l 0.02 - 11 mg/l 0.05 - 1 mg/l 0.05 - 2.5 mg/l	- 530 - -	- - - -	- 528 - -	530 - - -	530 - - -	- - 510 510	DPD/Glycine ^{1,2}	24 mm ø 24 mm ø 50 mm □ 24 mm ø
Chlorine dioxide VARIO	0.02 - 3.8 mg/l	530	-	-	-	-	-	DPD ^{1,2}	
Chromium ^{a) b)}	0.005 - 0.5 mg/l 0.02 - 2 mg/l	- -	- -	- -	- -	- -	542 542	1,5-Diphenylcarbozide ^{1,2}	50 mm □ 16 mm ø

Material safety data sheets: www.aqualytic.com

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 DPD No. 1 HIGH CALCIUM ^{e)}	Tablet / 100 Tablet / 100	4511060BT 4515740
Cd	Spectroquant® 1.14834.0001 ^{d)}	Tube test / 25	420750
Cl	CHLORIDE T1 CHLORIDE T2 Combi pack# CHLORIDE T1 / T2 Combi pack# CHLORIDE T1 / T2	Tablet / 100 Tablet / 100 each 100 each 250	4515910 4515920 4517741 4517742
Cl	Chlorid-51 / Chlorid-52	Reagent test (Liquid reagent) approx. 50-75 Tests	419031
Cl ₂	DPD No. 1 DPD No. 3 Combi pack# DPD No.1 / No.3 Combi pack# DPD No.1 / No.3 DPD No. 1 HIGH CALCIUM ^{e)}	Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100	4511060BT 4511080BT 4517711 4517712 4515740
Cl ₂	DPD No. 1 HR DPD No. 3 HR	Tablet / 100 Tablet / 100	4511500BT 4511590BT
Cl ₂	DPD 1 Buffer solution DPD 1 Reagent solution DPD 3 Solution	Liquid reagent / 15 ml Liquid reagent / 15 ml Liquid reagent / 15 ml Set	471010 471020 471030 471056
Cl ₂	VARIO Chlorine FREE-DPD/F10 VARIO Chlorine TOTAL-DPD/F10	Powder Pack / 100 Powder Pack / 100	530100 530120
Cl ₂	ACIDIFYING GP CHLORINE HR (KI) Combi pack# CHLORINE HR (KI)/ACIDIFYING GP Combi pack# CHLORINE HR (KI)/ACIDIFYING GP	Tablet / 100 Tablet / 100 each 100 each 250	4515480 4513000 4517721 4517722
ClO ₂	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 DPD No.1 High Calcium ^{e)}	Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100 each 100 each 250 Tablet / 100	4511060BT 4511080BT 4517711 4517712 4512170 4517731 4517732 4515740
ClO ₂	VARIO Chlorine FREE-DPD/F10	Powder Pack / 100	530100
Cr	PERSULF. RTG FOR CR Chromium Hexavalent	Powder Pack / 100 Powder Pack / 100	537300 537310

^{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 chlorine dioxide / 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 CaCO₃

ⁱ⁾ high range by dilution

no BT blister tablets, including stirring rod

Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
COD LR (ISO 15705:2002) ^{b)}	0 - 150 mg/l	430	430	-	430	430	420	Dichromate / H ₂ SO ₄ ^{1,2}	16 mm ø
COD MR (ISO 15705:2002) ^{b)}	0 - 1500 mg/l	610	605	-	610	610	620	Dichromate / H ₂ SO ₄ ^{1,2}	16 mm ø
COD HR ^{b)}	0 - 15000 mg/l	610	605	-	610	610	620	Dichromate / H ₂ SO ₄ ^{1,2}	16 mm ø
Copper ^{a)}	0.05 - 5 mg/l	560	528	528	560	560	-	Biquinoline ⁴	24 mm ø 50 mm o 24 mm ø
	0.05 - 1 mg/l	-	-	-	-	-	559		
	0.5 - 5 mg/l	-	-	-	-	-	559		
Copper free	0.02 - 1 mg/l	-	580	-	-	-	-	Zincon ³ / EDTA	24 mm ø
Copper, frei VARIO	0.05 - 5 mg/l	560	-	-	560	560	560	Bicinchoninate	24 mm ø
Cyanide	0.01 - 0.5 mg/l	-	-	-	580	580	585	Pyridine-barbituric acid ¹	24 mm ø 50 mm □
	0.005 - 0.2 mg/l	-	-	-	-	-	585		
Cyanuric acid	2 - 160 mg/l ⁵⁾	530	-	528	530	530	530	Melamine	24 mm ø
DEHA	20 - 500 µg/l	-	528	-	560	560	562	PPST ³	24 mm ø
DEHA VARIO	20 - 500 µg/l	-	-	-	560	560	562	PPST ³	24 mm ø
Fluoride	0.05 - 2 mg/l	580	580	-	580	580	-	SPADNS ²	24 mm ø
	0.05 - 1.5 mg/l	-	-	-	-	-	580		
Formaldehyde	1 - 5 mg/l	-	-	-	-	-	585	H ₂ SO ₄ / Chromotropic acid	10 mm □ 50 mm □
	0.02 - 1 mg/l	-	-	-	-	-	585		
Formaldehyde	0.1 - 5 mg/l	-	-	-	-	-	575	H ₂ SO 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	-	528	560	560	-	Murexid ⁴	24 mm ø
Hardness, total	2 - 50 mg/l	-	-	-	560	560	571	Metallphthalein ³	24 mm ø
	20 - 500 mg/l ⁵⁾	-	-	-	560	560	571		
	50 - 500 mg/l ⁵⁾	-	528	-	-	-	-		

Material safety data sheets: www.aqualytic.com

For other reagent quantities please see our current price list.

Legend

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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
O ₂	Reaction tube 0-150 mg/l Reaction tube 0-150 mg/l, mercury free	Tube test / 25 Tube test / 25	420720 420710
O ₂	Reaction tube 0-1500 mg/l Reaction tube 0-1500 mg/l, mercury free	Tube test / 25 Tube test / 25	420721 420711
O ₂	Reaction tube 0-15000 mg/l Reaction tube 0-15000 mg/l, mercury free	Tube test / 25 Tube test / 25	420722 420712
Cu	COPPER No. 1 COPPER No. 2 Combi pack# COPPER No.1 / No.2 Combi pack# COPPER No.1 / No.2	Tablet / 100 Tablet / 100 each 100 each 250	4513550 4513560 4517691 4517692
Cu	COPPER/ZINC LR EDTA DECHLOR (in case of high levels of residual chlorine)	Tablet / 100 Tablet / 100 Tablet / 100	4512620 4512390 4512350
Cu	Vario Cu 1 F10	Powder Pack / 100	530300
CN	Cyanid-11 / Cyanid-12 / Cyanid-13	Reagent test (Powder, Liquid reagent) / 200 Tests	418875
Cys	CYANURIC ACID	Tablet / 100	4511320BT
DEHA	DEHA Solution DEHA	Liquid reagent / 100 ml Tablet / 100	461181 4513220
DEHA	VARIO OXYSCAV 1 RGT VARIO DEHA 2 RGT	Powder Pack / 200 Solution / 100 ml Set	536000
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	4515650
CaCO ₃	Combi pack# CALCIO H No.1 / No.2 Combi pack# CALCIO H No.1 / No.2	each 100 each 250	4517761 4517762
CaCO ₃	HARDCHECK P	Tablet / 100	4515660

^{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 chlorine dioxide / 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 CaCO₃

ⁱ⁾ high range by dilution

[#] no BT blister tablets, including stirring rod

Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Hazen (Pt-Co-Einheiten ; APHA)	0 - 500 mg/l	-	470	-	430	430	-	Direct reading ^{1,2}	24 mm ø
	0 - 500 mg/l	-	-	-	-	-	455		50 mm □
Hydrazine	0.05 - 0.5 mg/l	-	470	-	430	430	455	Dimethylamino- benzaldehyde ³	24 mm ø
Hydrazine	0.01 - 0.6 mg/l	-	-	-	430	430	-	Dimethylamino- benzaldehyde ³	24 mm ø
	0.005 - 0.6 mg/l	-	-	-	-	-	455		
Hydrazine ^{c)}	0.01 - 0.7 mg/l	-	-	-	430	430	-	PDMAB	24 mm ø
Hydrogen peroxide	0.03 - 3 mg/l	-	-	-	530	530	-	DPD/Catalyst ⁵	24 mm ø
	0.05 - 3 mg/l	-	528	-	-	-	-		24 mm ø
	0.01 - 0.5 mg/l	-	-	-	-	-	510		50 mm ø
	0.03 - 1.5 mg/l	-	-	-	-	-	510		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	560	528	528	560	560	-	PPST ³	24 mm ø
	0.2 - 10 mg/l ^{b)}	-	528	-	-	-	-		24 mm ø
	0.01 - 0.5 mg/l	-	-	-	-	-	562		50 mm □
	0.1 - 1 mg/l	-	-	-	-	-	562		10 mm □
	0.1 - 1 mg/l	-	-	-	-	-	562		24 mm ø
Iron VARIO (II, III) soluble	0.02 - 3 mg/l	530	-	-	530	530	-	1,10-Phenanthroline ²	24 mm ø
	0.1 - 3 mg/l	-	-	-	-	-	510		
Iron VARIO, total ^{g)}	0.02 - 1.8 mg/l	580	-	-	580	580	-	TPTZ ^{g)}	24 mm ø
	0.1 - 1.8 mg/l	-	-	-	-	-	590		
Lead (Pb²⁺)	0.1 - 5 mg/l	-	-	-	-	-	520	4-(2-Pyridylazo)-resorcin	10 mm □
Lead (Pb²⁺)	0.1 - 5 mg/l	-	-	-	-	-	515	4-(2-Pyridylazo)-resorcin	16 mm ø
Manganese	0.2 - 4 mg/l	530	-	-	530	530	450	Formaldehyde	24 mm ø
	0.05 - 4 mg/l	-	430	-	-	-	-		
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

Material safety data sheets: www.aqualytic.com

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
Pt-Co-units	no reagents required	-	-
N ₂ H ₄	Hydrazine Test Powder Spoon	Powder / 30 g	462910 384930
N ₂ H ₄	VARIO Hydra 2 Rgt Solution	Solution / 100 ml	531200
N ₂ H ₄	Vacu-vial®	Test Kit / 30	380470
H ₂ O ₂	HYDROGENPEROXIDE LR	Tablet / 100	4512380
I	DPD No. 1	Tablet / 100	4511060BT
Fe	IRON LR IRON (II) LR	Tablet / 100 Tablet / 100	4515370 4515420
Fe	VARIO Ferro F10	Powder Pack / 100	530560
Fe	VARIO TPTZ F10	Powder Pack / 100	530550
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 MANGANESE LR 2 Combi pack# MANGANESE LR 1 / LR 2 Combi pack# MANGANESE LR 1 / LR 2	Tablet / 100 Tablet / 100 each 100 each 250	4516080 4516090 4517621 4517622
Mn	VARIO Ascorbic Acid VARIO Alkaline-Cyanide VARIO PAN Indicator VARIO Rochelle Salt Solution ^{h)}	Powder Pack / 100 Liquid reagent / 60 ml Liquid reagent / 60 ml Set 30 ml	 535090 530640
Mn	VARIO Manganese Citrate Puffer F10 VARIO Sodiumperiodate F10	Powder Pack / 100 Powder Pack / 100 Set	 535100

^{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 chlorine dioxide / 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 CaCO₃

ⁱ⁾ high range by dilution

no BT blister tablets, including stirring rod

Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Molybdate	1 - 50 mg/l 1 - 30 mg/l	- -	- -	- -	430 -	430 -	- 366	Thioglycolate ⁴	24 mm ø
Molybdate VARIO	0.5 - 66 mg/l	-	-	-	430	430	420	Mercaptoacetic acid	24 mm ø
Monochloramine VARIO	0.04 - 4.5 mg/l	660	-	-	660	660	-	Indophenol	24 mm ø
Nickel	0.02 - 1 mg/l 0.2 - 7 mg/l	- -	- -	- -	- -	- -	443 443	Dimethylglyoxime ^{2,3}	50 mm □ 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 0.05 - 0.5 mg/l	- -	- 528	- -	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
Nitrogen VARIO, total HR ^{b)}	5 - 150 mg/l	-	-	-	430	430	410	Persulphate- digestion method	16 mm ø

