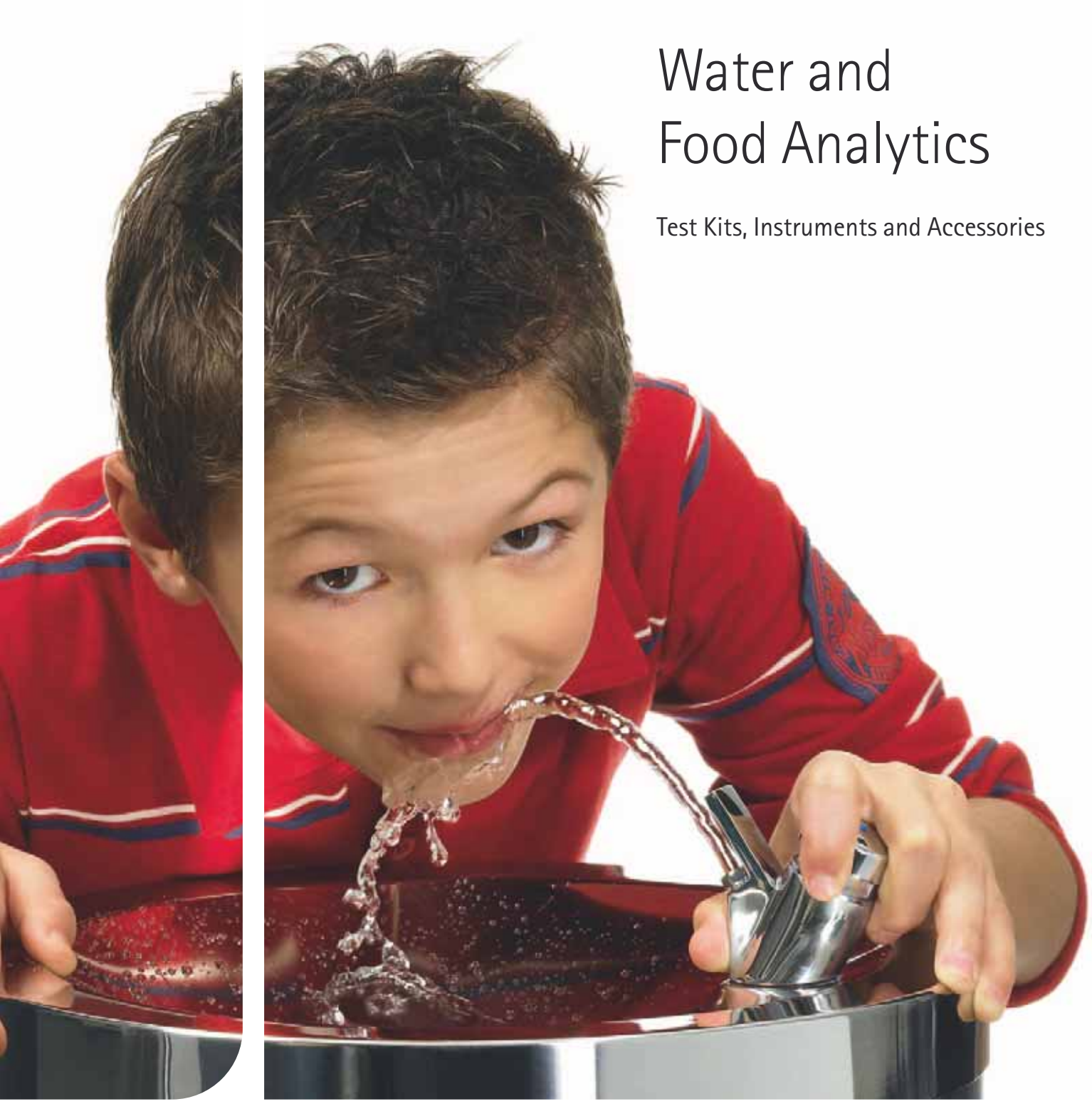

Water and Food Analytics

Test Kits, Instruments and Accessories

I.C.T, S.L.
INSTRUMENTACIÓN CIENTÍFICO TÉCNICA

MERCK

How can I obtain sound analytical results quickly and reliably?

Quite simply:
Take advantage of more than 100 years of experience in chemical analysis and use test kits and instruments from Merck Chemicals.

That's what's in it for you. Merck Chemicals

When analyzing water and food, trust plays a very important role. Only careful analysis using tests that are performed correctly and are delivering sound results will help to maintain and improve our quality of life.

With ready-to-use tests and test systems from Merck, you can trust your results. After all, when it comes to fast and precise analysis, Merck has been the leading specialist for more than 100 years. Our broad product range covers everything from water analysis to the control of production process up to the measurement of special food parameters.

With our high-quality visual test kits you'll achieve results easily and within minutes – also in on-site analyses. Our test systems consist of optimally coordinated kits and measuring instruments for a wide range of application areas. All of our test kits for instrumental analysis are supplied with detailed certificates. With ready-to-use standards, you'll make your quality controls as easy and reliable as possible.

New:

Spectroquant® Pharo

Regardless of what type of water analysis you need – with the new spectral photometers Spectroquant® Pharo 100 and 300 from Merck, you'll expand your possibilities. That's because they combine the advantages of a system photometer with the diversity of a spectral-photometer. For more information, please see page 64 - 67.

Visual test kits

Instrumental test systems

> For further information see website:

Overview of parameters

pH test strips and papers from page 14

Merckoquant® Products from page 18

Aquamerck® Microquant® Aquaquant® from page 26

Reflectoquant® Products from page 44

Spectroquant® Products from page 52

Turbiquant® Products from page 116

What options do the Merck rapid tests have to offer for the determination of the concentration of individual parameters?
The following table is designed to assist you in selecting the appropriate test for your requirements:

- Select the test parameter of your choice (arranged alphabetically)
- Find the measuring range that applies to your requirements and use the table to select the line of products suited to your work.
- Get all requested information on the selected product from the stated page of this brochure. There the "Applications" section will give you details on the areas for which the product in question has been tested and is suitable. While a product has not been tested for use in applications that are not listed, it is nonetheless possible to apply it in these areas.
- You can use the order number stated to order the product.
- Many other details and information on the individual products – for example working instructions, certificates of analysis, and applications – can be found by entering the first six digits of the ordering number into the search box of our internet site www.merck-chemicals.com.

