

# 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](http://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 is 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 $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
<b>Acid capacity <math>K_{s4.3}</math></b>	0.1 - 4 mmol/l	-	-	605	610	610	615	Acid/Indicator <sup>1,2</sup>	24 mm $\emptyset$
<b>Alkalinity-m (total)</b>	5 - 200 mg/l	610	-	605	610	610	615	Acid/Indicator <sup>1,2,5</sup>	24 mm $\emptyset$
<b>Alkalinity-p</b>	5 - 300 mg/l	-	-	-	560	560	551	Acid/Indicator <sup>1,2,5</sup>	24 mm $\emptyset$
<b>Aluminium VARIO</b>	0.01 - 0.25 mg/l	-	-	-	530	530	535	Eriochrome cyanine R <sup>2</sup>	24 mm $\emptyset$
<b>Aluminium</b>	0.01 - 0.3 mg/l 0.05 - 0.3 mg/l	-	-	-	530	530	535	Eriochrome cyanine R <sup>2</sup>	24 mm $\emptyset$
		-	528	-	-	-	-		
<b>Ammonia</b>	0.02 - 1 mg/l 0.2 - 10 mg/l <sup>b</sup>	610	660	-	610	610	676	Indophenole blue <sup>2,3</sup>	24 mm $\emptyset$
		-	660	-	-	-	-		
<b>Ammonia VARIO</b>	0.01 - 0.8 mg/l	660	-	-	660	660	655	Salicylate <sup>2</sup>	24 mm $\emptyset$
<b>Ammonia VARIO LR</b>	0.02 - 2.5 mg/l	-	-	-	660	660	655	Salicylate <sup>2</sup>	16 mm $\emptyset$
<b>Ammonia VARIO HR</b>	1 - 50 mg/l	-	-	-	660	660	655	Salicylate <sup>2</sup>	16 mm $\emptyset$
<b>Ammonia, free VARIO</b> (Part of method monochloramine)	0.01 - 0.5 mg/l	660	-	-	660	660	-	Indophenol	24 mm $\emptyset$
<b>Arsenic (III, IV)</b>	0.02 - 0.6 mg/l	-	-	-	-	-	507	Silver diethyldithiocarbamate <sup>1</sup>	20 mm $\square$
<b>Biguanide</b> (see PHMB)									
<b>Boron</b>	0.1 - 2 mg/l	-	-	-	430	430	450	Azomethine <sup>3</sup>	24 mm $\emptyset$

Material safety data sheets: [www.aqualytic.com](http://www.aqualytic.com)

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Legend

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<sup>2</sup> Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992

<sup>3</sup> Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989

<sup>4</sup> Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980

<sup>5</sup> Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
	ALKA-M-PHOTOMETER	Tablet / 100	4513210
CaCO <sub>3</sub>	ALKA-M-PHOTOMETER	Tablet / 100	4513210
CaCO <sub>3</sub>	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 <b>Set</b>	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 <b>Set</b>	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 <b>Set</b> (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 <b>Set</b> (Tube test)	535650
N	VARIO Free Ammonia Reagent Solution VARIO Monochlor FRGT	Bottle 5 ml Powder Pack / 100 <b>Set</b>	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

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

<sup>c)</sup> AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

<sup>d)</sup> Spectroquant® is a Merck KGaA Trademark

<sup>e)</sup> 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

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

<sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion

<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>l)</sup> high range by dilution