Material safety data sheets: www.aqualytic.com

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
MoO ₄	MOLYBDATE No.1 HR MOLYBDATE No.2 HR Combi pack [#] MOLYBDATE No.1 HR / No.2 HR Combi pack [#] MOLYBDATE No.1 HR / No.2 HR	Tablet / 100 Tablet / 100 each 100 each 250	4513060 4513070 4517631 4517632
MoO ₄	VARIO Molybdenum HR1 F10 VARIO Molybdenum HR2 F10 VARIO Molybdenum HR3 F10	Powder Pack / 100 Powder Pack / 100 Powder Pack / 100 Set	535300
Cl ₂	VARIO Monochlor FRGT	Powder Pack / 100	531810
Ni	Nickel-51, Nickel-52	Reagent test (Powder, Liquid reagent) / 50 Tests	419033
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)	535580
N	Reaction tube, Nitrat-111	Tube test Liquid reagent / 24	420702
N	NITRITE LR	Tablet / 100	4512310
N	Reaction tube, Nitrit-101	Tube test (Powder) / 24	419018
N	VARIO Nitri 3	Powder Pack / 100	530980
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)	535550
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)	535560

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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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^{h)} additionally required for samples with hardness values above 300 mg/l CaCO₃

ⁱ⁾ high range by dilution

[#] no BT blister tablets, including stirring rod

Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Oxygen, activ	0.1 - 10 mg/l	-	-	-	530	530	-	DPD	
Oxygen, dissolved ^{c)}	10 - 800 μ g/l	-	-	-	530	530	-	Rhodazine D TM	
Ozone	0.02 - 1 mg/l	-	-	-	-	-	510	DPD/Glycine ⁵	24 mm $\emptyset$ 50 mm $\square$ 24 mm $\emptyset$
	0.02 - 0.5 mg/l	-	-	-	-	-	510		
	0.02 - 2 mg/l	-	-	-	530	530	-		
Ozone (Indigo)	0.05 - 0.5 mg/l	-	605	-	-	-	-		24 mm $\emptyset$
Phenols	0.1 - 5 mg/l	-	-	-	-	-	507	4-Aminoantipyrine ¹	24 mm $\emptyset$
PHMB (Biguanide)	2 - 60 mg/l	-	-	-	560	560	-	Buffer/Indicator	24 mm $\emptyset$
Phosphate-total LR ^{b)}	0.07 - 3 mg/l	-	-	-	-	-	690	Phosphomolybdic acid/ Ascorbic acid ²	16 mm $\emptyset$
	0.2 - 10 mg/l	-	-	-	-	-	690		
Phosphate-total HR ^{b)}	1.5 - 20 mg/l	-	-	-	-	-	690	Phosphomolybdic acid/ Ascorbic acid ²	16 mm $\emptyset$
	5 - 60 mg/l	-	-	-	-	-	690		
Phosphate LR, ortho	0.05 - 4 mg/l	660	660	-	660	660	710	Phosphomolybdic acid/ Ascorbic acid ²	24 mm $\emptyset$
Phosphate HR, ortho	10 - 100 mg/l	-	470	-	-	-	-	Vanadomolybdate ²	24 mm $\emptyset$
	1 - 80 mg/l	-	-	-	430	430	470		
Phosphate VARIO ortho	0.06 - 2.5 mg/l	660	-	-	660	660	890	Ascorbic acid ²	24 mm $\emptyset$
Phosphate VARIO ortho	0.06 - 5 mg/l	-	-	-	660	660	890	Ascorbic acid ²	16 mm $\emptyset$
Phosphate-ortho	3 - 60 mg/l	-	-	-	-	-	438	Vanadomolybdate ²	16 mm $\emptyset$
Phosphate VARIO ^{b)} acid hydrolyzable and total	acid hydrolyzable: 0.02 - 1.6 mg/l	-	-	-	660	660	890	Acid digestion Ascorbic acid ²	16 mm $\emptyset$
	total: 0.02 - 1.1 mg/l 0.06 - 3.5 mg/l	-	-	-	-	-	-	Acid-/ Persulphate digestion Ascorbic acid ²	16 mm $\emptyset$

Material safety data sheets: www.aqualytic.com

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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
O ₂	DPD No. 4	Tablet / 100	4511220BT
O ₂	Vacu-vial®	Liquid reagent / 30	380450
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 4517711 4517712 4512170 4517731 4517732
O ₃	OZONE	Tablet / 100	4513170
C ₆ H ₅ O _H	PHENOLE No. 1 PHENOLE No. 2	Tablet / 100 Tablet / 100	4515950 4515960
PHMB	PHMB PHOTOMETER	Tablet / 100	4516100
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 Combi pack# PHOSPHATE No.1 LR / No.2 LR	Tablet / 100 Tablet / 100 each 100 each 200	4513040 4513050 4517651 4517652
PO ₄	PHOSPHATE No. 1 HR PHOSPHATE No. 2 HR Combi pack# PHOSPHATE No.1 HR / No.2 HR Combi pack# PHOSPHATE No.1 HR / No.2 HR	Tablet / 100 Tablet / 100 each 100 each 200	4515810 4515820 4517661 4517662
PO ₄	VARIO Phosphate Rgt., F10	Powder Pack / 100	531550
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)	535200
PO ₄	Reaction tube	Tube test / 24	420701
P PO ₄ P PO ₄	VARIO Acid Reagent Vial VARIO Phosphate Rgt., F10 VARIO Deionised Water (for Zero) 1N NaOH 1,54 N NaOH VARIO Potassium Persulfate F10	50 Tubes Powder Pack / 50 Bottle, 100 ml Bottle / 100 ml Bottle / 100 ml Powder Pack / 50 Set (Tube test)	535250

^{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 chlorine dioxide / 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 CaCO₃

ⁱ⁾ high range by dilution

no BT blister tablets, including stirring rod

Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Phosphate VARIO gesamt ^{b)}	0.02 - 1.1 mg/l	-	-	-	660	660	890	Acid-/ Persulphate digestion Ascorbic acid ²	16 mm ø
	0.06 - 3.5 mg/l	-	-	-	-	-	-		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	
Phosphonate VARIO	0.02 - 125 mg/l	-	-	-	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	-	528	560	560	558	Phenol red ⁵	24 mm ø
pH value	6.5 - 8.4	560	-	528	560	560	558	Phenol red ⁵	24 mm ø
pH value	8.0 - 9.6	-	-	-	560	560	-	Thymol blue ⁵	24 mm ø
Potassium	0.7 - 12 mg/l	-	-	-	430	430	-	Tetraphenylborate- Turbidity ⁴	24 mm ø
	1 - 10 mg/l	-	-	-	-	-	730		24 mm ø
Silica	0.05 - 4 mg/l	660	580	-	660	660	-	Silicomolybdate ^{2,3}	24 mm ø
	0.05 - 3 mg/l	-	-	-	-	-	820		
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	430	-	-	430	430	-	Silicomolybdate ^{2,3}	24 mm ø
	1 - 100 mg/l	-	-	-	-	-	452		24 mm ø
Sodiumhypochlorite	0.2 - 16 %	-	-	-	530	530	-	Potassium iodide ⁵	24 mm ø
Spectral Absorption-coefficient	0 - 50 m ⁻¹	-	-	-	-	-	436	Direct reading ¹ ISO 7887:1994	50 mm □
		-	-	-	-	-	525		
		-	-	-	-	-	620		

Material safety data sheets: www.aqualytic.com

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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
P PO ₄	VARIO Acid Reagent Vial VARIO Phosphate Rgt., F10 VARIO Deionised Water (for Zero) 1,54 N NaOH VARIO Potassium Persulfate F10	50 Tubes Powder Pack / 50 Bottle, 100 ml Bottle / 100 ml Powder Pack / 50 Set (Tube test)	535210
PO ₄	Vacu-vial®	Test Kit / 30	380460
PO ₄	Vacu-vial®	Test Kit / 30	380480
PO ₄	VARIO Potassium Persulfate F10 VARIO Phosphate Rgt. F10	Powder Pack / 100 Powder Pack / 200 Set	535220
pH	BROMOCRESOLPURPLE/PHOTOMETER	Tablet / 100	4515700
pH	PHENOLRED / PHOTOMETER	Tablet / 100	4511770BT
pH	PHENOLRED Solution	Liquid reagent / 15 ml	471040
pH	THYMOLBLUE / PHOTOMETER	Tablet / 100	4515710
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	535690
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	535700
NaOCl	ACIDIFYING GP CHLORINE HR (KI) Combi pack# CHLORINE HR (KI)/ACIDIFYING GP Combi pack# CHLORINE HR (KI)/ACIDIFYING GP	Tablet / 100 Tablet / 100 each 100 each 250	4515480 4513000 4517721 4517722
-	no reagents required	-	-

^{a)} determination of free, combined and total

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no BT blister tablets, including stirring rod

Reagents

Test	Range	Wave lengths λ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Sulphate VARIO	5 - 100 mg/l 2 - 100 mg/l	- -	- -	- -	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
Sulphite	0.1 - 5 mg/l	-	-	-	430	430	-	DTNB	24 mm ø
	0.1 - 10 mg/l	-	-	-	-	-	405		10 mm ø
	0.05 - 4 mg/l	-	-	-	-	-	405		24 mm ø
Surfactants (anionic)	0.05 - 2 mg/l	-	-	-	-	-	653	Methylene blue ¹	16 mm ø
Suspended solids	5 - 750 mg/l	-	605	-	660	660	-	Turbidity/Attenuated Radiation	24 mm ø
TOC ^{b)}	50 - 800 mg/l	-	-	-	-	-	596	H ₂ SO ₄ / Indicator	16 mm ø
Turbidity	5 - 500	-	-	-	-	-	860	Attenuated Radiation Method	50 mm □
	0 - 1000	-	-	-	530	530	-	Attenuated Radiation Method	24 mm ø
	0.01 - 1100	-	860	-	-	-	-	Nephelometric	24 mm ø
Urea	0.1 - 2.5 mg/l	-	660	660	610	610	-	Urease / Indophenol	24 mm ø
	0.2 - 5 mg/l ^{b)}	-	660	-	-	-	-		
	0.1 - 2 mg/l	-	-	-	-	-	676		
Zinc	0.02 - 1 mg/l	-	580	-	610	610	-	Zincon ³ /EDTA	24 mm ø
	0.02 - 0.5 mg/l	-	-	-	-	-	616		

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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 ₄	VARIO Sulpha 4 / F10	Powder Pack / 100	532160
SO ₄	SULFATE T	Tablet / 100	4515450
S	SULFIDE No. 1 SULFIDE No. 2	Tablet / 100 Tablet / 100	502930 502940
SO ₃	SULFITE LR	Tablet / 100	4518020
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
FAU FAU NTU	no reagents required	-	-
CH ₄ N ₂ O	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	Liquid reagent / 15 ml Liquid reagent / 10 ml Tablet / 100 Tablet / 100 each 100 each 250	459300 459400 4512580 4512590 4517611 4517612
Zn	COPPER/ZINC LR EDTA DECHLOR (in case of high levels of residual chlorine)	Tablet / 100 Tablet / 100 Tablet / 100	4512620 4512390 4512350

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i) high range by dilution

no BT blister tablets, including stirring rod

Powder Dispenser PD250

Precise and repeatable dosing of Powder Reagents

NEW



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

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.