A small tip: *the column "Type" describes special features regarding the performance of the test, such as evaluation with the aid of colour charts or comparators, the use of additional reagents, etc.*

Index A Visual and instrumental test kits

	Parameter	Measuring range in mg/l	No. of tests	Ord. No.	System	Type	Page
A	Absorbance	-0.300 - 3.000 A			Spectroquant®	PM	76
NEW	Acetic Acid Test	40 - 400 mg/l acetic acid	50	1.17950.0001	Reflectoquant®	R	48
	Acid Capacity Cell Test to pH 4.3 (total alkalinity)	0.20 - 8.00 mmol/l 10 - 400 mg/l $CaCO_3$	90	1.01762.0001	Spectroquant®	CT	76
	Acid Capacity Cell Test to pH 4.3 (total alkalinity)	0.20 - 8.00 mmol/l 10 - 400 mg/l $CaCO_3$	450	1.01762.0002	Spectroquant®	CT	76
	Acidity Test	0.1 - 10 mmol/l	200	1.11108.0001	Aquamerck®	TP	30
NEW	Alcohol Test	15 - 150 mg/l Alcohol	50	1.17946.0001	Reflectoquant®	R	48
	Alkaline Phosphatase Test in Milk	1.0 - 10.0 U/l Alkaline phosphatase	50	1.16123.0001	Reflectoquant®	R	48
	Alkalinity	see also Acid capacity to pH 4.3					
	Alkalinity Test	0.1 - 10 mmol/l	200	1.11109.0001	Aquamerck®	TP	30
	Alkalinity Test in fresh- and seawater	20 mg/l $CaCO_3$	100	1.18764.0001	Aquamerck®	TD	30
NEW	Aluminium Cell Test	0.02 - 0.50 mg/l Al	25	1.00594.0001	Spectroquant®	CT	76
	Aluminium Test	0.020 - 1.20 mg/l Al	350	1.14825.0001	Spectroquant®	RT	76
	Aluminium Test	0.07 - 0.8 mg/l Al	185	1.14413.0001	Aquaquant®	TS	30
	Aluminium Test	0.1 - 6 mg/l Al	145	1.18386.0001	Microquant®	DC	30
	Aluminium Test	5.0 - 50.0 mg/l Al	50	1.16994.0001	Reflectoquant®	R	48
	Aluminium Test	10 - 250 mg/l Al	100	1.10015.0001	Merckoquant®	R	22
	Ammonium Cell Test	0.010 - 2.000 mg/l NH_4-N 0.01 - 2.58 mg/l NH_4	25	1.14739.0001	Spectroquant®	CT	76
	Ammonium Test	0.010 - 3.00 mg/l NH_4-N 0.01 - 5.50 mg/l NH_4	250	1.14752.0002	Spectroquant®	RT	76
	Ammonium Test	0.010 - 3.00 mg/l NH_4-N 0.01 - 5.50 mg/l NH_4	500	1.14752.0001	Spectroquant®	RT	76
	Ammonium Test	0.025 - 0.4 mg/l NH_4	60	1.14428.0001	Aquaquant®	TL	30
	Ammonium Test	0.05 - 0.8 mg/l NH_4	100	1.14400.0001	Aquaquant®	TL	30
	Ammonium Test	0.2 - 5 mg/l NH_4	50	1.08024.0001	Aquamerck®	SC	30
	Ammonium Test	0.2 - 7 mg/l NH_4	50	1.16892.0001	Reflectoquant®	R	48
	Ammonium Test	0.2 - 8 mg/l NH_4	250	1.14423.0001	Aquaquant®	TS	30
	Ammonium Test	0.2 - 8 mg/l NH_4	250	1.14750.0001	Microquant®	DC	30
	Ammonium Cell Test	0.20 - 8.00 mg/l NH_4-N 0.26 - 10.30 mg/l NH_4	25	1.14558.0001	Spectroquant®	CT	76
	Ammonium Test in fresh- and seawater	0.5 - 10 mg/l NH_4	50	1.14657.0001	Aquamerck®	CC	30
	Ammonium Test	0.5 - 10 mg/l NH_4	150	1.11117.0001	Aquamerck®	CC	30
	Ammonium Cell Test	0.5 - 16.0 mg/l NH_4-N 0.6 - 20.6 mg/l NH_4	25	1.14544.0001	Spectroquant®	CT	76
	Ammonium Test	2.0 - 150.0 mg/l NH_4-N 2.6 - 193 mg/l NH_4	100	1.00683.0001	Spectroquant®	RT	76
	Ammonium Cell Test	4.0 - 80.0 mg/l NH_4-N 5.2 - 103.0 mg/l NH_4	25	1.14559.0001	Spectroquant®	CT	76
	Ammonium Test	10 - 400 mg/l NH_4	100	1.10024.0001	Merckoquant®	R	22
	Ammonium Test	20 - 180 mg/l NH_4	50	1.16977.0001	Reflectoquant®	R	48
	Antimony	0.10 - 8.00 mg/l Sb			Spectroquant®	AP	76
NEW	AOX Cell Test	0.05 - 2.50 mg/l AOX	25	1.00675.0001	Spectroquant®	CT	76
	Arsenic Test	0.001 - 0.100 mg/l As	30	1.01747.0001	Spectroquant®	RT	76
	Arsenic Test	0.005 - 0.5 mg/l As	100	1.17927.0001	Merckoquant®	R	22

AP application
CC colour card
CT cell test
CV colour-matching vessel
DC disk comparator
IS individually sealed
PA indicator paper
PM physical method
R incl. reagent
RT reagent test
S single test strips
SC sliding comparator
ST indicator strips
T test strip
TD titration with dropping bottle
TL tubes, long
TP titration with pipette
TS tubes, short

> For further information see website:

Index A - C

Index C Visual and instrumental test kits

	Parameter	Measuring range in mg/l	No. of tests	Ord. No.	System	Type	Page
C	Chlorine Cell Test (free chlorine) USEPA approved	0.03 - 6.00 mg/l Cl_2	200	1.00595.0001	Spectroquant®	CT	78
	Chlorine Test (free chlorine) in freshwater and seawater	0.1 - 2 mg/l Cl_2	100	1.14670.0001	Aquamerck®	CC	30
	Chlorine Test (free chlorine) (liquid)	0.1 - 2 mg/l Cl_2	600	1.14978.0001	Microquant®	DC	30
	Chlorine Test (free chlorine)	0.25 - 15 mg/l Cl_2	1000	1.14976.0001	Microquant®	DC	30
	Chlorine Test (free chlorine)	0.5 - 10.0 mg/l Cl_2	50	1.16896.0001	Reflectoquant®	R	48
	Chlorine Test (free chlorine)	0.5 - 20 mg/l Cl_2	75	1.17925.0001	Merckoquant®	T	22
	Chlorine (free) / Chlorine Dioxide Test	25 - 400 mg/l Cl_2 47.6 - 761 mg/l ClO_2	50	1.17951.0001	Reflectoquant®	T	48
	Chlorine Test (free chlorine)	25 - 500 mg/l Cl_2	100	1.17924.0001	Merckoquant®	T	22
	Chlorine Test (free chlorine)	0 - 500 mg/l Cl_2	3 x 4 m	1.17923.0001	Reagent paper		24
	Chlorine Test (total chlorine) USEPA approved	0.010 - 6.00 mg/l Cl_2	200	1.00602.0001	Spectroquant®	RT	78
	Chlorine Test (total chlorine) USEPA approved	0.010 - 6.00 mg/l Cl_2	1200	1.00602.0002	Spectroquant®	RT	80
	Chlorine Test (free and total chlorine) USEPA approved	0.010 - 6.00 mg/l Cl_2	200 (100 each)	1.00599.0001	Spectroquant®	RT	80
	Chlorine Cell Test (free and total chlorine) USEPA approved	0.03 - 6.00 mg/l Cl_2	200 (100 each)	1.00597.0001	Spectroquant®	CT	80
	Chlorine Test (free and total chlorine)	0.05 - 2.00 mg/l Cl_2	100	1.17940.0001	Reflectoquant®	T	48
	Chlorine Test (liquid) (free and total chlorine)	0.1 - 2 mg/l Cl_2	800 (400 each)	1.14801.0001	Microquant®	DC	32
	Chlorine Test (liquid) (free and total chlorine)	0.25 - 15 mg/l Cl_2	800 (400 each)	1.14826.0001	Microquant®	DC	32
NEW	Chlorine Reagent Cl_2-1 (liquid)	0.010 - 6.00 mg/l Cl_2	200	1.00086.0001	Spectroquant®	RT	80
NEW	Chlorine Reagent Cl_2-2 (liquid)	0.010 - 6.00 mg/l Cl_2	400	1.00087.0001	Spectroquant®	RT	80
NEW	Chlorine Reagent Cl_2-3 (liquid)	0.010 - 6.00 mg/l Cl_2	600	1.00088.0001	Spectroquant®	RT	80
	Chlorine- and pH Test (free chlorine)	0.1 - 1.5 mg/l Cl_2 pH 6.8 - 7.8	150 (chlorine) 150 (pH)	1.11160.0001	Aquamerck®	SC	32
	Chlorine- and pH Test (free and total chlorine)	0.1 - 1.5 mg/l Cl_2 pH 6.8 - 7.8	200 (chlorine) 200 (pH)	1.11174.0001	Aquamerck®	CV	32
	Chlorine Dioxide Test	0.020 - 0.55 mg/l ClO_2	300	1.18754.0001	Aquaquant®	TL	32
	Chlorine Dioxide Test	0.020 - 10.00 mg/l ClO_2	200	1.00608.0001	Spectroquant®	RT	80
	Chlorine Dioxide Test	0.50 - 28 mg/l ClO_2	100	1.18756.0001	Microquant®	DC	32
	Chromate Test	0.01 - 0.22 mg/l CrO_4	150	1.14402.0001	Aquaquant®	TL	32
	Chromate Test for the determination of chromium (VI)	0.010 - 3.00 mg/l Cr 0.02 - 6.69 mg/l CrO_4	250	1.14758.0001	Spectroquant®	RT	80
	Chromate Cell Test for the determination of chromium (VI) and chromium (total) USEPA approved	0.05 - 2.00 mg/l Cr 0.11 - 4.46 mg/l CrO_4	25	1.14552.0001	Spectroquant®	CT	80
	Chromate Test	0.2 - 3.6 mg/l CrO_4	300	1.14441.0001	Aquaquant®	TS	32
	Chromate Test	0.2 - 22 mg/l CrO_4	300	1.14756.0001	Microquant®	DC	32
	Chromate Test	1.0 - 45.0 mg/l CrO_4	50	1.16988.0001	Reflectoquant®	R	48

AP application
CC colour card
CT cell test
CV colour-matching vessel
DC disk comparator
IS individually sealed
PA indicator paper
PM physical method
R incl. reagent
RT reagent test
S single test strips
SC sliding comparator
ST indicator strips
T test strip
TD titration with dropping bottle
TL tubes, long
TP titration with pipette
TS tubes, short

> For further information see website:

Index C

AP application
CC colour card
CT cell test
CV colour-matching vessel
DC disk comparator
IS individually sealed
PA indicator paper
PM physical method
R incl. reagent
RT reagent test
S single test strips
SC sliding comparator
ST indicator strips
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TD titration with dropping bottle
TL tubes, long
TP titration with pipette
TS tubes, short