# no BT blister tablets, including stirring rod

# Reagents

Test	Range	Wave lengths $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
<b>Bromine</b>	0.05 - 13 mg/l	530	-	-	530	530	-	DPD <sup>5</sup>	24 mm $\emptyset$
	0.02 - 13 mg/l	-	-	528	-	-	-		24 mm $\emptyset$
	0.05 - 1 mg/l	-	-	-	-	-	510		50 mm $\square$
	0.1 - 3 mg/l	-	-	-	-	-	510		10 mm $\square$
	0.05 - 6.5 mg/l	-	-	-	-	-	510		24 mm $\emptyset$
<b>Cadmium (Cd<sup>2+</sup>)</b>	0.025 - 0.75 mg/l	-	-	-	-	-	525	Cadion	16 mm $\emptyset$
<b>Chloride</b>	0.5 - 25 mg/l	-	528	-	530	530	450	Silver nitrate/turbidity	24 mm $\emptyset$
	5 - 250 mg/l <sup>b)</sup>	-	528	-	-	-	-		
<b>Chloride</b>	5 - 60 mg/l	-	-	-	-	-	455	Iron (III)-thiocyanate <sup>4</sup>	24 mm $\emptyset$
<b>Chlorine <sup>a)</sup></b>	0.01 - 6 mg/l	530	528	528	530	530	-	DPD <sup>1,2</sup>	24 mm $\emptyset$
	0.02 - 0.5 mg/l	-	-	-	-	-	510		50 mm $\square$
	0.1 - 6 mg/l	-	-	-	-	-	510		10 mm $\square$
	0.02 - 3 mg/l	-	-	-	-	-	510		24 mm $\emptyset$
<b>Chlorine HR (DPD) <sup>a)</sup></b>	0.1 - 10 mg/l	530	-	-	-	-	-	DPD <sup>1,2</sup>	24 mm $\emptyset$
<b>Chlorine <sup>a)</sup></b>	0.02 - 4 mg/l	530	528	528	530	530	-	DPD <sup>1,2</sup>	24 mm $\emptyset$
	0.02 - 3 mg/l	-	-	-	-	-	510		24 mm $\emptyset$
<b>Chlorine VARIO <sup>a)</sup></b>	0.02 - 2 mg/l	530	528	528	530	530	510	DPD <sup>1,2</sup>	24 mm $\emptyset$
	0.1 - 8 mg/l	530	-	-	-	-	-		24 mm $\emptyset$ multy vial
<b>Chlorine HR (KI)</b>	5 - 200 mg/l	530	470	470	530	530	470	KI / Acid <sup>5</sup>	16 mm $\emptyset$
<b>Chlorine dioxide</b>	0.05 - 11 mg/l	-	-	-	530	530	-	DPD/Glycine <sup>1,2</sup>	24 mm $\emptyset$
	0.02 - 11 mg/l	530	-	528	-	-	-		24 mm $\emptyset$
	0.05 - 1 mg/l	-	-	-	-	-	510		50 mm $\square$
	0.05 - 2.5 mg/l	-	-	-	-	-	510		24 mm $\emptyset$
<b>Chlorine dioxide VARIO</b>	0.02 - 3.8 mg/l	530	-	-	-	-	-	DPD <sup>1,2</sup>	
<b>Chromium <sup>a) b)</sup></b>	0.005 - 0.5 mg/l	-	-	-	-	-	542	1,5-Diphenylcarbozide <sup>1,2</sup>	50 mm $\square$
	0.02 - 2 mg/l	-	-	-	-	-	542		16 mm $\emptyset$

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Legend

<sup>1</sup> Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlamm- Untersuchung

<sup>2</sup> Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992

<sup>3</sup> Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989

<sup>4</sup> Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980

<sup>5</sup> Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
Br	DPD No. 1 DPD No. 1 HIGH CALCIUM <sup>e)</sup>	Tablet / 100 Tablet / 100	4511060BT 4515740
Cd	Spectroquant® 1.14834.0001 <sup>d)</sup>	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 <sub>2</sub>	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 <sup>e)</sup>	Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100	4511060BT 4511080BT 4517711 4517712 4515740
Cl <sub>2</sub>	DPD No. 1 HR DPD No. 3 HR	Tablet / 100 Tablet / 100	4511500BT 4511590BT
Cl <sub>2</sub>	DPD 1 Buffer solution DPD 1 Reagent solution DPD 3 Solution	Liquid reagent / 15 ml Liquid reagent / 15 ml Liquid reagent / 15 ml <b>Set</b>	471010 471020 471030 471056
Cl <sub>2</sub>	VARIO Chlorine FREE-DPD/F10 VARIO Chlorine TOTAL-DPD/F10	Powder Pack / 100 Powder Pack / 100	530100 530120
Cl <sub>2</sub>	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 <sub>2</sub>	DPD No. 1 DPD No. 3 Combi pack# DPD No.1 / No.3 Combi pack# DPD No.1 / No.3 GLYCINE <sup>l)</sup> Combi pack# DPD No.1 / GLYCINE Combi pack# DPD No.1 / GLYCINE DPD No.1 High Calcium <sup>e)</sup>	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 <sub>2</sub>	VARIO Chlorine FREE-DPD/F10	Powder Pack / 100	530100
Cr	PERSULF. RTG FOR CR Chromium Hexavalent	Powder Pack / 100 Powder Pack / 100	537300 537310