Refill Packs

Article	Order code
VARIO Chlorine Free 10 ml 2 reagent vials	530140
VARIO Chlorine Total 10 ml 2 reagent vials	530150
VARIO Chlorine Free + Total 10 ml one reagent vial each	530 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

Reagents also suitable for use in Hach

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		■	■ ■
Ammonia, free (Part of method monochloramine)	0.01 - 0.5 mg/l N	VARIO FREE AMMONIA REAGENT SET consists of: VARIO Free Ammonia Reagent Solution VARIO Monochlor FRGT	■		■
Chlorine free, combined and total Chlorine dioxide	Visuelles Test Kit bis 3,5mg/l Cl ₂	VARIO Chlorine FREE-DPD, F5			■
	0.01 – 2 mg/l Cl ₂	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			■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
	0 – 5 mg/l Cl ₂				
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	■		■

Photometer Systems

Method	Applications	Quantity	Code
Eriochrome cyanine R	Water	1 Set 100 100 25 ml	535000
Salicylate	Water, waste water, seawater	1 Set 2 x 100 2 x 100	535500
Salicylate	Water, waste water, seawater	1 Set 50 50 50 tubes	535600
Salicylate	Water, waste water, seawater	1 Set 50 50 50 tubes	535650
Indophenol	Water	1 Set 5 ml 100	535800 531810
DPD-Methode: USEPA accepted for drinking water analysis	Water, waste water, seawater	100 1000 100 1000	530090 530093 530080 530083
DPD-Methode: USEPA accepted for drinking water analysis	Water, waste water, seawater	100 1000 100 1000	530100 530103 530120 530123
DPD-Methode: USEPA accepted for drinking water analysis	Water, waste water, seawater	100 1000 100 1000	530110 530113 530130 530133
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	530300 530303
PPST		1 Set 100 100 ml	536000

Reagents also suitable for use in Hach

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 ₂ H 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 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			■ ■ ■
Monochloramine	0.04 - 4.5 mg/l Cl ₂	VARIO FREE AMMONIA REAGENT SET consists of: VARIO Free Ammonia Reagent Solution VARIO Monochlor FRGT	■		■
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, gesamt 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, gesamt HR	10 – 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	■	■	■ ■ ■

Photometer Systems

Method	Applications	Quantity	Code
4-(Dimethylamino)-benzaldehyde	Water, waste water, seawater	100 ml	531200
Iron, total: 1, 10-phenantroline Iron, total: TPTZ	Water, waste water, seawater	100	530560
	Water, waste water, seawater	100	530550
		1 Set	535090
PAN	Water, waste water	60 ml 100 60 ml	
Periodate oxidation	Water, waste water	1 Set 100 100	535100
		1 Set	535300
Mercaptoacetic acid	Water, waste water	100 100 100	
		1 Set	535400
Mercaptoacetic acid	Water, waste water	100 100 100	
Indophenol	Water	1 Set 5 ml 100	535800
			531810
Chromotropic acid	Water, waste water	1 Set 50 50 100 ml	535580
		1 Set	535550
Persulfate digestion	Water, waste water	50 50 50 50 50 100 ml	
		1 Set	535560
Persulfate digestion	Water, waste water	50 50 50 50 50 100 ml	

Reagents also suitable for use in Hach

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 PHOS3, F10			■
Phosphate, ortho	0.06 - 5 mg/l PO ₄	VARIO REACTIVE PHOSPHATE REAGENT SET consists of: VARIO PHOSPHATE DILUTION TUBE TEST VARIO PHOS3, 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 PHOS3, 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 PHOS3, F10 Deionised water VARIO SODIUM HYDROXID 1,54N VARIO POTASSIUM PERSULFATE	■ ■	■	■ ■
Phosphonate	0.02 - 125 mg/l PO ₄	VARIO PHOSPHONATE REAGENT SET consists of: VARIO Potassium Persulfate F10 VARIO PHOS3, 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			■ ■

Photometer Systems

Method	Applications	Quantity	Code
Diazotiation	Water, waste water	100 100	530980 530970
Phosphomolybdate/Ascorbic acid	Water, waste water, seawater	100	531550
Phosphomolybdate/ Ascorbic acid	Water, seawater	1 Set 50 50 100 ml	535200
Phosphomolybdate/ Ascorbic acid	Water, seawater	1 Set 50 50 100 ml 100 ml 100 ml 50	535250
Phosphomolybdate/ Ascorbic acid	Water, seawater	1 Set 50 50 100 ml 100 ml 50	535210
Persulfate UV-Oxidation	Water	1 Set 100 200	535200
Heteropoly blue	Water, seawater	1 Set 100 100 50 ml	535690
Silicomolybdate	Water, seawater	1 Set 100 100 100	535700
Silicomolybdate	Water, seawater	1 Set 100 100 100	535900
USEPA accepted for waste water analysis	Water, waste water, seawater	100 100	532160 532150

BOD Measurement System AL606

Direct sample selection | Interface



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

Respirometric BOD measurement using the AL606

The AQUALYTIC® sensor system AL606 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. Thanks to the modern integral pressure sensors, it is no longer necessary to use mercury for pressure measurements.

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Highlights

- Direct sample selection
- Accurate and direct display of BOD values in mg/l
- User-friendly handling
- User-selectable measuring period from 1 to 28 days (BOD5, BOD7, OECD...)
- Storage of all values
- Measuring ranges from 0-40 mg/l to 0-4000 mg/l BOD, sample volume related
- Auto start function after temperature equalisation
- Mercury-free, environmentally-friendly
- Inductive stirring system with automatic re-centering of stirring rods
- Interface RS 232

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 AL606 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

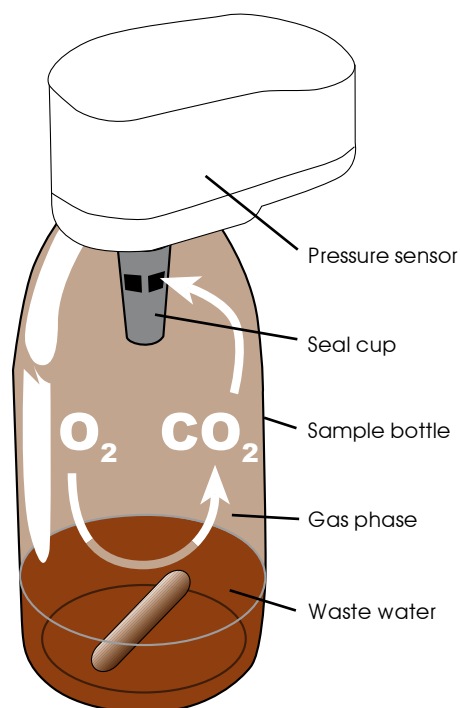
AL606 Principle

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 AQUALYTIC® BOD sensor. The BOD level is then displayed directly in mg/l.

The BOD values are stored in the sensor memory 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.

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

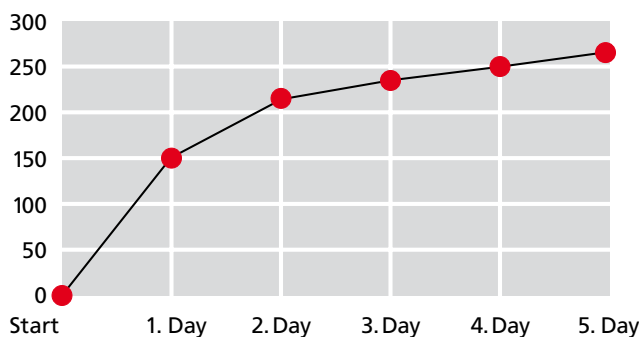
- Waste Water
- Determination of Biological Activity
- Waste Water Treatment Plants
- Analytical Laboratories
- Scientific & Research

Evaluation of measurements

If the measuring period is set at 24 hours, the AQUALYTIC® AL606 BOD measuring system records a measurement once every hour. With a measuring period of 48 hours, the unit measures and stores a BOD value once every 2 hours. If the measuring period is between 3 and 28 days, one value is measured and stored each day.

Current values and stored values may be called up at any time. The table/graph below illustrates an example of BOD₅ evaluation. The development of BOD over a period of 5 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



BOD₅ 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® AL606 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 AL606 measuring system

In addition to the BOD unit for measurement and storage of BOD levels, the AQUALYTIC® AL606 BOD 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

- **AL606**, complete unit with
 - 6 sensor heads and control unit with batteries
- Inductive stirring unit with power supply
- 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: 444406

- **AL612**,
 - as above but with 12 sensor heads

Order code: 444410

Technical data

Meas. principle	Manometric; mercury-free; electronic pressure sensor
Ranges [mg/l O₂]	0 - 40, 0 - 80, 0 - 200, 0 - 400, 0 - 800, 0 - 2000, 0 - 4000 mg/l
Accuracy*	0.5 % full scale at 20°C
Applications	BOD ₅ , BOD ₇ , OECD 301 F ...
Result display	BOD [mg/l]; 4 - digits ; 7 - segment LED
Measurement parameter display	BOD-range, volume, duration, time of measurement
Measurement period	User-selectable, between 1 and 28 days
Auto result storage	Up to 28 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")
Battery life	1 year (normal use as BOD ₅ meter – max. one reading a day); early warning before battery fails
Interface	RS 232 for printer or PC connection
Clock	Real-time clock
Protection class	IP 54 (sensor head)
Dimensions (L x W x H)	375 x 195 x 230 mm including stirring unit
Weight	3850 g, unit with bottles 5750 g, complete with stirring unit
Housing	ABS

CE-Conformity

* No standard is available to check the accuracy of respirometric oxygen uptake measurement. Tests with a glucose-glutamic acid solution having a known theoretical BOD have shown that the variation is approximately 5% in the range of 50...100 mg/l BOD, and 3% for higher range. Minimum Response or sensitivity of respirometric systems is about 0.05 ... 1 mg/l.

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

Accessories

Item	Order code
Sensor head	2444430
BOD sample bottle Brown glass, 500 ml	418644
BOD sample bottles , Brown glass, 500 ml, set of 6 bottles	418645
Cable for connection to a PC serial 9-pins	2444440
Inductive stirring system for 6 samples, 110-240 V / 50-60 Hz	2444452
Stirring rod	418637
Stirring rod remover	418638
Rubber gasket	418636
Chemicals: Potassium hydroxide solution 45 %, 50 ml	2418634
Nitrification inhibitor (N-ATH) 50 ml	2418642
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

Test set for AL606

We also supply a test set to check for correct operation of the AL606 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

with standard / glass door



Technical Data

Design	Fully insulated cabinet with universal temperature control unit
Models with glass door	Insulating glass door in an aluminium frame
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 in the centre of the cabinets. For BOD (T=20 °C ±0,5 °C)
Display	Backlit LED display Resolution 0.1 °C
Fan	Radial, output 320 m³/h
Cooling/Heating	Integrated powerful cooling and heating
Coolant	R600a
Power supply	230 V / 50 Hz
CE-Conformity	

Temperature control unit

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

Highlights

- Backlit Display
- 2 °C to 40 °C
- Adjustable in steps of 0.1 °C
- 20 °C BOD determination
- 4 °C Storage of waste water samples
- 25 °C Enzyme activity (TTC test)
- 37 °C Colony count

Models with standard door

AL654

3 metal racks + 1 bottom grid + 4 sockets

Consumption: 1.35 kWh / 24h*

I. D. (approx.): 700 H x 515 D x 430 W mm

Net capacity: approx. 135 l

O. D. (approx.):

850 H x 600 D x 600 W mm with work top

820 H x 600 D x 600 W mm without work top

Suitable for built under applications

Weight: approx. 39.0 kg

Order code: 428200

AL655

4 metal racks + 1 bottom grid + 5 sockets

Consumption: 1.39 kWh / 24h*

I. D. (approx.): 1045 H x 515 D x 415 W mm

Net capacity: approx. 195 l

O. D. (approx.): 1216 H x 600 D x 600 W mm

Weight : approx. 49.0 kg

Order code: 428220

AL656

5 metal racks + 1 bottom grid + 6 sockets

Consumption: 1.20 kWh / 24h*

I. D. (approx.): 1450 H x 515 D x 415 W mm

Net capacity: approx. 280 l

O. D. (approx.): 1590 H x 600 D x 600 W mm

Weight : approx. 64.5 kg

Order code: 428230

AL658

5 metal racks + 1 bottom grid + 8 sockets

Consumption: 1.59 kWh / 24h*

I. D. (approx.): 1300 H x 652 D x 515 W mm

Net capacity: approx. 395 l

O. D. (approx.): 1516 H x 752 D x 710 W mm

Weight : approx. 79.5 kg

Order code: 428240

* Ambient temperature 25 °C
Target temperature 20 °C

Models with glass door

AL654G

3 metal racks + 1 bottom grid + 4 sockets

Consumption: 1.77 kWh / 24h**

I. D. (approx.): 700 H x 515 D x 443 W mm

Net capacity: approx. 140 l

O. D. (approx.): 885 H x 600 D x 600 W mm

Weight: approx. 50.0 kg

Order code: 428210

AL655G

4 metal racks + 1 bottom grid + 5 sockets

Consumption: 1.74 kWh / 24h**

I. D. (approx.): 1045 H x 515 D x 415 W mm

Net capacity: approx. 195 l

O. D. (approx.): 1216 H x 600 D x 600 W mm

Weight : approx. 66.5 kg

Order code: 428225

AL656G

5 metal racks + 1 bottom grid + 6 sockets

Consumption: 2.05 kWh / 24h**

I. D. (approx.): 1450 H x 515 D x 415 W mm

Net capacity: approx. 280 l

O. D. (approx.): 1590 H x 600 D x 600 W mm

Weight : approx. 82.0 kg

Order code.: 428235

AL658G

5 metal racks + 1 bottom grid + 8 sockets

Consumption: 1.97 kWh / 24h**

I. D. (approx.): 1300 H x 652 D x 515 W mm

Net capacity: approx. 395 l

O. D. (approx.): 1516 H x 752 D x 710 W mm

Weight : approx. 98.5 kg

Order code: 428245

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

Space for BOD AL606 systems in thermostatically controlled incubators

Model	Systems, standard ¹⁾	Systems, comfort ²⁾
AL654 / AL654G	3	2
AL655 / AL655G	5	2
AL656 / AL656G	9	4
AL658 / AL658G	12	8

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

with a spark-free* interior

* spark-free interiors reduce risk of internal explosion



The German BGR 120 guideline for laboratories 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 this guideline and are fully equipped for daily laboratory use.