Index C-I Visual and instrumental test kits

	Parameter	Measuring range in mg/l	No. of tests	Ord. No.	System	Type	Page
F	Fixing Bath Test	0.2 - 5.0 g/l Ag	50	1.16980.0001	Reflectoquant®	T	48
	Fixing Bath Test	0.5 - 10 g/l Ag pH 4 - 8	100	1.10008.0001	Merckoquant®	T	22
	Fluoride Cell Test	0.10 - 1.50 mg/l F 0.025 - 0.500 mg/l F	25	1.14557.0001	Spectroquant®	CT	84
NEW	Fluoride Test	0.10 - 20.0 mg/l F	100	1.14598.0001	Spectroquant®	RT	84
NEW	Fluoride Test	0.10 - 20.0 mg/l F	250	1.14598.0002	Spectroquant®	RT	84
	Formaldehyde Test	0.02 - 8.00 mg/l HCHO	100	1.14678.0001	Spectroquant®	RT	84
	Formaldehyde Test	0.1 - 1.5 mg/l HCHO	100	1.08028.0001	Aquamerck®	SC	32
	Formaldehyde Cell Test	0.10 - 8.00 mg/l HCHO	25	1.14500.0001	Spectroquant®	CT	84
	Formaldehyde Test	1.0 - 45.0 mg/l HCHO	50	1.16989.0001	Reflectoquant®	R	48
	Formaldehyde Test	10 - 100 mg/l HCHO	100	1.10036.0001	Merckoquant®	R	22
	Free Sulfurous Acid Test	1.0 - 40.0 mg/l SO_2	50	1.16137.0001	Reflectoquant®	R	48
	Fritest®		60	1.10652.0001	Fritest®		38
	Glucose Test	1 - 100 mg/l Glucose	50	1.16720.0001	Reflectoquant®	T	48
NEW	Glucose Test	10 - 500 mg/l Glucose	50	1.17866.0001	Merckoquant®	T	22
G	Gold Test	0.5 - 12.0 mg/l Au	80	1.14821.0001	Spectroquant®	RT	84
	Hardness	see Residual Hardness or Total Hardness					
	Hazen Colour Number	0 - 1000 Pt-Co or HZ			Spectroquant®	PM	84
H	(Pt-Co / APHA / Hazen)						
	Hydrazine Test	0.005 - 2.00 mg/l N_2H_4	100	1.09711.0001	Spectroquant®	RT	84
	Hydrazine Test	0.1 - 1 mg/l N_2H_4	100	1.08017.0001	Aquamerck®	CV	32
	Hydrogen Peroxide	see also Peroxide					
NEW	Hydrogen Peroxide Test	0.015 - 6.00 mg/l H_2O_2	100	1.18789.0001	Spectroquant®	RT	84
	Hydrogen Peroxide Cell Test	2.0 - 20.0 mg/l H_2O_2 0.25 - 5.00 mg/l H_2O_2	25	1.14731.0001	Spectroquant®	CT	84
NEW	Hydroxymethylfurfural Test	1.0 - 60.0 mg/l HMF	50	1.17952.0001	Reflectoquant®	T	48
	Hydrogen sulfide	see Sulfide					
	Iodine Colour Number	0.010 - 50.0 IFZ			Spectroquant®	PM	84
	Iodine Test	0.050 - 10.00 mg/l I_2	200	1.00606.0001	Spectroquant®	RT	84
I	Iron Test	0.005 - 5.00 mg/lFe	250	1.14761.0002	Spectroquant®	RT	84
	Iron Test	0.005 - 5.00 mg/l Fe	1000	1.14761.0001	Spectroquant®	RT	84
	Iron Test	0.01 - 0.2 mg/l Fe	300	1.14403.0001	Aquaquant®	TL	34
	Iron Test	0.010 - 5.00 mg/l Fe	150	1.00796.0001	Spectroquant®	RT	84
	Iron Test in freshwater and seawater	0.05 - 1 mg/l Fe	50	1.14660.0001	Aquamerck®	CC	34
	Iron Cell Test	0.05 - 4.00 mg/l Fe	25	1.14549.0001	Spectroquant®	CT	84
	Iron Test	0.1 - 5 mg/l Fe	500	1.14759.0001	Microquant®	DC	34
	Iron Test	0.1 - 50 mg/l Fe	200	1.11136.0001	Aquamerck®	CV	34
	Iron Test	0.2 - 2.5 mg/l Fe	500	1.14438.0001	Aquaquant®	TS	34
	Iron Test	0.25 - 15 mg/l Fe	300	1.14404.0001	Aquaquant®	TS	34
	Iron Test	0.5 - 20.0 mg/l Fe(II)	50	1.16982.0001	Reflectoquant®	T	48
	Iron Cell Test	1.0 - 50.0 mg/l Fe	25	1.14896.0001	Spectroquant®	CT	84
	Iron Test	3 - 500 mg/l Fe(II)	100	1.10004.0001	Merckoquant®	T	22
	Iron Test	20 - 200 mg/l Fe(II)	50	1.16983.0001	Reflectoquant®	T	48
	Lactic Acid Test	1.0 - 60.0 mg/l Lactic acid	50	1.16127.0001	Reflectoquant®	T	48
	Lead Test	0.010 - 5.00 mg/l Pb	50	1.09717.0001	Spectroquant®	RT	84
L	Lead Cell Test	0.10 - 5.00 mg/l Pb	25	1.14833.0001	Spectroquant®	CT	84

> For further information see website:

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AP application
CC colour card
CT cell test
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DC disk comparator
IS individually sealed
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RT reagent test
S single test strips
SC sliding comparator
ST indicator strips
T test strip
TD titration with dropping bottle
TL tubes, long
TP titration with pipette
TS tubes, short