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

<sup>c)</sup> AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

<sup>d)</sup> Spectroquant® is a Merck KGaA Trademark

<sup>e)</sup> 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

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

<sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion

<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>l)</sup> high range by dilution

# no BT blister tablets, including stirring rod

# Reagents

Test	Range	Wave lengths $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
<b>COD LR</b> (ISO 15705:2002) <sup>b)</sup>	0 - 150 mg/l	430	430	-	430	430	420	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	16 mm $\emptyset$
<b>COD MR</b> (ISO 15705:2002) <sup>b)</sup>	0 - 1500 mg/l	610	605	-	610	610	620	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	16 mm $\emptyset$
<b>COD HR</b> <sup>b)</sup>	0 - 15000 mg/l	610	605	-	610	610	620	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	16 mm $\emptyset$
<b>Copper</b> <sup>a)</sup>	0.05 - 5 mg/l 0.05 - 1 mg/l 0.5 - 5 mg/l	560 - -	528 - -	528 - -	560 - -	560 - -	- 559 559	Biquinoline <sup>4</sup>	24 mm $\emptyset$ 50 mm o 24 mm $\emptyset$
<b>Copper free</b>	0.02 - 1 mg/l	-	580	-	-	-	-	Zincon <sup>3</sup> / EDTA	24 mm $\emptyset$
<b>Copper, frei VARIO</b>	0.05 - 5 mg/l	560	-	-	560	560	560	Bicinchoninate	24 mm $\emptyset$
<b>Cyanide</b>	0.01 - 0.5 mg/l 0.005 - 0.2 mg/l	- -	- -	- -	580 -	580 -	585 585	Pyridine-barbituric acid <sup>1</sup>	24 mm $\emptyset$ 50 mm $\square$
<b>Cyanuric acid</b>	2 - 160 mg/l <sup>d)</sup>	530	-	528	530	530	530	Melamine	24 mm $\emptyset$
<b>DEHA</b>	20 - 500 $\mu$ g/l	-	528	-	560	560	562	PPST <sup>3</sup>	24 mm $\emptyset$
<b>DEHA VARIO</b>	20 - 500 $\mu$ g/l	-	-	-	560	560	562	PPST <sup>3</sup>	24 mm $\emptyset$
<b>Fluoride</b>	0.05 - 2 mg/l 0.05 - 1.5 mg/l	580 -	580 -	- -	580 -	580 -	- 580	SPADNS <sup>2</sup>	24 mm $\emptyset$
<b>Formaldehyde</b>	1 - 5 mg/l 0.02 - 1 mg/l	- -	- -	- -	- -	- -	585 585	H <sub>2</sub> SO <sub>4</sub> / Chromotropic acid	10 mm $\square$ 50 mm $\square$
<b>Formaldehyde</b>	0.1 - 5 mg/l	-	-	-	-	-	575	H <sub>2</sub> SO <sub>4</sub> / Chromotropic acid	16 mm $\emptyset$
<b>Hardness, calcium</b>	50 - 900 mg/l	-	-	-	560	560	-	Murexide <sup>4</sup>	24 mm $\emptyset$
<b>Hardness, calcium</b>	0 - 500 mg/l	560	-	528	560	560	-	Murexid <sup>4</sup>	24 mm $\emptyset$
<b>Hardness, total</b>	2 - 50 mg/l 20 - 500 mg/l <sup>d)</sup> 50 - 500 mg/l <sup>d)</sup>	- - -	- - 528	- - -	560 560 -	560 560 -	571 571 -	Metallphthalein <sup>3</sup>	24 mm $\emptyset$