The carcass consists of a sturdy sheet steel housing with impact-proof and jolt-resistant powder coating.

The robust interior is made of high-strength 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 +2°C to +10°C; a room thermostat ensures constant control.

Highlights

- Spark-free according to BGR 120
- 2 °C to 10 °C
- Continuously adjustable
- Robust materials
- Lockable

Applications

- Laboratories
- Research Centres
- Universities

AL664EXI

230 V / 50 Hz, power consumption max. 120 Watts,
Consumption 0.9 (kWh/24h),
Temperature regulation: continuous 2 °C to 10 °C,
Lockable door, changeable door stop
4 storage levels (3 height-adjustable glass shelves)
I. D. (approx.): 700 H x 515 W x 443 D mm
Net capacity: approx. 150 l
O. D. (approx.): 885 H x 602 W x 600 D mm
Weight: approx. 37.0 kg
Order code: 422100

AL665EXI

230 V / 50 Hz, power consumption max. 140 Watts,
Consumption 1.0 (kWh/24h),
Temperature regulation: continuous 2 °C to 10 °C
Lockable door, changeable door stop
5 storage levels (4 height-adjustable glass shelves)
I. D. (approx.): 1045 H x 515 W x 415 D mm
Net capacity: approx. 210 l
O. D. (approx.): 1215 H x 602 W x 600 D mm
Weight : approx. 46.5 kg
Order code: 422110

AL666EXI

230 V / 50 Hz, power consumption max. 150 Watts,
Consumption 1.1 (kWh/24h),
Temperature regulation: continuous 2 °C to 10 °C
Lockable door, changeable door stop
6 storage levels (5 height-adjustable glass shelves)
I. D. (approx.): 1450 H x 515 W x 415 D mm
Net capacity: approx. 295 l
O. D. (approx.): 1589 H x 602 W x 600 D mm
Weight : approx. 62.0 kg
Order code: 422120

AL668EXI

230 V / 50 Hz, power consumption max. 150 Watts,
Consumption 1.1 (kWh/24h),
Temperature regulation: continuous 2 °C to 10 °C
Lockable door, changeable door stop
6 storage levels (5 height-adjustable glass shelves)
I. D. (approx.): 1300 H x 652 W x 515 D mm
Net capacity: approx. 425 l
O. D. (approx.): 1515 H x 755 W x 715 D mm
Weight: approx. 77.0 kg
Order code: 422130

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	2 °C to 10 °C
Climate class	10 °C to 32 °C,
Power supply	230 V / 50 Hz
Height adjustment	Adjustable front feet
EMV interference signal	EN 50 081-1
EMV interference resistance	EN 50 081 . EN 50 082-2
EX-safety	Spark-free interior
CE-Conformity	

Accessory

White safety- and collecting tub (PP), volume 10 litres

I. D.: 300 L x 400 W mm

O. D.: 420 L x 520 W x 120 H mm

Order code: 422150

Glass Shelves

Glass shelves for Laboratory cabinets EX, Typ 664, 665, 666
Order code: 422160

Glass shelves for Laboratory cabinets EX, Typ 668
Order code: 422161



EG-Konformitätserklärung
EC-Declaration of Conformity

Hersteller/Manufacturer: AQUATIC*

Anschrift/Address: Schleifstraße 12
44287 Dortmund
Germany

Produktbezeichnung: Product designation:	Modell/Type: Bezeichnung/Order No.:	AL664EXI 422100	AL665EXI 422110	AL666EXI 422120	AL668EXI 422130
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Beschreibung
Die Kühlschrankfamilie AQUATIC* der Typenreihe AL664EXI, AL665EXI, AL666EXI, AL668EXI werden im nicht- explosions-
gefährdeten Bereich aufgestellt. Der von Zündquellen freie Innenraum dient zur Lagerung von brennbaren Stoffen, zum Teil in
offenen Gefäßen, und wird daher als explosionsgefährdeter Bereich der Zone 2 klassifiziert. Sämtliche elektrischen Kompo-
nenten befinden sich im nicht-explosionsgefährdeten Bereich.
Description
The refrigerators AQUATIC* AL664EXI, AL665EXI, AL666EXI, AL668EXI are intended for use in not-explosive atmosphere.
The refrigerators are free of onward ignition sources. All electric components are situated in the not-explosive atmosphere
outside.

Das beschriebene Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein:
The product complies with the following European Guidelines:

Nummer Text	7323EWG Niederspannungs- richtlinie	89336EWG Elektromagnetische Verträglichkeit	93A86WG Änderungsrichtlinie	94BEG Gerät zur Verwendung in explosionsgefährdeten Bereichen
No. Text	7323EWG Low Voltage Guideline	89336EWG Electro-Magnetic Compatibility	93A86WG Modification Guideline	94BEG Equipment for use in potentially explosive atmosphere

Weitere Angaben über die Erfüllung dieser Richtlinie enthält der Antrag.
For further information on the adherence of this guideline please see annex.

Aussteller/Issuer: AQUATIC*
44287 Dortmund
Germany

Ort, Datum/Place, Date: Dortmund, 25.05.2009

Rechtsverbindliche Unterschrift:
Legally binding signature:


 Cay-Peter Moss, Geschäftsführer/Managing Director


 Manfred Nowak, Geschäftsführer/Managing Director

Rev. 01_10/2008

The appliance complies with the relevant safety regulations and EC directives 2004/108/EC, 2006/95/EC and ATEX 94/9/EC (IEC 60079-15, IEC 60079-0, EN 1127-1).

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).

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).

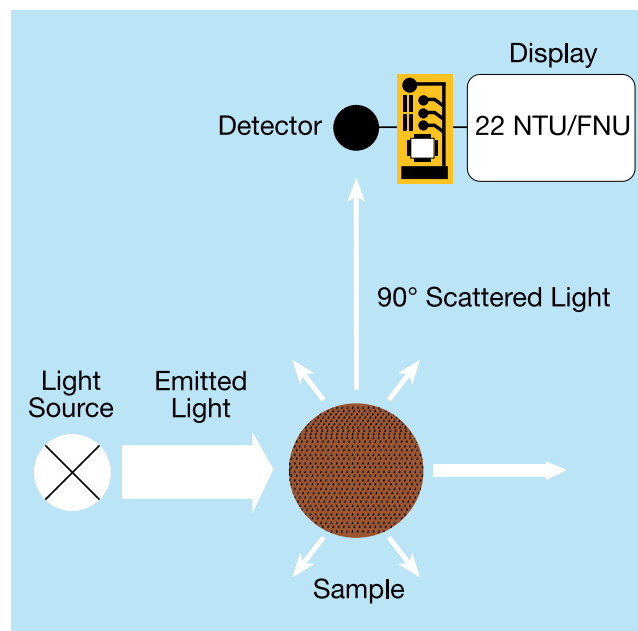
There are two standards for turbidity measurement that are widely accepted at an international level.

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.





AL250T-IR with infra-red light source

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AL450T-IR with infra-red light source

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AL400T-WL with white light source

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LAB-IR with infra-red light source

LAB-VIS with white light source

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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, the instrument can be used to test both coloured and colourless liquids. Calibration standards are also supplied. An alternative adjustment mode allows entry of user-defined turbidity standards.

Delivery Content

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

Accessories

Turbidity standard set T-CAL (<0.1, 20, 200, 800 NTU)

Order code: 4194150

Set of 12 empty sample vials, 24 mm ø

Order code: 197655

Highlights

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

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%
CE-Conformity	



Turbidity meter AL450T-IR

with infra-red light source (ISO 7027)



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	193000
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	194141
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

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 $\pm 2\%$ up to 500 NTU and $\pm 3\%$ 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.com

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)	$\pm 2\%$ of reading or 0.01 (0 - 500) $\pm 5\%$ 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
CE-Conformity	

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, 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

Turbidity meter AL400T-WL

with white light source (US EPA 180.1)



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%
CE-Conformity	

Highlights

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

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.

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 guarantee sheet

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



Turbidity LAB-IR (ISO 7027) and Turbidity LAB-VIS (EPA 180.1)

The LAB-IR and LAB-VIS laboratory turbidity meters allow easy, fast and precise measurements of turbidity in liquids.

The Turbidity LAB-IR with infrared LED for nephelometric (90° scattered light) measurements is also suitable for measuring coloured samples.

For turbidity measurements in accordance with US EPA, a unit with tungsten lamp (white light) – the LAB-VIS – is also available.

The units are supplied ready for use, complete with a set of secondary standards (0.02 / 10 / 1000 NTU), 2 sample vials, mains cable and operating instruction.



Instruments and technical data LAB-IR and LAB-VIS

Principle	Nephelometric – non ratio
Light source	LAB-IR: IR-LED LAB-VIS: Tungsten lamp
Range	0 – 1000 NTU (Auto range)
Resolution	0.01 NTU (0-9.9 NTU) 0.1 NTU (10-99.9 NTU) 1 NTU (100-1000 NTU)#
Accuracy	± 2% of reading or ± 0.01 NTU
Response time	< 6 seconds
Operating temperature	0 – 50 °C
Sample volume	30 ml (27 ml minimum)
Dimensions	237 W x 254 L x 121 H mm
Weight	approx. 1.32 kg
Power supply	100-240 V
CE-Conformity	

Delivery content

Turbidity LAB-IR,
complete with standards 0.02, 10 and 1000 NTU,
batteries and 2 empty sample vials

Order code: 4193710

Turbidity LAB-VIS, complete as above

Order code: 4193700

Hand-Held Meters Series AL20

(IP 67 waterproof)



The microprocessor-controlled series AL20 of handheld meters from AQUALYTIC® meets the day-to-day demands for sturdy and reliable systems for the measurement of pH value or ORP/Redox, conductivity/TDS and dissolved oxygen.

The water-tight housing complies with **IP67** and is equipped as standard with protective armoured 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 15000 hours, depending on the unit version.