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	Parameter	Measuring range in mg/l	No. of tests	Ord. No.	System	Type	Page
N	Nitrate Cell Test	1.0 - 50.0 mg/l NO_3-N 4 - 221 mg/l NO_3	25	1.14764.0001	Spectroquant®	CT	86
	Nitrate Test	5 - 90 mg/l NO_3	90	1.14771.0001	Microquant®	DC	34
	Nitrate Test	5 - 225 mg/l NO_3	50	1.16971.0001	Reflectoquant®	T	48
	Nitrate Test	5 - 250 mg/l NO_3	50	1.17961.0001	Reflectoquant®	T	48
	Nitrate Test in freshwater	10 - 150 mg/l NO_3	100	1.11169.0001	Aquamerck®	CC	34
	Nitrate Test	10 - 150 mg/l NO_3	200	1.11170.0001	Aquamerck®	SC	34
	Nitrate Test	10 - 500 mg/l NO_3	25	1.10020.0002	Merckoquant®	T	22
	Nitrate Test	10 - 500 mg/l NO_3	100	1.10020.0001	Merckoquant®	T	22
	Nitrate Test	10 - 500 mg/l NO_3	1000	1 10092.0021	Merckoquant®	IS	22
	Nitrate Cell Test	23 - 225 mg/l NO_3-N 102 - 996 mg/l NO_3	25	1.00614.0001	Spectroquant®	CT	86
	Nitrate Cell Test in seawater	0.10 - 3.00 mg/l NO_3-N 0.4 - 13.3 mg/l NO_3	25	1.14556.0001	Spectroquant®	CT	86
	Nitrate Test in seawater	0.2 - 17.0 mg/l NO_3-N 0.9 - 75.3 mg/l NO_3	50	1.14942.0001	Spectroquant®	RT	86
	Nitrite Test	0.005 - 0.1 mg/l NO_2	110	1.14408.0001	Aquaquant®	TL	34
	Nitrite Test	0.002 -1.00 mg/l NO_2-N 0.007 - 3.28 mg/l NO_2	335	1.14776.0002	Spectroquant®	RT	86
	Nitrite Test	0.002 - 1.00 mg/l NO_2-N 0.007 - 3.28 mg/l NO_2	1000	1.14776.0001	Spectroquant®	RT	86
	Nitrite Test	0.02 - 1.00 mg/l NO_2	100	1.17941.0001	Reflectoquant®		48
	Nitrite Test	0.025 - 0.5 mg/l NO_2	200	1.08025.0001	Aquamerck®	SC	34
	Nitrite Test	0.03 - 1.00 g/l NO_2	50	1.16732.0001	Reflectoquant®	T	48
	Nitrite Cell Test	0.010 - 0.700 mg/l NO_2-N 0.03 - 2.30 mg/l NO_2	25	1.14547.0001	Spectroquant®	CT	86
	Nitrite Test in freshwater and seawater	0.05 - 1 mg/l NO_2	100	1.14658.0001	Aquamerck®	CC	34
	Nitrite Test	0.1 - 2 mg/l NO_2	400	1.14424.0001	Aquaquant®	TS	34
	Nitrite Test	0.1 - 10 mg/l NO_2	400	1.14774.0001	Microquant®	DC	34
	Nitrite Test	0.5 - 25.0 mg/l NO_2	50	1.16973.0001	Reflectoquant	T	48
NEW	Nitrite Test	0.5 - 10 mg/l NO_2	75	1.10057.0001	Merckoquant®	T	22
	Nitrite Test	2 - 80 mg/l NO_2	25	1.10007.0002	Merckoquant®	T	22
	Nitrite Test	2 - 80 mg/l NO_2	100	1.10007.0001	Merckoquant®	T	22
NEW	Nitrite Cell Test	1.0 - 90.0 mg/l NO_2-N 3.3 - 295.2 mg/l NO_2	25	1.00609.0001	Spectroquant®	CT	78
	Nitrite Test	0.1 - 3 g/l NO_2	100	1.10022.0001	Merckoquant®	T	20
	Nitrogen (total) Cell Test	0.5 - 15.0 mg/l N	25	1.00613.0001	Spectroquant®	CT	86
	Nitrogen (total) Cell Test	0.5 - 15.0 mg/l N	25	1.14537.0001	Spectroquant®	CT	86
	Nitrogen (total) Cell Test	10 - 150 mg/l N	25	1.14763.0001	Spectroquant®	CT	86
NEW	NO_3-NO_2-TH-CH-pH	10 - 100 mg/l NO_3 0.5 - 5 mg/l NO_2 TH: 2.5 - 20 °d CH: 4 - 16 °d, pH: 5 - 9	50	1.17970.0001	Merckoquant®		22
O	Organic Carbon, Total	see TOC					
	Oxifrit Test		60	1.10653.0001	Oxifrit Test®		38
	Oxygen Test	0.1 - 10 mg/l O_2	100	1.11107.0001	Aquamerck®	TP	34
	Oxygen Cell Test	0.5 - 12 mg/l O_2	25	1.14694.0001	Spectroquant®	CT	86
	Oxygen Test in freshwater and seawater	1 - 12 mg/l O_2	50	1.14662.0001	Aquamerck®	CC	34
	Oxygen demand, biochemical	see BOD					

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	Parameter	Measuring range in mg/l	No. of tests	Ord. No.	System	Type	Page
O	Oxygen demand, chemical	see COD					
	Ozone Test	0.007 - 0.20 mg/l O_3	300	1.18755.0001	Aquaquant®	TL	36
	Ozone Test	0.010 - 4.00 mg/l O_3	200	1.00607.0001	Spectroquant®	RT	88
	Ozone Test	0.010 - 4.00 mg/l O_3	1200	1.00607.0002	Spectroquant®	RT	88
	Ozone Test	0.15 - 10 mg/l O_3	100	1.18758.0001	Microquant®	DC	36
P	Palladium	0.05 - 1.25 Pd			Spectroquant®	AP	88
	Peracetic Acid Test	1.0 - 22.5 mg/l Peracetic acid	50	1.16975.0001	Reflectoquant®	T	50
	Peracetic Acid Test	5 - 50 mg/l Peracetic acid	25	1.10084.0002	Merckoquant®	T	22
	Peracetic Acid Test	5 - 50 mg/l Peracetic acid	100	1.10084.0001	Merckoquant®	T	22
	Peracetic Acid Test	75 - 400 mg/l Peracetic acid	50	1.16976.0001	Reflectoquant®		50
	Peracetic Acid Test	100 - 500 mg/l Peracetic acid	100	1.10001.0001	Merckoquant®	T	22
	Peracetic Acid Test	500 - 2000 mg/l Peracetic acid	100	1.17922.0001	Merckoquant®	T	22
	Peroxidase Test in Milk	5 - 200 U/l Peroxidase	50	1.16121.0001	Reflectoquant®	R	50
	Peroxide	see also Hydrogen peroxide					
	Peroxide Test	0.2 - 20.0 mg/l H_2O_2	50	1.16974.0001	Reflectoquant®	T	50
	Peroxide Test	0.5 - 25 mg/l H_2O_2	25	1.10011.0002	Merckoquant®	T	22
	Peroxide Test	0.5 - 25 mg/l H_2O_2	100	1.10011.0001	Merckoquant®	T	22
	Peroxide Test	1 - 100 mg/l H_2O_2	100	1.10081.0001	Merckoquant®	T	22
	Peroxide Test (Perex-Test)	10 - 500 mg/l H_2O_2	60	1.16206.0001	Aquamerck®	SC	36
	Peroxide Test	100 - 1000 mg/l H_2O_2	50	1.16731.0001	Reflectoquant®	T	50
	Peroxide Test	100 - 1000 mg/l H_2O_2	100	1.10337.0001	Merckoquant®	T	22
	pH indicator papers	see separate list of pH indicator papers	3 x 4.8 m		pH test paper		16
	pH indicator strips	see separate list of pH indicator strips	3 x 4.8 m		pH test strips		17
	pH indicator liquid	pH 0 - 5.5	100 ml	1.09177.0100	Aquamerck®	CC	36
	pH Test	pH 1.0 - 5.0	50	1.16894.0001	Reflectoquant®	T	50
	pH Test	pH 4.0 - 9.0	50	1.16996.0001	Reflectoquant®	T	50
	pH Universal indicator liquid	pH 4 - 10	100 ml	1.09175.0100	Aquamerck®	CC	36
	pH Universal indicator liquid	pH 4 - 10	1 l	1.09175.1000	Aquamerck®	CC	36
	pH Test	pH 4.5 - 9	100	1.08038.0001	Aquamerck®	CV	36
	pH Test	pH 4.5 - 9	400	1.08027.0001	Aquamerck®	SC	36
	pH Test in freshwater and seawater	pH 5.0 - 9.0	200	1.18763.0001	Aquamerck®	CC	36
	pH Cell Test	pH 6.4 - 8.8	280	1.01744.0001	Spectroquant®	CT	88
	pH Test in the swimming pool	pH 6.5 - 8.2	200	1.14669.0001	Aquamerck®	CC	36
	pH Test for Cooling Lubricants	pH 7.0 - 10.0	50	1.16898.0001	Reflectoquant®	T	50
	pH Test	pH 9.0 - 13.0	50	1.16895.0001	Reflectoquant®	T	50
	pH Indicator liquid	pH 9 - 13	100 ml	1.09176.0100	Aquamerck®	CC	36
	Phenol Test	0.002 - 0.100 mg/l Phenol 0.025 - 5.00 mg/l Phenol	50 - 250	1.00856.0001	Spectroquant®	RT	88
	Phenol Cell Test	0.10 - 2.50 mg/l Phenol	25	1.14551.0001	Spectroquant®	CT	88
	Phenolphthalein paper	pH < 8.5 colorless / > 8.5 red	3 x 4.8 m	1.09521.0003	pH test paper		16
	Phosphatase, Alkaline	see Alkaline Phosphatase					
NEW	Phosphate Test for the determination of ortho-phosphate	0.010 - 5.00 mg/l PO_4-P 0.03 - 15.3 mg/l PO_4 0.02 - 11.46 mg/l P_2O_5	220	1.14848.0002	Spectroquant®	RT	88
	Phosphate Test for the determination of ortho-phosphate	0.010 - 5.00 mg/l PO_4-P 0.03 - 15.3 mg/l PO_4 0.02 - 11.46 mg/l P_2O_5	420	1.14848.0001	Spectroquant®	RT	88
	Phosphate Test	0.046 - 0.43 mg/l PO_4	200	1.14445.0001	Aquaquant®	TL	36
	Phosphate Test	0.1 - 5.0 mg/l PO_4	100	1.17942.0001	Reflectoquant®	T	50