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<sup>5</sup> Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
O <sub>2</sub>	Reaction tube 0-150 mg/l Reaction tube 0-150 mg/l, mercury free	Tube test / 25 Tube test / 25	420720 420710
O <sub>2</sub>	Reaction tube 0-1500 mg/l Reaction tube 0-1500 mg/l, mercury free	Tube test / 25 Tube test / 25	420721 420711
O <sub>2</sub>	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 <b>Set</b>	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 <sup>d)</sup>	Reagent test / ca. 50-75 Tests	420751
HCHO	Spectroquant® 1.14500.0001 <sup>d)</sup>	Tube test / 25	420752
CaCO <sub>3</sub>	CALCHECK	Tablet / 100	4515650
CaCO <sub>3</sub>	Combi pack# CALCIO H No.1 / No.2 Combi pack# CALCIO H No.1 / No.2	each 100 each 250	4517761 4517762
CaCO <sub>3</sub>	HARDCHECK P	Tablet / 100	4515660

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

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<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>l)</sup> high range by dilution

# no BT blister tablets, including stirring rod

# Reagents

Test	Range	Wave lengths $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
<b>Hazen</b> (Pt-Co-Einheiten ; APHA)	0 - 500 mg/l	-	470	-	430	430	-	Direct reading <sup>1,2</sup>	24 mm $\emptyset$ 50 mm $\square$
	0 - 500 mg/l	-	-	-	-	-	455		
<b>Hydrazine</b>	0.05 - 0.5 mg/l	-	470	-	430	430	455	Dimethylamino- benzaldehyde <sup>3</sup>	24 mm $\emptyset$
<b>Hydrazine</b>	0.01 - 0.6 mg/l	-	-	-	430	430	-	Dimethylamino- benzaldehyde <sup>3</sup>	24 mm $\emptyset$
	0.005 - 0.6 mg/l	-	-	-	-	-	455		
<b>Hydrazine</b> <sup>c)</sup>	0.01 - 0.7 mg/l	-	-	-	430	430	-	PDMAB	24 mm $\emptyset$
<b>Hydrogen peroxide</b>	0.03 - 3 mg/l	-	-	-	530	530	-	DPD/Catalyst <sup>5</sup>	24 mm $\emptyset$ 24 mm $\emptyset$ 50 mm $\emptyset$ 24 mm $\emptyset$
	0.05 - 3 mg/l	-	528	-	-	-	-		
	0.01 - 0.5 mg/l	-	-	-	-	-	510		
	0.03 - 1.5 mg/l	-	-	-	-	-	510		
<b>Iodine</b>	0.05 - 3.6 mg/l	-	-	-	530	530	510	DPD <sup>5</sup>	24 mm $\emptyset$
<b>Iron (II, III)</b> soluble	0.02 - 1 mg/l	560	528	528	560	560	-	PPST <sup>3</sup>	24 mm $\emptyset$ 24 mm $\emptyset$ 50 mm $\square$ 10 mm $\square$ 24 mm $\emptyset$
	0.2 - 10 mg/l <sup>d)</sup>	-	528	-	-	-	-		
	0.01 - 0.5 mg/l	-	-	-	-	-	562		
	0.1 - 1 mg/l	-	-	-	-	-	562		
	0.1 - 1 mg/l	-	-	-	-	-	562		
<b>Iron VARIO (II, III)</b> soluble	0.02 - 3 mg/l	530	-	-	530	530	-	1,10-Phenanthroline <sup>2</sup>	24 mm $\emptyset$
	0.1 - 3 mg/l	-	-	-	-	-	510		
<b>Iron VARIO, total</b> <sup>g)</sup>	0.02 - 1.8 mg/l	580	-	-	580	580	-	TPTZ <sup>g)</sup>	24 mm $\emptyset$
	0.1 - 1.8 mg/l	-	-	-	-	-	590		
<b>Lead (Pb<sup>2+</sup>)</b>	0.1 - 5 mg/l	-	-	-	-	-	520	4-(2-Pyridylazo)-resorcin	10 mm $\square$
<b>Lead (Pb<sup>2+</sup>)</b>	0.1 - 5 mg/l	-	-	-	-	-	515	4-(2-Pyridylazo)-resorcin	16 mm $\emptyset$
<b>Manganese</b>	0.2 - 4 mg/l	530	-	-	530	530	450	Formaloxime	24 mm $\emptyset$
	0.05 - 4 mg/l	-	430	-	-	-	-		
<b>Manganese VARIO LR</b>	0.01 - 0.7 mg/l	560	-	-	560	560	558	PAN	24 mm $\emptyset$
<b>Manganese VARIO HR</b>	0.1 - 18 mg/l	530	-	-	530	530	525	Periodate oxidation <sup>2</sup>	24 mm $\emptyset$

Material safety data sheets: [www.aqualytic.com](http://www.aqualytic.com)

For other reagent quantities please see our current price list.