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Variants

■ Dissolved Oxygen (O₂)
O₂ Concentration in mg/l
O₂ Saturation in %
°C/°F

■ Conductivity/TDS/Salinity
°C/°F

■ pH/Redox/ORP
°C/°F

AL20pH

- pH / redox measurement and temperature measurement (Pt1000 or NTC 30kOhm)
- Automatic temperature compensation (ATC)
- Auto Hold function
- Internal memory for 20 data sets
- Automatic buffer recognition with Tintometer standard or DIN or individual buffer
- 1, 2 and 3 point calibration
- Low battery and battery change indicator
- Sensor evaluation in the display based on the calibration result (from 10 to 100%)
- Battery operation period up to 15000 hours
- Shock-absorbing rubber protective armouring
- Waterproof

AL20Con

- Conductivity, Total Dissolved Solids (TDS), Salinity and Temperature measurement
- Dirt-insensitive up-to-date 4-pole conductivity cell offering highest precision
- Automatic temperature compensation (ATC)
- Min/Max value storage
- Internal memory for 20 data sets
- Linear and non-linear temperature compensation (EN27888)
- Calibration against standard solutions
- Low battery and battery change indicator
- Shock-absorbing rubber protective armouring
- Battery operation period up to 3000 hours
- Waterproof

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

Electrodes / measuring probes

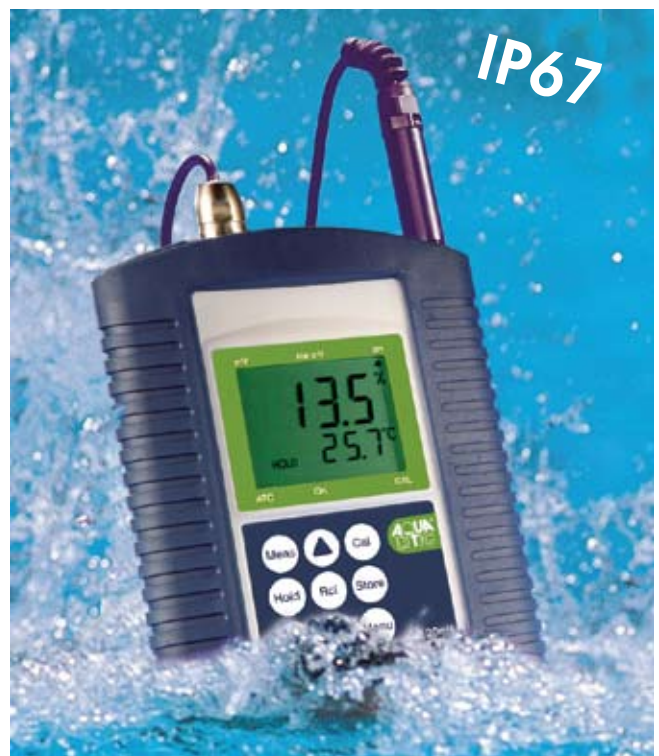
The wide variety of high-quality electrodes and measuring probes for the series AL20 meters makes them suitable for almost any application in water analysis, industry and research.

pH combination electrodes made of glass and plastic, with gel or liquid electrolyte, as well as various temperature sensors (NTC 30kOhm, Pt1000) are considered standard for modern pH meters.

Redox electrodes made of plastic with gel electrolyte and platinum tip are hardwearing and easy to use.

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

The sturdy, dirt-insensitive 4-pole conductivity measuring cell with graphite electrodes is ideal for use in industrial process and waste water analysis. The temperature range from 0...80 °C, for a short period up to 100°C, make this sensor to a practice-oriented, user friendly item.

**Applications**

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

AL20pH

Technical Data

pH	0.00 ... 14.00
Accuracy	± 0.01 pH (at nominal temperature, unit ± 1 digit)
Temperature	-10.0 ... +110.0 °C / 14.0 ... 230.0 °F
Accuracy	± 0.2 °C (-0..50 °C), otherwise ± 0.4 °C
Redox (ORP)	-1999 ... +2000 mV
Relative Redox	-1792 ... +2206 Rel mV (based on DIN 38 404)
Accuracy	± 0.1 % FS (mV or Rel mV)
Sensor connections	DIN 19262 and two 4 mm banana sockets "Temp" and "Ref"
Input resistance	>1012 Ohm (typ.)
Input current	<1 pA
Nominal temperature	25 °C
Operating temperature	0 to +50 °C
Storage temperature	-20 to +70 °C
Power supply	4 x 1.5V battery, type AA Operating time up to >15,000h
Power consumption	0.2 mA
Auto-Off function	0 - 120 minutes
Calibration	1-, 2- or 3-point calibration with auto buffer recognition Tintometer buffer, DIN buffer or user-selectable buffer

CE-Conformity

Delivery Content AL20pH

Code	Article
4721200	AL20pH, without electrode, with batteries, instruction manual, in case
4721220	AL20pH (SET 1) instrument, batteries, pH/temp. plastic-electrode type 230, pH-buffer-set (pH 4.00/7.00/10.00), in case, manual, guarantee sheet
4721221	AL20pH (SET 2) as SET1, but with pH/temp. plastic-electrode type 225, and temperature sensor Pt 1000, manual, guarantee sheet

Accessories AL20pH

Code	Article
721225	pH-electrode plastic/gel-type 225
721230	pH/temp.-electrode type 230 plastic/gel/temperature NTC30kOhm
721235	pH-electrode glass/gel-type 235
721240	Redox-electrode plastic-type 240
721245	Temperature sensor
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
721260	Adapter cable DIN19262 - BNC
721265	Adapter cable DIN19262, S7 plug-head
725020	Case with foam inlet

AL20Con

Technical Data

Conductivity	0.0 ... 200.0 µS/cm 0 ... 2000 µS/cm 0.00 ... 20.00 mS/cm 0.0 ... 200.0 mS/cm
Resistance	0.005 ... 100.0 kOhm*cm
TDS	0 ... 1999 mg/l
Salinity	0.0 ... 70.0 g/kg
Accuracy	± 0.5 % of result ± 0.5 % FS (± 3 digits)
Temperature	-5.0 ... 100.0 °C / 23.0 ... 212 °F
Accuracy	±0.3K
Cell constant	0.50 ± 0.10 cm-1
Temperature compensation	selectable: - linear, 0.3 to 3.0 %/K - non-linear in acc. with EN 27 888 - no compensation
Reference temperature	20 °C and 25 °C
Calibration	1-point calibration in the range from 1000 to 2000 µS/cm
Nominal temperature	25 °C
Operating temperature	Unit: 0 to + 50 °C Measuring cell: -5 to 80 °C (up to 100 °C for short periods)
Power supply	4 x 1.5 V battery, Type AA Operating time up to 1500 h
Power consumption	ca. 2 mA, max. 4.2 mA
Auto-Off function	0 - 120 minutes
Measuring cell	4-pole conductivity measuring cell with integrated temperature- sensor (NTC10kOhm). Electrode material: special graphite Shaft material: epoxy Temperature sensor: stainless steel Dimensions: diameter 12 mm, 120 mm long

CE-Conformity

Delivery Content AL20Con

Code	Article
4722220	AL20Con with, batteries, 4-Pole conductivity cell, in case, manual, guarantee sheet

Accessories AL20Con

Code	Article
722225	SensoDirect Conductivity Cell, 4-Pole Technology
722250	Calibration solution 1413µS/cm
725020	Case with foam inlet

AL20Oxi

Technical Data

O₂ partial pressure	0.0...570.0 hPa, 0...1200 hPa 0.0...427.5 mm Hg, 0...900 mm Hg
O₂ concentration	0.00...25.00 mg/L, 0.0...70.0 mg/L
O₂ 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

CE-Conformity

Delivery Content AL20Oxi

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

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



AL20pH in carrying case



AL20Con in carrying case



AL20Oxi in carrying case

Multi Parameter Hand-Held Meter AL15

dissolved Oxygen (O₂) | O₂-concentration in mg/l
Conductivity/TDS | pH/Redox | °C/°F



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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 hand-held 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 μ S / 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
CE-Conformity	

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 $\pm$ 5 °C)	Dissolved Oxygen ± 0.4 mg/l Oxygen in Air ± 0.7 % O ₂ 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 (μ S, mS) 0 - 200.0 μ S / 0.1 μ S 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 (μ S, 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, guarantee sheet, in case
4724210	AL15 Set pH / Con instrument, batteries, pH electrode, temperature probe, conductivity probe, pH buffer set 4,00 / 7,00, instruction manual, guarantee sheet, 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, guarantee sheet, in case
4724230	AL15 Set pH / Redox instrument, batteries, pH electrode, temperature probe, redox electrode, pH buffer set 4,00 / 7,00, instruction manual, guarantee sheet, in case

Accessories

Code	Article
721330	Spare electrode plastic/gel type BNC-plug
721242	Redox 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
724400	Conductivity probe
722250	Calibration solution 1413 μ S/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

Hand-Held Meters Series ALI0

Determination of pH, Conductivity, Salinity



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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
CE-Conformity	
Order Code	4721300

Delivery Content

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

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
CE-Conformity	
Order code	4722300

Delivery Content

AL10Con, battery, conductivity sensor, in case, instruction manual and guarantee sheet.

Accessories AL10Con

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



MicroDirect (IP 67 waterproof)

Optional temperature measurement °Celsius/°Fahrenheit



The MicroDirect series is a range of waterproof and dust-tight (IP67) units for the determination of pH, ORP/redox, conductivity, TDS, salinity and temperature.

The compact, robust housing and replaceable electrodes meet the high standards required of state of the art technology.

All units are equipped with an automatic switch-off and a "Hold" function which freezes the result in the display with a single keypress.

Delivery Content

Each MicroDirect will be supplied with batteries, lanyard, instruction manual as a ready to use unit in a sturdy plastic box (expection: MicroDirect Temperature).

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Variants

■ pH

■ ORP / Redox

■ Conductivity

■ TDS

■ Salt

■ Temperature

	pH 10	pH 30	ORP/Redox 10	Conductivity EC 11
Range	0...14 pH		-999...+1000 mV	0...2000 $\mu\text{S}/\text{cm}$ 0...20,00 $\text{mS}/\text{cm}^{1)}$
Resolution	0.1 pH	0.01 pH	1 mV	10 $\mu\text{S}/\text{cm}$
Accuracy	± 0.1	± 0.01	$\pm 1\%$ Full scale	$\pm 1\%$ Full scale
Calibration	3-point		1-point	1413 $\mu\text{S}/\text{cm}$ 12,88 mS/cm
Temperature	Display	0...50 °C/32-122°F	---	0...50 °C/32-122°F
	Resolution	---	0.1 °C/°F	0.1 °C/°F
	Accuracy	---	$\pm 0.5^\circ\text{C}/0.9^\circ\text{F}$	$\pm 0.5^\circ\text{C}/0.9^\circ\text{F}$
	Compensation	0-50 °C / 32-122 °F	---	0-50 °C / 32-122 °F
	Operation Temp.	0-50 °C	---	0-50 °C
Battery Capacity	> 500 h	> 500 h	> 500 h	> 150 h
Auto Off	approx. 8.5 minutes after last keypress			
Size/Weight	approx. 16.5 cm x 3.8 cm ,90 g			
with Packaging	approx. 22 cm x 6 cm x 5 cm,170 g			
Order Code	194641	194631	194661	194681
CE-Conformity				

	TDS 11	Salt 11	Temperature
Range	0...2000 ppm 0...10.00 ppt ²⁾	0...10.00 ppt ³⁾ NaCl	-40...+200 °C changeable auf °F
Resolution	10 ppm 0.10 ppt	0.10 ppt	0.1 °C
Accuracy	$\pm 1\%$ Full Scale	$\pm 1\%$ Full Scale	$\pm 1^\circ\text{C}$ from -10°C...+100°C $\pm 2^\circ\text{C}$ > +100°C...+200°C
Calibration	9.98 ppm 9.02 ppt	1-point	---
Temperature	Display	0-50 °C 32-122°F	---
	Resolution	0.1 °C/°F	---
	Accuracy	$\pm 0.5^\circ\text{C}/0.9^\circ\text{F}$	---
	Compensation	0-50 °C / 32-122 °F	---
	Operation Temp.	0-50 °C	0°C...40 °C max. 80°C (cable)
Battery Capacity	> 150 h	> 150 h	approx. 1 year
Auto Off	approx. 8.5 minutes after last keypress		approx. 15 minutes after last keypress
Size/Weight	approx. 16.5 cm x 3.8 cm ø, 90 g		approx. 9.5 cm x 6.0 cm x 1.8 cm, 130 g
with Packaging	approx. 22 cm x 6 cm x 5 cm,170 g		approx. 26 cm x 7.5 cm x 2.0 cm, 160 g
Order Code	194701	194711	194730
CE-Conformity			

Conversion table

¹⁾ 0 - 20,00 mS/cm = 0 - 20000 $\mu\text{S}/\text{cm}$

²⁾ 0 - 10,00 ppt TDS = 0 - 10000 ppm TDS

³⁾ 0 - 10,00 ppt NaCl = 0 - 10000 ppm 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.