Index P-R Visual and instrumental test kits

	Parameter	Measuring range in mg/l	No. of tests	Ord. No.	System	Type	Page
P	Phosphate Cell Test for the determination of ortho-phosphate and phosphorus (total) USEPA approved	0.05 - 5.00 PO_4-P 0.2 - 15.3 PO_4 0.11 - 11.46 P_2O_5	25	1.14543.0001	Spectroquant®	CT	88
	Phosphate Test in freshwater and seawater	0.25 - 3 mg/l PO_4	100	1.14661.0001	Aquamerck®	CC	36
	Phosphate Test	0.6 - 9.2 mg/l PO_4	200	1.14846.0001	Microquant®	DC	36
	Phosphate Test	1.3 - 13.4 mg/l PO_4	200	1.11138.0001	Aquamerck®	CV	36
	Phosphate Cell Test for the determination of ortho-phosphate and phosphorus (total) USEPA approved	0.5 - 25.0 PO_4-P 1.5 - 76.7 PO_4 1.1 - 57.3 P_2O_5	25	1.14729.0001	Spectroquant®	CT	88
	Phosphate Cell Test for the determination of ortho-phosphate	0.5 - 25.0 PO_4-P 1.5 - 76.7 PO_4 1.1 - 57.3 P_2O_5	25	1.14546.0001	Spectroquant®	CT	88
	Phosphate Test for the determination of ortho-phosphate	0.5 - 30.0 mg/l PO_4-P 1.5 - 92.0 mg/l PO_4 1.1 - 68.7 mg/l P_2O_5	400	1.14842.0001	Spectroquant®	RT	88
	Phosphate Test	3.1 - 123 mg/l PO_4	190	1.14449.0001	Aquaquant®	TS	36
	Phosphate Test for the determination of ortho-phosphate	1.0 - 100.0 mg/l PO_4-P 3 - 307 mg/l PO_4 2 - 229 mg/l P_2O_5	100	1.00798.0001	Spectroquant®	RT	88
	Phosphate Test	4.6 - 307 mg/l PO_4	300	1.18388.0001	Microquant®	DC	36
	Phosphate Test	5 - 120 mg/l PO_4	50	1.16978.0001	Reflectoquant®	R	50
	Phosphate Cell Test for the determination of ortho-phosphate	3.0 - 100.0 mg/l PO_4-P 9 - 307 mg/l PO_4 7 - 229 mg/l P_2O_5	25	1.00616.0001	Spectroquant®	CT	88
	Phosphate Test	10 - 500 mg/l PO_4	100	1.10428.0001	Merckoquant®	R	22
	Platinum	0.10 - 1.25 Pt			Spectroquant®	AP	88
	Platinum-Cobalt Standard Method	see Colour					
	Potassium Test	1.0 - 25.0 mg/l K	100	1.17945.0001	Reflectoquant®	T	50
	Potassium Cell Test	5.0 - 50.0 mg/l K	25	1.14562.0001	Spectroquant®	CT	88
	Potassium Cell Test	30 - 300 mg/l K	25	1.00615.0001	Spectroquant®	CT	88
	Potassium Test	0.25 - 1.20 g/l K	50	1.16992.0001	Reflectoquant®	R	50
	Potassium Test	250 - 1500 mg/l K	100	1.10042.0001	Merckoquant®	R	22
	Potassium iodate-starch paper	Oxidizing agents	3 x 4.8 m	1.59225.0003	Reagent paper		24
	Potassium iodide-starch paper	Chlorine from 10 mg/l; ozone from 2 - 3 mg/l	3 x 4.8 m	1.09512.0003	Reagent paper		24
	Protein-Test (Bioquant®)	0.01 - 1.4 g/l Protein	200	1.10306.0500	Spectroquant®	RT	88
	Protein-Test	0.5 - 10 g/l Protein	250	1.10307.0500	Spectroquant®	RT	88
Q	Quaternary Ammonium Compounds	see also Surfactants (cationic)					
	Quaternary Ammonium Compounds	10 - 500 mg/l Benzalkonium chloride	100	1.17920.0001	Merckoquant®	T	24
R	Residual Hardness Test	0.05 - 0.19 °e 0.7 - 2.7 mg/l $CaCO_3$	400	1.11142.0001	Aquamerck®	CC	36
	Residual Hardness Cell Test	0.50 - 5.00 mg/l Ca 0.070 - 0.700 °d 0.087 - 0.874 °e 0.12 - 1.25 °f 0.70 - 7.00 mg/l CaO 1.2 - 12.5 mg/l $CaCO_3$	25	1.14683.0001	Spectroquant®	CT	90