Legend

<sup>1</sup> Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlamm- Untersuchung

<sup>2</sup> Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992

<sup>3</sup> Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989

<sup>4</sup> Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980

<sup>5</sup> Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
Pt-Co-units	no reagents required	-	-
N <sub>2</sub> H <sub>4</sub>	Hydrazine Test Powder Spoon	Powder / 30 g	462910 384930
N <sub>2</sub> H <sub>4</sub>	VARIO Hydra 2 Rgt Solution	Solution / 100 ml	531200
N <sub>2</sub> H <sub>4</sub>	Vacu-vial®	Test Kit / 30	380470
H <sub>2</sub> O <sub>2</sub>	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 <sup>d)</sup>	Reagent test / 50 Tests	420753
Pb	Spectroquant® 1.14833.0001 <sup>d)</sup>	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 <sup>h)</sup>	Powder Pack / 100 Liquid reagent / 60 ml Liquid reagent / 60 ml <b>Set</b> 30 ml	535090 530640
Mn	VARIO Manganese Citrate Puffer F10 VARIO Sodiumperiodate F10	Powder Pack / 100 Powder Pack / 100 <b>Set</b>	535100

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

<sup>c)</sup> AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

<sup>d)</sup> Spectroquant® is a Merck KGaA Trademark

<sup>e)</sup> 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

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

<sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion

<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>l)</sup> high range by dilution

# no BT blister tablets, including stirring rod

# Reagents

Test	Range	Wave lengths $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
<b>Molybdate</b>	1 - 50 mg/l 1 - 30 mg/l	-	-	-	430	430	-	Thioglycolate <sup>4</sup>	24 mm $\emptyset$
		-	-	-	-	-	366		
<b>Molybdate VARIO</b>	0.5 - 66 mg/l	-	-	-	430	430	420	Mercaptoacetic acid	24 mm $\emptyset$
<b>Monochloramine VARIO</b>	0.04 - 4.5 mg/l	660	-	-	660	660	-	Indophenol	24 mm $\emptyset$
<b>Nickel</b>	0.02 - 1 mg/l 0.2 - 7 mg/l	-	-	-	-	-	443 443	Dimethylglyoxime <sup>2,3</sup>	50 mm $\square$ 24 mm $\emptyset$
<b>Nitrate VARIO</b>	1 - 30 mg/l	-	-	-	430	430	410	Chromotropic acid	16 mm $\emptyset$
<b>Nitrate</b>	0.5 - 14 mg/l	-	-	-	-	-	340	2,6-Dimethylphenole <sup>3</sup>	16 mm $\emptyset$
<b>Nitrite</b>	0.01 - 0.5 mg/l 0.05 - 0.5 mg/l	-	-	-	560	560	545 -	N-(1-Naphthyl)- ethylenediamine <sup>2,3</sup>	24 mm $\emptyset$
		-	528	-	-	-	-		
<b>Nitrite</b>	0.03 - 0.6 mg/l 0.3 - 3 mg/l	-	-	-	-	-	545 545	Sulfanilic/Naphthylamine <sup>1</sup>	16 mm $\emptyset$
<b>Nitrite LR VARIO</b>	0.01 - 0.3 mg/l	-	-	-	530	530	507	Diazotation	24 mm $\emptyset$
<b>Nitrogen-total <sup>b)</sup></b>	0.5 - 14 mg/l 5 - 140 mg/l i)	-	-	-	-	-	340	2,6-Dimethylphenole 2,3	16 mm $\emptyset$
<b>Nitrogen VARIO, total LR <sup>b)</sup></b>	0.5 - 25 mg/l	-	-	-	430	430	410	Persulphate- digestion method	16 mm $\emptyset$
<b>Nitrogen VARIO, total HR <sup>b)</sup></b>	5 - 150 mg/l	-	-	-	430	430	410	Persulphate- digestion method	16 mm $\emptyset$