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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
CE-Conformity	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
CE-Conformity	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
CE-Conformity	CE
Order code	419160

Accessories

Code	Article
419165	Measuring beaker, glass, low form 1000 ml, packaging unit 10 pieces



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.

Analysis	Type	Range	Methods				Order code
			Tablet Count	Speed Test	Yes/No Test	Turbidity	
Alkalinity Total	AF 444	20 - 800 mg/l $\text{CaCO}_3 \approx 0.4 - 16 \text{ mmol/l}$		■			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 $\text{CaCO}_3 \approx 0.1 - 5 \text{ mmol/l}$	■				414130
Calcium Hardness	AF 446	20 - 800 mg/l $\text{CaCO}_3 \approx 0.4 - 16 \text{ mmol/l}$		■			414460
Calcium Hardness	AF 416	10 - 500 mg/l $\text{CaCO}_3 \approx 0.1 - 5 \text{ mmol/l}$	■				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 $\text{CaCO}_3 \approx 0.01 - 0.1 \text{ mmol/l}$	■				414260
Hardness Total (low range)	AF 425	1 - 50 mg/l $\text{CaCO}_3 \approx 0.01 - 0.5 \text{ mmol/l}$	■				414250
Hardness Total (Yes/No)	AF 423	Limit 4 mg/l, 8 mg/l or 20 mg/l $\text{CaCO}_3 \approx 0.04$ or 0.08 or 0.2 mmol/l			■		414230
Hardness Total	AF 445	20 - 800 mg/l $\text{CaCO}_3 \approx 0.4 - 16 \text{ mmol/l}$		■			414450
Hardness Total	AF 424	5 - 500 mg/l $\text{CaCO}_3 \approx 0.05 - 5 \text{ mmol/l}$	■				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 - 4000 mg/l SO_4				■	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	4515570	100
ALKALINITY-P-Tablets	4515101	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	4515191	250
CHLORIDE	4515131	250
ACID CONCENTRATION	505420	100
CYANURIC ACID	4511320BT	100
HARDNESS VLR	4515351	250
HARDNESS LR (BW)*	4515171	250
HARDNESS YES / NO	4515361	250
T HARDNESS-TEST	4515590	100
TOTAL HARDNESS	4515161	250
NITRITE No. 1	4515201	250
NITRITE No. 2	4515211	250
ORGANO-PHOSPHONATE No. 2	465351	100 ml
ORGANO-PHOSPHONATE No. 1	4512961	250
QAC-Test	4515410	100
	4515411	250
SULFATE No. 1	4515221	250
SULFATE No. 2	4515231	250
SULFATE	4515451	250
SULFITE No. 1	4515271	250
SULFITE No. 2 HR	4515281	250
SULFITE No. 2 LR (BW)*	4515331	250
TANNIN No. 1	503500	100
TANNIN No. 2	503511	250

Material safety data sheets: www.aqualytic.com

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 ₂ SO ₃ ¹⁾	titrimetric	80	418532
Sulphides Volatile SD-1	0.05 – 5 mg/l S ²⁻	colorimetric	60	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 ₂ SO 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	MicroDirect EC11		
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 ₂ SO 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 ⁻	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 ₂ SO 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

Chlorine 0 – 1.0 mg/l Cl₂
pH value 6.5 – 8.4 pH

Order Code

147015

Chlorine 0.1 – 2.0 mg/l Cl₂
pH value 6.5 – 8.4 pH

147045

Chlorine 0 – 4.0 mg/l Cl₂
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

Chlorine 0 – 4.0 mg/l Cl₂
pH value 6.5 – 8.4 pH

Order Code

147028

Cyanuric acid (Turbidity method)*
20 – 200 mg/l Cys

Calcium hardness (Speed-Test)*
20 – 800 mg/l CaCO₃

Total Alkalinity (M) (Speed-Test)*
20 – 800 mg/l CaCO₃

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 $\pm 5\%$ F.S.)	Order Code
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	
Nitrate HR	10 - 100 mg/l NO ₃	147400
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
Total Alkalinity	20 - 240 mg/l CaCO ₃	147450
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
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
Chlorine free, combined**, total	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	147000
** maybe calculated by deducting free from total chlorine		only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)	

Testpak	Disc	Reagents	Quantity	Code
147700	146200	ALUMINIUM No.1	100	4515460
			250	4515461
		ALUMINIUM No.2	100	4515470
			250	4515471
		Combi pack [#] ALUMINIUM No.1 / No.2	each 100 each 250	4517601 4517602
147710	146210	AMMONIA No.1	100	4512580
			250	4512581
		AMMONIA No.2	100	4512590
			250	4512591
		Combi pack [#] AMMONIA No.1 / No.2	each 100 each 250	4517611 4517612
147711	146211	VARIO Ammonia Salicylate F10 VARIO Ammonia Cyanurate F10	Powder Pack / 200 Powder Pack / 200 Set	535500
147780	146280	DPD No.1-RAPID*	100	4511310BT
			250	4511311BT
			500	4511312BT
147510	146010	DPD No.1-RAPID*	100	4511310BT
			250	4511311BT
			500	4511312BT
		DPD No.3-RAPID*	100	4511290BT
			250	4511291BT
			500	4511292BT
		DPD No.4-RAPID*	100	4511570BT
			250	4511571BT
			500	4511572BT
147540	146040	DPD No.1/3/4-RAPID*		
147520	146020	DPD No.1/3/4-RAPID*		
147550,frei 147551,gesamt	146050	VARIO Chlorine Free DPD F5	100	530090
		VARIO Chlorine Total DPD F5	100	530080
147500	146000	DPD No.1	100	4511060BT
			250	4511061BT
			500	4511062BT
		DPD No.3	100	4511080BT
			250	4511081BT
			500	4511082BT
		Combi pack [#] DPD No.1 / No.3	each 100	4517711
			each 250	4517712

CHECKIT® Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
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 (Cu²⁺)	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
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	----

* RAPID: fast dissolving tablet, # no BT blister tablets, including stirring rod

Testpak	Disc	Reagents	Quantity	Code
147530	146030	CHLORINE HR (KI)	100	4513000
			250	4513001
		ACIDIFYING GP	100	4515480
			250	4515481
		Combi pack	each 100	4517721
		CHLORINE HR (KI)/ACIDIFYING GP	each 250 [#]	4517722
147830	146330	DPD No. 1	100	4511060BT
			250	4511061BT
		DPD Glycine	100	4512170
			250	4512171
		Combi pack [#]	each 100	4517731
		DPD No.1 / GLYCINE	each 250	4517732
147730	146230	COPPER/ZINC LR	100	4512620
			250	4512621
147930	146430	COPPER No. 1	100	4513550
			250	4513551
		COPPER No. 2	100	4513560
			250	4513561
		Combi pack [#]	each 100	4517691
		COPPER No.1 / No.2	each 250	4517692
147931	146431	Vario Cu1 F10	100	530300
147940	146440	COPPER No. 1	100	4513550
			250	4513551
		COPPER No. 2	100	4513560
			250	4513561
		Combi pack [#]	each 100	4517691
		COPPER No.1 / No.2	each 250	4517692
147941	146441	Vario Cu1 F10	100	530300
147870	146370	DEHA	100	4513220
			250	4513221
		DEHA solution	15 ml	461185
		DEHA solution	100 ml	461181
		Plastic funnel with handle	1	471007
147890	146390	SPADNS reagent solution	250 ml	467481
			500 ml	467482
		Help for pipette	1	365055
		Pipette 2 ml	1	365050

CHECKIT® Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
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
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)			

Testpak	Disc	Reagents	Quantity	Code
147720	146220	IRON LR	100	4515370
			250	4515371
		IRON (II) LR	100	4515420
147820	146320	IRON HR	100	4515380
			250	4515381
147970	146470	Vario Iron TPTZ F10	100	530550
147910	146410	VARIO Manganese Reagent, LR F10	1 Set	535090
		consists of:		
		VARIO Alkaline-Cyanide Solution	60 ml	
		Vario Ascorbic Acid	100	
		Vario PAN Indicator Solution	60 ml	
		Accessories:		
		VARIO Rochelle Salt Solution	30 ml	530640
		needs for samples with hardness values above 300 mg/l CaCO ₃		
147920	146420	VARIO Manganese Reagent, LR F10	1 Set	535090
		consists of:		
		VARIO Alkaline-Cyanide Solution	60 ml	
		Vario Ascorbic Acid	100	
		Vario PAN Indicator Solution	60 ml	
		Accessories:		
		VARIO Rochelle Salt Solution	30 ml	530640
		needs for samples with hardness values above 300 mg/l CaCO ₃		
147790	146290	MOLYBDATE No. 1 HR	100	4513060
			250	4513061
		MOLYBDATE No. 2 HR	100	4513070
			250	4513071
		Combi pack [#]	each 100	4517631
		MOLYBDATE No.1 HR / No.2 HR	each 250	4517632
147795	146295	MOLYBDATE No. 1 HR	100	4513060
			250	4513061
		MOLYBDATE No. 2 HR	100	4513070
			250	4513071
		Combi pack [#]	each 100	4517631
		MOLYBDATE No.1 HR / No.2 HR	each 250	4517632
147791	146291	MOLYBDATE No. 1 HR	100	4513060
			250	4513061
		MOLYBDATE No. 2 HR	100	4513070
			250	4513071
		Combi pack [#]	each 100	4517631
		MOLYBDATE No.1 HR / No.2 HR	each 250	4517632

CHECKIT® Comparator

Tests | Test Kits | Testpaks | Discs | Reagents

Test	Range	Readings (Accuracy ± 5% Full Scale)	Test Kit
Nitrate HR	10 - 100 mg/l NO ₃	10 / 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90 / 100	147400
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, # no BT blister tablets, including stirring rod

Testpak	Disc	Reagents	Quantity	Code
147900	146400	NITRACHECK No. 1	100	4517500
			250	4517501
		NITRACHECK No. 2	100	4517510
			250	4517511
		Combi pack [#]	each 100	4517701
		NITRACHECK No.1 / No.2	each 250	4517702
147810	146310	NITRITE LR	100	4512310
			250	4512311
		NITRATE-Test tablets	100 (bottle)	502810
		NITRATE Test powder	15 g	465230
		NITRATE Test tube	1	366220
147800	146300	NITRITE LR	100	4512310
			250	4512311
147801	146301	VARIO Nitri 3 F10	Powder Pack / 100	530980
147770	146270	DPD No. 4	100	4511220BT
			250	4511221BT
		DPD Glycine	100	4512170
			250	4512171
147775	146275	DPD No. 4	100	4511220BT
			250	4511221BT
147610	146110	BROMOCRESOL PURPLE	100	4511730
			250	4511731
147620	146120	BROMOTHYMOL BLUE	100	4511640
			250	4511641
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
			250	4513041
		PHOSPHATE No. 2 LR	100	4513050
			250	4513051
		Combi pack [#]	each 100	4517651
		PHOSPHATE No.1 LR / No.2 LR	each 200	4517652

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
Total Alkalinity	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
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

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	535700
		Vario Silica HR Acid Rgt F10	Powder Pack / 100	
		Vario Silica HR Citric Acid F10	Powder Pack / 100	
			Set	
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	4513000
			250	4513001
		ACIDIFYING GP	100	4515480
			250	4515481
		Combi pack [#]	each 100	4517721
		CHLORINE HR (KI)/ACIDIFYING GP	each 250	4517722
		Dilution set for sample preparation	1	414470
147880	146380	SULFITE LR	100	4518020
147950	146450	ALKACHECK	100	4513200
			250	4513201
147840	146340	COPPER/ZINC LR	100	4512620
			250	4512621
		EDTA	100	4512390
			250	4512391
		DECHLOR	100	4512350
			250	4512351

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.

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 102 for information on the various test discs or refer to our **L 213 test disc catalogue**.

Highlights

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

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



Lighting unit



Nessleriser 2150 with lighting unit

Applications

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

Comparator 2000+

Testpak – Ideal add-on for the Comparator

For the most popular tests, discs are available in a AQUALYTIC® TESTPAK. The TESTPAK is a simple and cost-effective means of extending the use of an existing Comparator instrument to a new test parameter.

Each TESTPAK contains the required test disc, tablet reagents (normally for 100 tests), cells and accessories as well as detailed instructions for the desired method.