AP application
CC colour card
CT cell test
CV colour-matching vessel
DC disk comparator
IS individually sealed
PA indicator paper
PM physical method
R incl. reagent
RT reagent test
S single test strips
SC sliding comparator
ST indicator strips
T test strip
TD titration with dropping bottle
TL tubes, long
TP titration with pipette
TS tubes, short

> For further information see website:

Index S-T

Index T-Z Visual and instrumental test kits

	Parameter	Measuring range in mg/l	No. of tests	Ord. No.	System	Type	Page
T	TOC Cell Test	5.0 - 80.0 mg/l TOC	25	1.14878.0001	Spectroquant®	CT	92
	TOC Cell Test	50 - 800 mg/l TOC	25	1.14879.0001	Spectroquant®	CT	92
	Total Acidity Test pH 7.0	2.0 - 14.0 g/l as Tartaric acid	100	1.16135.0001	Reflectoquant®	R	50
	Total Acidity Test pH 8.2	2.0 - 14.0 g/l as Tartaric acid	100	1.16138.0001	Reflectoquant®	R	50
	Total Alkalinity	see Acid capacity to pH 4.3 or Alkalinity					
	Total Hardness Test	0.1 - 5.6 °d (1 - 100 mg/l $CaCO_3$)	300	1.08047.0001	Aquamerck®	TP	38
	Total Hardness Test	0.1 - 30.0 °d	50	1.16997.0001	Reflectoquant®	T	50
	Total Hardness Test	0.2 - 20 °d (0.1 - 3.6 mmol/l)	300	1.08039.0001	Aquamerck®	TP	38
	Total Hardness Cell Test	5 - 215 mg/l Ca 0.7 - 30.1 °d 0.9 - 37.6 °e 1.2 - 53.7 °f 7 - 300 mg/l CaO 12 - 537 mg/l $CaCO_3$	25	1.00961.0001	Spectroquant®	CT	82
	Total Hardness Test in freshwater	1 drop corresponds to 1 °d	50	1.14652.0001	Aquamerck®	TD	38
	Total Hardness Test	1 drop corresponds to 1 °d	200	1.08011.0002	Aquamerck®	TD	38
	Total Hardness Test	1 drop corresponds to 1 °d	100	1.11104.0001	Aquamerck®	TD	38
NEW	Total Hardness Test	1 drop corresponds to 20 mg/l $CaCO_3$	200	1.08312.0001	Aquamerck®	TD	38
	Total Hardness Test	3 - 21 °d	100	1.10025.0001	Merckoquant®	T	24
	Total Hardness Test	3 - 21 °d	1000	1.10032.0001	Merckoquant®	IS	24
	Total Hardness Test	3 - 21 °d	5000	1.10029.0001	Merckoquant®	S	24
	Total Hardness Test	3 - 21 °d	25000	1.10032.0013	Merckoquant®	IS	24
	Total Hardness Test	5 - 25 °d	100	1.10046.0001	Merckoquant®	T	24
	Total Hardness Test	5 - 25 °d	25000	1.10047.0013	Merckoquant®	IS	24
	Total Nitrogen	see Nitrogen (total)					
	Total Sugar Test (glucose and fructose)	65 - 650 mg/l total sugar	50	1.16136.0001	Reflectoquant®	R	50
	Total Sulfurous Acid Test in White Wine	10 - 160 mg/l SO_2	50	1.16722.0001	Reflectoquant®	R	50
	Transmission	0.0 - 100.0 % T			Spectroquant®	PM	92
	Turbidity	see chapter Turbiquant®			Turbiquant®		106
	Turbidity	1 - 100 FAU			Spectroquant®	PM	92
U	Urea Test	0.3 - 8 mg/l Urea	100	1.14843.0001	Microquant®	DC	38
	Urea Test in milk	0.2 - 7.0 mg/l NH_4	50	1.16892.0001	Reflectoquant®	R	50
NEW V	Volatile Organic Acids Cell Test	50 - 3000 mg/l acetic acid	100	1.01763.0001	Spectroquant®	CT	92
W	Water Hardness	see Residual Hardness or Total Hardness					
NEW Z	Zinc Cell Test	0.025 - 1.000 mg/l Zn	25	1.00861.0001	Spectroquant®	CT	92
	Zinc Test	0.05 - 2.50 mg/l Zn	90	1.14832.0001	Spectroquant®	RT	92
	Zinc Test	0.1 - 5 mg/l Zn	100	1.14780.0001	Microquant®	DC	38
	Zinc Test	0.1 - 5 mg/l Zn	120	1.14412.0001	Aquaquant®	TS	38
	Zinc Cell Test	0.20 - 5.00 mg/l Zn	25	1.14566.0001	Spectroquant®	CT	92
	Zinc Test	10 - 250 mg/l Zn	100	1.10038.0001	Merckoquant®	RT	24

AP application
CC colour card
CT cell test
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DC disk comparator
IS individually sealed
PA indicator paper
PM physical method
R incl. reagent
RT reagent test
S single test strips
SC sliding comparator
ST indicator strips
T test strip
TD titration with dropping bottle
TL tubes, long
TP titration with pipette
TS tubes, short

> Further information in our brochure "pH tests at a glance" (W 285115)

pH test strips and papers

pH determination made easy

To measure the pH swiftly and without using instruments, simply use Merck's all-purpose pH indicator papers and strips.

The pH tests are suited for all media in environmental analysis and in industrial in-process controls.

The visual Aquamerck® test kits are predestined for all applications in which the use of pH indicator solutions is required.

Merckoquant®
Products
from page 18

Aquamerck®
Microquant®
Aquaquant®
from page 26

Reflectoquant®
Products
from page 44

Spectroquant®
Products
from page 52

Turbiquant®
Products
from page 116

The broad pH test range offers you an optimal solution for each application area.