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Legend

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<sup>4</sup> Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980

<sup>5</sup> Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
MoO <sub>4</sub>	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 <sub>4</sub>	VARIO Molybdenum HR1 F10 VARIO Molybdenum HR2 F10 VARIO Molybdenum HR3 F10	Powder Pack / 100 Powder Pack / 100 Powder Pack / 100 <b>Set</b>	535300
Cl <sub>2</sub>	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 <b>Set</b> (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 <b>Set</b> (Tube test)	535560

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

<sup>c)</sup> AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

<sup>d)</sup> Spectroquant® is a Merck KGaA Trademark

<sup>e)</sup> 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

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

<sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion

<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>l)</sup> high range by dilution

# no BT blister tablets, including stirring rod

# Reagents

Test	Range	Wave lengths $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
Oxygen, activ	0.1 - 10 mg/l	-	-	-	530	530	-	DPD	
Oxygen, dissolved <sup>c)</sup>	10 - 800 $\mu$ g/l	-	-	-	530	530	-	Rhodazine D <sup>TM</sup>	
Ozone	0.02 - 1 mg/l	-	-	-	-	-	510	DPD/Glycine <sup>5</sup>	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 <sup>1</sup>	24 mm $\emptyset$
PHMB (Biguanide)	2 - 60 mg/l	-	-	-	560	560	-	Buffer/Indicator	24 mm $\emptyset$
Phosphate-total LR <sup>b)</sup>	0.07 - 3 mg/l	-	-	-	-	-	690	Phosphomolybdic acid/ Ascorbic acid <sup>2</sup>	16 mm $\emptyset$
	0.2 - 10 mg/l	-	-	-	-	-	690		
Phosphate-total HR <sup>b)</sup>	1.5 - 20 mg/l	-	-	-	-	-	690	Phosphomolybdic acid/ Ascorbic acid <sup>2</sup>	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 <sup>2</sup>	24 mm $\emptyset$
Phosphate HR, ortho	10 - 100 mg/l	-	470	-	-	-	-	Vanadomolybdate <sup>2</sup>	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 <sup>2</sup>	24 mm $\emptyset$
Phosphate VARIO ortho	0.06 - 5 mg/l	-	-	-	660	660	890	Ascorbic acid <sup>2</sup>	16 mm $\emptyset$
Phosphate-ortho	3 - 60 mg/l	-	-	-	-	-	438	Vanadomolybdate <sup>2</sup>	16 mm $\emptyset$
Phosphate VARIO <sup>b)</sup> acid hydrolyzable and total	acid hydrolyzable: 0.02 - 1.6 mg/l	-	-	-	660	660	890	Acid digestion Ascorbic acid <sup>2</sup>	16 mm $\emptyset$
	total: 0.02 - 1.1 mg/l 0.06 - 3.5 mg/l	-	-	-	-	-	-	Acid/ Persulphate digestion Ascorbic acid <sup>2</sup>	16 mm $\emptyset$

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Legend

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<sup>5</sup> Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
O <sub>2</sub>	DPD No. 4	Tablet / 100	4511220BT
O <sub>2</sub>	Vacu-vial®	Liquid reagent / 30	380450
O <sub>3</sub>	DPD No. 1 DPD No. 3 Combi pack# DPD No.1 / No.3 Combi pack# DPD No.1 / No.3 GLYCINE <sup>1)</sup> 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 <sub>3</sub>	OZONE	Tablet / 100	4513170
C <sub>6</sub> H <sub>5</sub> O <sub>H</sub>	PHENOLE No. 1 PHENOLE No. 2	Tablet / 100 Tablet / 100	4515950 4515960
PHMB	PHMB PHOTOMETER	Tablet / 100	4516100
P PO <sub>4</sub>	Reaction tube, Phosphat-101, Phosphat-102, Phosphat-103	Tube test (Powder, Liquid reagent) / 24	419019
P PO <sub>4</sub>	Reaction tube, Phosphat-101, Phosphat-102, Phosphat-103	Tube test (Powder, Liquid reagent) / 24	420700
PO <sub>4</sub>	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 <sub>4</sub>	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 <sub>4</sub>	VARIO Phosphate Rgt., F10	Powder Pack / 100	531550
PO <sub>4</sub>	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 <sub>4</sub>	Reaction tube	Tube test / 24	420701
P PO <sub>4</sub> P PO <sub>4</sub>	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 <b>Set</b> (Tube test)	535250