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



Test	Disc	Range*			Code	
Aluminium	3 / 127 A	0	–	0.5 mg / l	730205	
Ammonia	3 / 112	0	–	0.4 mg / l NH ₄	730060	
	3 / 113	0	–	1.0 mg / l N	730070	
	3 / 125	0	–	10.0 mg / l N	730180	
Bromine	3 / 53 A	0.2	–	2.0 mg / l	735310	
	3 / 53 B	1.0	–	10.0 mg / l	735320	
	3 / 53 C	0.5	–	6.0 mg / l	735330	
Chlorine (free, combined, total)	3 / 40 A	0.1	–	1.0 mg / l	734010	
	3 / 40 B	0.2	–	4.0 mg / l	734020	
	3 / 40 HN	2.0	–	10.0 mg / l	734080	
	3 / 40 J	0.1	–	2.0 mg / l	734140	
	3 / 40 K	0.5	–	6.0 mg / l	733930	
	3 / 40 P	2.0	–	5.0 mg / l	733920	
	3 / 40 S	1.0	–	4.0 mg / l	734090	
Chlorine Dioxide	3 / 40 ED	0.04	–	0.57 mg / l	734065	
	3 / 40 FD	0.38	–	1.52 mg / l	734075	
Copper	3 / 106	0	–	1.0 mg / l	730050	
	3 / 110	0.05	–	4.0 mg / l	730040	
	3 / 149	0.5	–	5.0 mg / l	730450	
Hydrogen Peroxide, DPD	3 / 50 E	0.01	–	0.15 mg / l	735020	
	DPD	3 / 50 A	0.05	–	0.5 mg / l	735000
	DPD	3 / 50 B	0.1	–	3.0 mg / l	735010
	Potassium iodide	3 / 114	2.0	–	20.0 mg / l	730080
	Potassium iodide	3 / 115	10.0	–	100.0 mg / l	730090
Iron	3 / 116	0.1	–	1.0 mg / l	730100	
	3 / 117	1.0	–	10.0 mg / l	730110	
Nitrite	3 / 103	0.05	–	0.5 mg / l	730030	
Ozone DPD	3 / 67 A	0.01	–	0.1 mg / l	736710	
	DPD	3 / 67	0.1	–	1.0 mg / l	736700
	Indigo	3 / 148	0	–	0.5 mg / l	730440
pH-value	2 / 1 G	5.2	–	6.8	721100	
	2 / 1 J	6.8	–	8.4	721130	
	2 / 1 L	8.0	–	9.6	721190	
QAC (Quaternary Ammonium Compounds)	3 / 118	2.0	–	20.0 mg / l	730120	
	3 / 119	20.0	–	200.0 mg / l	730130	
Sodium Hypochlorite	3 / 2 Hypo	2	–	18 %	732110	
Zinc	3 / 151	0.1	–	1.0 mg / l	730470	

* Disc readings see following pages

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.

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.

Type	Designation/Combi	Test	Range*	Code
AF 270	Mini Lab Pool Water	Aluminium	0 - 0.5 mg/l Al	412700
		Ammonia	0 - 0.4 mg/l N	
		Chlorine	0.1 - 1.0 mg/l Cl ₂	
			1.0 - 4.0 mg/l Cl ₂	
		Chloride	5 - 5000 mg/l Cl	
		Cyanuric acid	0 - 80 mg/l	
		Iron	0.1 - 1.0 mg/l Fe	
		pH-value	5.2 - 6.8 pH	
			6.8 - 8.4 pH	
		Total Alkalinity	20 - 800 mg/l CaCO ₃	
AF 357	Drinking Water	Sulphate	40 - 4000 mg/l SO ₄	413570
		Chloride (salinity)	0 - 5000 mg/l Cl	
		Chlorine	0.02 - 0.3 mg/l Cl ₂	
			0.2 - 4 mg/l Cl ₂	
		Hardness Total	0 - 500 mg/l CaCO ₃	
		Fluoride	0 - 1.6 mg/l F	
		Hazen Colour	10 - 90 mg/l Pt	
		pH-value	6 - 8.4 pH	
AF 358	Sewage and Domestic Effluents	Ammonia	0 - 1 mg/l N	413580
		Chlorine	0.1 - 1 mg/l Cl ₂	
			1 - 10 mg/l Cl ₂	
		Nitrite	0.05 - 0.5 mg/l N	
		Permanganate (BOD)	0 - 60 mg/l	
		pH-value	4 - 8 ; 8 - 9.6 pH	
		Sulphide	0 - 0.5 mg/l S	
AF 368	Mini Lab Heavy Metals	Chromium	10 - 100 µg Cr	413680
		Copper	2.5 - 50 µg Cu	
		Cyanide	0.05 - 1 mg/l Cn	
		Nickel	1 - 10 mg/l Ni	
		Zinc	0 - 50 µg Zn	
Type	Designation/Single	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	0.02 - 0.3 mg/l Cl ₂	411126
		Chlorine	0.2 - 0.8 mg/l Cl ₂	
AF 112J/J	Chlorine free, comb. tot.	Chlorine	0.1 - 2.0 mg/l Cl ₂	417246
		pH-value	6.8 - 8.4 pH	
AF 112N/T	Chlorine free, comb. tot.	Chlorine	0.1 - 1.0 mg/l Cl ₂	410120
		Chlorine	1.1 - 2.0 mg/l Cl ₂	
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	0.1 - 1 mg/l Cl ₂	411140
		pH-value	6.8 - 8.4 pH	
AF 116B	Chlorine, pH	Chlorine	0.2 - 4 mg/l Cl ₂	411160
		pH-value	6.8 - 8.4 pH	
AF 118S	Chlorine, pH	Chlorine	0.1 - 4 mg/l Cl ₂	411181
		pH-value	5.2 - 8.4 pH	
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 NH ₄	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.com, # no BT blister tablets, including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
ALUMINIUM No.1	100	4515460	13.5 mm cell, 10ml	354243
	250	4515461		
ALUMINIUM No.2	100	4515470		
	250	4515471		
Combi pack#	each 100	4517601		
ALUMINIUM No.1 / No.2	each 250	4517602		
AMINE	100	4511010	Extraction tube AF260	352600
	250	4511011		
Details auf Anfrage			13.5 mm cell, 10ml	354243
AMMONIA No.1	100	4512580	40 mm cell W680/40	606890
	250	4512581		
AMMONIA No.2	100	4512590		
	250	4512591		
Combi pack#	each 100	4517611		
AMMONIA No.1 / No.2	each 250	4517612		
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			Nessler tubes 113 mm	353060
SEIGNETTE salt solution				
NESSLER reagent			Nessler tubes 113 mm	353060
SEIGNETTE salt solution				
NESSLER reagent			Nessler tubes 113 mm	353060
SEIGNETTE salt solution				
DPD No.1	100	4511060BT	13.5 mm cell, 10ml	354243
	250	4511061BT		
	500	4511062BT		
DPD No.1			13.5 mm cell, 10ml	354243
DPD No.1			13.5 mm cell, 10ml	354243

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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.com, # no BT blister tablets, including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
DPD No.1	100	4511060BT	40 mm cell W680/40	606890
	250	4511061BT		
	500	4511062BT		
DPD No.2	100	4511530		
	250	4511531		
	500	4511532		
DPD No.3	100	4511080BT		
	250	4511081BT		
	500	4511082BT		
Combi pack#	each 100	4517711		
DPD No.1 / No.3	each 250	4517712		
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			13.5 mm cell, 10ml	354243
Phenol red tablets, see pH determination			13.5 mm cell, 10ml	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.com, # no BT blister tablets, 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)	100	4513000	40 mm cell W680/40	606890
	250	4513001		
ACIDIFYING GP	100	4515480		
	250	4515481		
Combi pack#	each 100	4517721		
CHLORINE HR (KI)/	each 250	4517722		
ACIDIFYING GP				
CHLORINE HR (KI)			13.5 mm cell, 10ml	354243
ACIDIFYING GP				
CHLORINE HR (KI)			13.5 mm cell, 10ml	354243
ACIDIFYING GP				
DPD No.1 NESSLERISER	100	4511230	Nessleriser 2150	172150
	250	4511231	Nessler tubes 113 mm	353060
DPD No.2 NESSLERISER	100	4511240		
	250	4511241		
DPD No.3 NESSLERISER	100	4511250		
	250	4511251		
DPD No.4 NESSLERISER	100	4511260		
	250	4511261		
DPD No.1/2/3/4 NESSLERISER			Nessleriser 2150	172150
			Nessler tubes 113 mm	353060
DPD No.1/2/3/4 NESSLERISER			Nessleriser 2150	172150
			Nessler tubes 113 mm	353060
DPD No.1/2/3/4 NESSLERISER			Nessleriser 2150	172150
			Nessler tubes 113 mm	353060
DPD No.1	100	4511060BT	13.5 mm cell, 10 ml	354243
	250	4511061BT		
DPD No.1			40 mm cell W680/40	606890
DPD No.1			40 mm cell W680/40	606890

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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.com, # no BT blister tablets, including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
CHLORINE HR (KI)	100	4513000	40 mm cell W680/40	606890
	250	4513001		
ACIDIFYING GP	100	4515480		
	250	4515481		
Combi pack#	each 100	4517721		
CHLORINE HR (KI)/	each 250	4517722		
ACIDIFYING GP				
Details auf Anfrage			13.5 mm cell, 10 ml	354243
COPPER/ZINC LR	100	4512620	13.5 mm cell, 10 ml	354243
	250	4512621		
COPPER/ZINC HR	100	4512340	13.5 mm cell, 10 ml	354243
	250	4512341		
DEHA	100	4513220	40 mm cell W680/40	606890
	250	4513221		
DEHA solution	100 ml	461181		
FLUORIDE A-Z	100	4511400	Nessleriser 2150 Nessler tubes 113 mm	172150 353060
	250	4511401		
FLUORIDE EXCESS AL	100	4511410		
	250	4511411		
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

Comparator 2000+

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.com, # no BT blister tablets, 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	4512380 4512381	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	4511060BT 4511061BT	13.5 mm cell, 10 ml	354243
DPD No.1			13.5 mm cell, 10 ml	354243
IRON LR	100 250	4515370 4515371	40 mm cell W680/40	606890
IRON LR	100 250	4515370 4515371	13.5 mm cell, 10 ml	354243
IRON (II) LR	100	4515420		
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	100 250	4516080 4516081	13.5 mm cell, 10 ml	354243
MANGANESE LR 2	100 250	4516090 4516091		
Combi pack#	each 100	4517621		
MANGANESE LR 1/ MANGANESE LR 2	each 250	4517622		
Details on request			40 mm cell W680/40	606890
MOLYBDATE No.1 HR	100 250	4513060 4513061	40 mm cell W680/40	606890
MOLYBDATE No.2 HR	100 250	4513070 4513071		
Combi pack#	each 100	4517631		
MOLYBDATE No.1 HR / MOLYBDATE No.2 HR	each 250	4517632		
MOLYBDATE No.1 HR MOLYBDATE No.2 HR			13.5 mm cell, 10 ml	354243

Comparator 2000+

Tests | Discs | Reagents | Cells

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 NO ₃	230170
Nitrate	3/142	10; 20; 30; 40; 50; 60; 70; 80; 100 mg/l	10 - 100 mg/l NO ₃	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.com, # no BT blister tablets, including stirring rod, 10 cm

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

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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 PO ₄	230270
Phosphate	3/136	0; 5; 10; 15; 20; 25; 30; 35; 40 mg/l	0 - 40 mg/l PO ₄	230310
Phosphate	3/12	0; 10; 20; 30; 40; 50; 60; 70; 80 mg/l	0 - 80 mg/l PO ₄	231200
Phosphate	3/70	0; 10; 20; 30; 40; 50; 60; 70; 80; 100 mg/l	0 - 100 mg/l PO ₄	237000

Material safety data sheets: www.aqualytic.com, # no BT blister tablets, including stirring rod, 10 cm