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

<sup>c)</sup> AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

<sup>d)</sup> Spectroquant® is a Merck KGaA Trademark

<sup>e)</sup> 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

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

<sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion

<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>i)</sup> high range by dilution

# no BT blister tablets, including stirring rod

# Reagents

Test	Range	Wave lengths $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
<b>Phosphate VARIO</b> gesamt <sup>b)</sup>	0.02 - 1.1 mg/l	-	-	-	660	660	890	Acid-/ Persulphate digestion Ascorbic acid <sup>2</sup>	16 mm $\emptyset$
	0.06 - 3.5 mg/l	-	-	-	-	-	-		16 mm $\emptyset$
<b>Phosphate</b> , ortho <sup>c)</sup>	5 - 40 mg/l	-	-	-	430	430	-	Vanadomolybdate <sup>2</sup>	
<b>Phosphate</b> , ortho <sup>c)</sup>	0.05 - 5 mg/l	-	-	-	660	660	-	Stannous chloride <sup>2</sup>	
<b>Phosphonate VARIO</b>	0.02 - 125 mg/l	-	-	-	660	660	-	Persulfate UV-Oxidation	24 mm $\emptyset$
<b>pH value</b>	5.2 - 6.8	-	-	-	560	560	-	Bromcresol purple <sup>5</sup>	24 mm $\emptyset$
<b>pH value</b>	6.5 - 8.4	560	-	528	560	560	558	Phenol red <sup>5</sup>	24 mm $\emptyset$
<b>pH value</b>	6.5 - 8.4	560	-	528	560	560	558	Phenol red <sup>5</sup>	24 mm $\emptyset$
<b>pH value</b>	8.0 - 9.6	-	-	-	560	560	-	Thymol blue <sup>5</sup>	24 mm $\emptyset$
<b>Potassium</b>	0.7 - 12 mg/l	-	-	-	430	430	-	Tetraphenylborate- Turbidity <sup>4</sup>	24 mm $\emptyset$
	1 - 10 mg/l	-	-	-	-	-	730		24 mm $\emptyset$
<b>Silica</b>	0.05 - 4 mg/l	660	580	-	660	660	-	Silicomolybdate <sup>2,3</sup>	24 mm $\emptyset$
	0.05 - 3 mg/l	-	-	-	-	-	820		
<b>Silica VARIO LR</b>	0.1 - 1.6 mg/l	660	-	-	660	660	815	Heteropolyblue <sup>2</sup>	24 mm $\emptyset$
<b>Silica VARIO HR</b>	1 - 90 mg/l	430	-	-	430	430	-	Silicomolybdate <sup>2,3</sup>	24 mm $\emptyset$
	1 - 100 mg/l	-	-	-	-	-	452		24 mm $\emptyset$
<b>Sodiumhypochlorite</b>	0.2 - 16 %	-	-	-	530	530	-	Potassium iodide <sup>5</sup>	24 mm $\emptyset$
<b>Spectral Absorption-coefficient</b>	0 - 50 m <sup>-1</sup>	-	-	-	-	-	436	Direct reading <sup>1</sup> ISO 7887:1994	50 mm $\square$
		-	-	-	-	-	525		
		-	-	-	-	-	620		

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Legend

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Display	Reagent	Form of reagent/Quantity	Order code
P PO <sub>4</sub>	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 <b>Set</b> (Tube test)	535210
PO <sub>4</sub>	Vacu-vial®	Test Kit / 30	380460
PO <sub>4</sub>	Vacu-vial®	Test Kit / 30	380480
PO <sub>4</sub>	VARIO Potassium Persulfate F10 VARIO Phosphate Rgt. F10	Powder Pack / 100 Powder Pack / 200 <b>Set</b>	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 <sub>2</sub>	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 <sub>2</sub>	VARIO Amino Acid F10 VARIO Citric Acid F10 VARIO Molybdate 3 Reagent solution	Powder Pack / 100 Powder Pack / 100 Liquid reagent / 50 ml <b>Set</b>	535690
SiO <sub>2</sub>	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 <b>Set</b>	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	-	-