Reagents	Quantity	Code	Accessories	Code
METHYL RED	100 ml 250 ml	451631 451632	13.5 mm cell, 10 ml	354243
BROMOCRESOL PURPLE	100 250	4511730 4511731	13.5 mm cell, 10 ml	354243
BROMOTHYMOL BLUE	100 250	4511640 4511641	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 BLAU PH Indicator	25 ml 100 ml 250 ml 500 ml	451620 451621 451622 451623	Nessler tubes 113 mm	353060
THYMOL BLAU 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	100 250 100 250 each 100 each 200	4513040 4513041 4513050 4513051 4517651 4517652	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 PO ₄	236000
Phosphate	NMD	10; 20; 30; 40; 50; 60; 70; 80; 100 µg/l	10 - 100 µg/l PO ₄	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.com, # no BT blister tablets, 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	4515390 4515391	40 mm cell W680/40	606890
QAC HR	100 250	4515400 4515401	13.5 mm cell, 10 ml	354243
SILICA No.1	100 250	4513130 4513131	13.5 mm cell, 10 ml	354243
SILICA No.2	100 250	4513140 4513141		
Combi pack# SILICA No.1 / No.2	each 100 each 200	4517671 4517672		
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)	100 250	4513000 4513001	13.5 mm cell, 10 ml	354243
ACIDIFYING GP	100 250	4515480 4515481		
Combi pack# CHLORINE HR (KI)/ ACIDIFYING GP	each 100 each 250	4517721 4517722		
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	4512620 4512621	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		 = Water
Acid concentration	ACID CONCENTRATION		 = Waste Water
Alkalinity-m	ALKA-M-PHOTOMETER		 = Seawater
Alkalinity-p	ALKA-P-PHOTOMETER		 (B) = Boiler Water related
Aluminium	ALUMINIUM No. 1 ALUMINIUM No. 2		 (P) = Pool Water related
Aluminium	VARIO Aluminum ECR/F20 VARIO Aluminum Hexamine/F20 VARIO Aluminum Masking Reagent		RT = Reagent Test KT = Tube Test
Amine	Amine		
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 (Cd²⁺)	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		

Parameter	Reagent	Application	
Chlorine	DPD No. 1		 = Water
	DPD No. 3		 = Waste Water
	DPD No. 1 HIGH CALCIUM		 = Seawater
Chlorine	DPD 1 Buffer solution DPD 1 Reagent solution DPD 3 Solution		 = Boiler Water related
Chlorine	VARIO Chlorine FREE-DPD/F10 VARIO Chlorine TOTAL-DPD/F10		 = Pool Water related
Chlorine HR (KI)	ACIDIFYING GP CHLORINE HR (KI)		RT = Reagent Test
Chlorine dioxide	DPD No. 1 DPD No. 3 GLYCINE		KT = Tube Test
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	CYANURIC ACID		
DEHA	DEHA Solution DEHA		
DEHA	VARIO OXYSCAV 1 Rgt VARIO DEHA 2 Rgt Solution		

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	
Hydrazine	Vacu-vials® / Chemetrics K-5003	
Hydrogen peroxide	HYDROGENPEROXIDE LR	
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	

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

Parameter	Reagent	Application	
Nickel	RT (Nickel-51, Nickel-52)		= Water
Nitrate	KT (Nitrate-111)		= Waste Water
Nitrate	VARIO Nitrate Chromotropic VARIO Nitra X Reagent tube VARIO Deionised water		= Seawater
Nitrate	NITRITE LR Nitrate Test Tablets Nitrate Test Powder		= Boiler Water related
Nitrate HR	Nitracheck No.1 Nitracheck No.2		= Pool Water related
Nitrite	KT (Nitrit-101)		RT = Reagent Test
Nitrite	NITRITE LR		KT = Tube Test
Nitrite	Nitrite No.1 Nitrite No.2		
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		
Oxygen, active	INDIGO CARMINE		
Oxygen, dissolved	Vacu-vials® / Chemetrics K-7553		
Ozone	DPD No. 1 DPD No. 3 GLYCINE		
Ozone	Ozone		
Phenoles	Phenole No. 1 Phenole No. 2		

Applications of Reagents

Parameter	Reagent	Application
PHMB (Biguanide)	PHMB PHOTOMETER	 = Water
Phosphate-Organo	ORGANO-PHOSPHONATE No.1 ORGANO-PHOSPHONATE No.2	 = Waste Water
Phosphate HR	PHOSPHATE HR	 = Seawater
Phosphate-total* (PMB)	KT (Phosphate-101, Phosphate-102, Phosphate-103)	 = Boiler Water related
Phosphate-total* (PMB)	KT (Phosphate-101, Phosphate-102, Phosphate-103)	 = Pool Water related
Phosphate-ortho (VM)	KT	 = Reagent Test
Phosphate LR, ortho	PHOSPHATE LR No. 1 PHOSPHATE LR No. 2	 = Tube Test
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	

 = Water

 = Waste Water

 = Seawater

 = Boiler Water related

 = Pool Water related

RT = Reagent Test

KT = Tube Test

Parameter	Reagent	Application	
Potassium	POTASSIUM T		 = Water
QAC	QAC Test		 = Waste Water
QAC LR	QAC LR		 = Seawater
QAC HR	QAC HR		 = Boiler Water related
Silica	SILICA No. 1 SILICA No.2 SILICA PR		 = Pool Water related
Silica	VARIO LR Amino Acid F F10 VARIO Citric Acid F10 VARIO Molybdate 3 Rgt Solution		RT = Reagent Test
Silica	VARIO Silica HR Acid Rgt F10 VARIO Silica Citric Acid F10 VARIO Silica Molybdate F10		KT = Tube Test
Sulphate	SULFATE T		
Sulphate	VARIO Sulpha 4 / F10		
Sulphate	SULFATE No.1 SULFATE No.2		
Sulphide	SULFIDE No. 1 SULFIDE No. 2		
Sulphite	SULFITE LR		
Sulphite	SULFITE No.1 SULFITE No.2 HR SULFITE No.2 LR		
Surfactants (anionic)	Spectroquant® 1.14697.0001		
Tannin	TANNIN No.1 TANNIN No.2		
TOC	Spectroquant® 1.14879.0001		
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Urea	UREA-Reagent 1 UREA-Reagent 2 AMMONIA No. 1 AMMONIA No. 2		
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- Photometer AL450 22
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Cynuric Acid

- Photometer AL100 6

D

DEHA

- CHECKIT®Comparator 86
- Comparator 2000+ 98
- Photometer AL250 12
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26
- Test Kits 84
- VARIO Powder Packs 50

DPD Reagents 30

F

Flocculation 80

Fluoride

- CHECKIT®Comparator 86
- Comparator 2000+ 98
- Photometer AL100 6
- Photometer AL250 12
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26

Formaldehyde

- Spectrophotometer AL800 26

H

Hand-Held Meter AL15 74

Hand-Held Meters Series AL10 76

Hand-Held Meters Series AL20 70

Hardness, total

- Photometer AL250 12

Hazen

- Comparator 2000+ 98
- Photometer AL250 12
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26

Hydrazin

Photometer AL250 12

Hydrazine

Comparator 2000+ 98

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

VARIO Powder Packs 52

Hydrogen Peroxide

Comparator 2000+ 98

Photometer AL250 12

Photometer AL400 18

Photometer AL450 22

I**Industrial Process Water 85****Iodine**

Comparator 2000+ 98

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

Iron

CHECKIT®Comparator 86

Comparator 2000+ 98

Photometer AL100 6

Photometer AL250 12, 14

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

Test Kits 84

VARIO Powder Packs 52

J**Jar Tester 80****L****Laboratory Cabinets / EXI 62****Langelier Water Balance System**

Photometer AL400 18

Photometer AL450 22

Lead

Spectrophotometer AL800 26

Liquid Reagents 31**M****Manganese**

CHECKIT®Comparator 86

Comparator 2000+ 98

Photometer AL100 6

Photometer AL250 12

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

VARIO Powder Packs 52

Membrane filter set 31**MicroDirect 78****MINIKIT 82****Molybdate**

CHECKIT®Comparator 86

Comparator 2000+ 98

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

Test Kits 84

VARIO Powder Packs 52

Monochloramine

Photometer AL100 6

Photometer AL400 18

Photometer AL450 22

VARIO Powder Packs 52

N**Nickel**

Spectrophotometer AL800 26

Nitrate

CHECKIT®Comparator 86

Comparator 2000+ 98

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

VARIO Powder Packs 52

Nitrite

CHECKIT®Comparator 86

Comparator 2000+ 98

MINIKIT 82

Photometer AL250 12

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

O**ORP**

Hand-Held Meters Series AL20 70

MicroDirect 78

Oxygen

Comparator 2000+ 98

Oxygen, active

Photometer AL400 18

Photometer AL450 22

Oxygen, dissolved

Hand-Held Meter AL15 74

Hand-Held Meters Series AL20 70

Photometer AL400 18

Photometer AL450 22

Ozone

CHECKIT®Comparator 86

Comparator 2000+ 98

Photometer AL250 12

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

P**pH**

CHECKIT®Comparator 86

Comparator 2000+ 98

Hand-Held Meter AL15 74

Hand-Held Meters Series AL10 76

Hand-Held Meters Series AL20 70

MicroDirect 78

Photometer AL250 14

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

Phenols

Spectrophotometer AL800 26

PHMB (Biguanides)

Photometer AL400 18

Photometer AL450 22

Phosphate

CHECKIT®Comparator 86

Comparator 2000+ 98

Photometer AL100 6

Photometer AL250 12

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

Test Kits 84

VARIO Powder Packs 54

Phosphonate

MINIKIT 82

Photometer AL400 18

Photometer AL450 22

VARIO Powder Packs 54

Photometer AL100 6**Photometer AL250 10****Photometer AL400 18****Photometer AL450 22****Photometry 4****pH-value**

Photometer AL100 6

Potassium

Photometer AL400 18

Photometer AL450 22

Spectrophotometer AL800 26

Powder Dispenser PD250 48**Q****QAC**

Comparator 2000+ 98

MINIKIT 82

R**Reagents 30****Redox**

- Hand-Held Meter AL15 74
- Hand-Held Meters Series AL20 70
- MicroDirect 78

S**Salinity**

- Hand-Held Meters Series AL20 70
- MicroDirect 78

Sample Preparation 31**Silica**

- CHECKIT®Comparator 86
- Comparator 2000+ 98
- Photometer AL100 6
- Photometer AL250 12
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26
- VARIO Powder Packs 54

Sodiumhypochlorite

- CHECKIT®Comparator 86
- Comparator 2000+ 98
- Photometer AL400 18
- Photometer AL450 22

Spectral Absorption-Coefficient

- Spectrophotometer AL800 26

Spectrophotometer AL800 26**Sugar**

- Comparator 2000+ 98

Sulfite

- CHECKIT®Comparator 86

Sulphate

- MINIKIT 82
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26
- VARIO Powder Packs 54

Sulphide

- Comparator 2000+ 98
- Photometer AL400 18
- Photometer AL450 22

Sulphides Volatile

- Test Kits 84

Sulphite

- MINIKIT 82
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26
- Test Kits 84

Suphide

- Spectrophotometer AL800 26

Surfactants

- Spectrophotometer AL800 26

Suspended Solids

- Photometer AL250 12
- Photometer AL400 18
- Photometer AL450 22

T**Tablet Reagents 30****Tannin Index**

- MINIKIT 82

TDS

- Hand-Held Meter AL15 74
- Hand-Held Meters Series AL20 70
- MicroDirect 78

Temperature

- Hand-Held Meter AL15 74
- Hand-Held Meters Series AL20 70
- MicroDirect 78

Test Kits 84**Thermoreactor AL125 17****Thermostatically controlled incubators 60****TOC**

- Spectrophotometer AL800 26

Total Hardness

- Comparator 2000+ 98
- MINIKIT 82
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26
- Test Kits 84

Total Nitrogen

- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26
- VARIO Powder Packs 52

Tube Tests 31**Turbidity**

- Photometer AL250 12
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26

Turbidity LAB-IR 69**Turbidity LAB-VIS 69****Turbidity Meter AL250T-IR 66****Turbidity Meter AL400T-WL 68****Turbidity Meter AL450T-IR 67****Turbidity meters 64****U****Urea**

- Photometer AL250 12, 14
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26

V**VARIO Powder Packs 31****Z****Zinc**

- CHECKIT®Comparator 86
- Comparator 2000+ 98
- Photometer AL250 12
- Photometer AL400 18
- Photometer AL450 22
- Spectrophotometer AL800 26