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

<sup>c)</sup> AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

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

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<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>i)</sup> high range by dilution

# no BT blister tablets, including stirring rod

# Reagents

Test	Range	Wave lengths $\lambda$ / nm						Method	Cuvette
		AL100	AL250	AL250+	AL400	AL450	AL800		
<b>Sulphate VARIO</b>	5 - 100 mg/l 2 - 100 mg/l	-	-	-	530	530	-	Bariumsulphate Turbidity <sup>2</sup>	24 mm $\emptyset$
<b>Sulphate</b>	5 - 100 mg/l	-	-	-	610	610	-	Bariumsulphate Turbidity <sup>2</sup>	24 mm $\emptyset$
<b>Sulphide</b>	0.04 - 0.5 mg/l	-	-	-	660	660	668	DPD/Catalyst <sup>3,4</sup>	24 mm $\emptyset$
<b>Sulphite</b>	0.1 - 5 mg/l 0.1 - 10 mg/l 0.05 - 4 mg/l	-	-	-	430	430	-	DTNB	24 mm $\emptyset$ 10 mm o 24 mm $\emptyset$
<b>Surfactants (anionic)</b>	0.05 - 2 mg/l	-	-	-	-	-	653	Methylene blue <sup>1</sup>	16 mm $\emptyset$
<b>Suspended solids</b>	5 - 750 mg/l	-	605	-	660	660	-	Turbidity/Attenuated Radiation	24 mm $\emptyset$
<b>TOC <sup>b)</sup></b>	50 - 800 mg/l	-	-	-	-	-	596	H <sub>2</sub> SO <sub>4</sub> / Indicator	16 mm $\emptyset$
<b>Turbidity</b>	5 - 500 0 - 1000 0.01 - 1100	-	-	-	-	-	860	Attenuated Radiation Method	50 mm $\square$
		-	-	-	530	530	-	Attenuated Radiation Method	24 mm $\emptyset$
		-	860	-	-	-	-	Nephelometric	24 mm $\emptyset$
<b>Urea</b>	0.1 - 2.5 mg/l 0.2 - 5 mg/l <sup>b)</sup> 0.1 - 2 mg/l	-	660	660	610	610	-	Urease / Indophenol	24 mm $\emptyset$
		-	660	-	-	-	-		
		-	-	-	-	-	676		
<b>Zinc</b>	0.02 - 1 mg/l 0.02 - 0.5 mg/l	-	580	-	610	610	-	Zincon <sup>5</sup> /EDTA	24 mm $\emptyset$
		-	-	-	-	-	616		

Material safety data sheets: [www.aqualytic.com](http://www.aqualytic.com)

For other reagent quantities please see our current price list.

Legend

<sup>1</sup> Deutsche Einheitsverfahren zur Wasser-, Abwasser- und Schlamm- Untersuchung

<sup>2</sup> Standard Methods for the Examination of Water and Wastewater, 18th Edition; 1992

<sup>3</sup> Photometrische Analysenverfahren, Schwedt, Wissenschaftliche Verlagsgesellschaft mbH, Stuttgart; 1989

<sup>4</sup> Photometrische Analyse, Lange/Vejdelek, Verlag Chemie; 1980

<sup>5</sup> Colorimetric Chemical Analytical Methods, 9th Edition, Lovibond®

Display	Reagent	Form of reagent/Quantity	Order code
SO <sub>4</sub>	VARIO Sulpha 4 / F10	Powder Pack / 100	532160
SO <sub>4</sub>	SULFATE T	Tablet / 100	4515450
S	SULFIDE No. 1 SULFIDE No. 2	Tablet / 100 Tablet / 100	502930 502940
SO <sub>3</sub>	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 <sub>4</sub> N <sub>2</sub> 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

<sup>a)</sup> determination of free, combined and total

<sup>b)</sup> Reactor is necessary for COD (150°C), TOC (120°C) and total -chromium, - phosphate, -nitrogen, (100°C)

<sup>c)</sup> AL450: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

<sup>d)</sup> Spectroquant® is a Merck KGaA Trademark

<sup>e)</sup> 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

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

<sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion

<sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub>

<sup>i)</sup> high range by dilution

# no BT blister tablets, including stirring rod