The advantages of Merck's pH tests

- Rapid on-the-spot pH determination
- More precise evaluation thanks to differentiated colour graduations
- Expressive results for environmental analysis and in-process controls
- Calibration and checking of the products by certified buffer solutions

pH indicator papers

The traditional option: Our pH indicator papers consist of high-quality filter papers that are impregnated with indicator or mixed-indicator solutions, then dried and cut to size. We generally supply them in the roll format. This has the advantage that the tests can be better protected against external effects, such as e.g. moisture, light, and ambient gases, and can thus be stored for a longer time.

pH indicator strips – non-bleeding

The universal option: Our pH indicator strips contain special indicator dyes that are covalently bound to the reagent papers. This special method of manufacture gives the pH indicator strips decisive advantages over the indicator papers: since the indicator does not bleed, the strips can be left in place in the measurement medium for an indefinite time without contaminating the medium.

Shelf-life and storage

Our indicator papers and strips can be used for 3 to 5 years when stored at temperatures of 10 to 25 °C, protected from light in a dry laboratory atmosphere. To ensure optimal protection of the tests, the package should be closed immediately after removal of each strip or paper.

Package sizes

We standardly pack our indicator papers in lengths of 4.8 meters in a roll dispenser. Our indicator test strips are packed in boxes containing 100 strips each. On request, from a defined order size upwards, the customer can also receive singly sealed test strips and indicator papers in other formats.

Quality assurance

Merck checks and calibrates its tests using certified buffer solutions. These buffer solutions can be traced back directly to primary reference materials originating from NIST and PTB. This enables us to maintain a consistently high quality of our pH tests.

> Further information in our brochure "pH tests at a glance" (W 285115)

pH test strips and papers

pH indicator papers

Product	pH-measuring range	Graduation in pH-units	Roll length / number of strips	Ord. No.
Roll format				
pH-Box	0.5 - 13.0	0.5	3 x 4.8 m	1.09565.0001
pH-indicator paper Replacement rolls*	0.5 - 5.0		3 x 4.8 m	1.09568.0003
pH-indicator paper Replacement rolls*	5.5 - 9.0		3 x 4.8 m	1.09569.0003
pH-indicator paper Replacement rolls*	9.5 - 13.0		3 x 4.8 m	1.09570.0003
pH-indicator paper Universal indicator	1 - 14	1	3 x 4.8 m	1.10962.0003
pH-indicator paper Replacement roll*			3 x 4.8 m	1.10232.0003
pH-indicator paper Universal indicator	1 - 10	1	3 x 4.8 m	1.09526.0003
pH-indicator paper Replacement roll*			3 x 4.8 m	1.09527.0003
pH-indicator paper Acilit®	0.5 - 5.0	0.5	3 x 4.8 m	1.09560.0003
pH-indicator paper Replacement roll*			3 x 4.8 m	1.09568.0003
pH-indicator paper Neutralit®	5.5 - 9.0	0.5	3 x 4.8 m	1.09564.0003
pH-indicator paper Replacement roll*			3 x 4.8 m	1.09569.0003
pH-indicator paper Alkalit®	9.5 - 13.0	0.5	3 x 4.8 m	1.09562.0003
pH-indicator paper Replacement roll*			3 x 4.8 m	1.09570.0003
pH-indicator paper Special indicator	3.8 - 5.4	0.2 / 0.3	3 x 4.8 m	1.09555.0003
pH-indicator paper Special indicator	5.4 - 7.0	0.2 / 0.4	3 x 4.8 m	1.09556.0003
pH-indicator paper Special indicator	6.4 - 8.0	0.2 / 0.3	3 x 4.8 m	1.09557.0003
pH-indicator paper Special indicator	8.2 - 10.0	0.2 / 0.4	3 x 4.8 m	1.09558.0003
Litmus paper, blue Reag. Ph Eur	pH < 7 red / > 7 blue	-	3 x 4.8 m	1.09486.0003
Litmus paper, neutral	pH < 7 red / > 7 blue	-	3 x 4.8 m	1.09518.0003
Litmus paper, red Reag. Ph Eur	pH < 7 red / > 7 blue	-	3 x 4.8 m	1.09489.0003
Congored paper Reag. Ph Eur	pH < 3 blue-violet / > 5 red-orange	-	3 x 4.8 m	1.09514.0003
Phenolphthalein paper	pH < 8.5 colourless / > 8.5 red	-	3 x 4.8 m	1.09521.0003
Brilliant yellow paper	pH < 6.5 yellow / > 8 red	-	3 x 4.8 m	1.09503.0003
Booklet format				
pH-indicator paper Universal indicator	1 - 10	1	3 x 100	1.09525.0003

* Replacement roll without colour scale

On request we are ready to supply pH-indicator paper as special customer orders in other presentations or dimensions, such as DIN A4 and larger.

pH indicator strips (non-bleeding)

Product	pH-mesasuring range	Graduation in pH-units	Number of test strips	Ord. No.
pH-indicator strips Universal indicator	0 - 14	1	100	1.09535.0001
pH-indicator strips Acilit®	0 - 6.0	0.5	100	1.09531.0001
pH-indicator strips Neutralit®	5.0 - 10.0	0.5	100	1.09533.0001
pH-indicator strips Alkalit®	7.5 - 14.0	0.5	100	1.09532.0001
pH-indicator strips	2.0 - 9.0	0.5	100	1.09584.0001
pH-indicator strips Special indicator	0 - 2.5	0.3 / 0.5	100	1.09540.0001
pH-indicator strips Special indicator	2.5 - 4.5	0.2 / 0.5	100	1.09541.0001
pH-indicator strips Special indicator	4.0 - 7.0	0.2 / 0.5	100	1.09542.0001
pH-indicator strips Special indicator	6.5 - 10.0	0.2 / 0.5	100	1.09543.0001
pH-indicator strips Special indicator	11.0 - 13.0	0.2 / 0.5	100	1.09545.0001
For professional use				
NEW pH-indicator strips Special indicator for pH-measurements in turbid solutions (suspensions)	2 - 9	1	100	1.09502.0001
pH-indicator strips Special indicator for pH-measurements in meat	5.2 - 7.2	0.1 / 0.2	100	1.09547.0001
NEW pH-indicator strips, CE-certified for in vitro diagnostics for semi-quantitative determination of pH in human urine	2.0 - 9.0	0.5	100	1.09584.1111
NEW pH-indicator strips, singly sealed	2 - 9	without colour scale	1000	1.09450.0010
pH-indicator strips, singly sealed	2 - 9	without colour scale	25000	1.09450.0013

Individually sealed pH-indicator strips in package units of 1000, 5000, and 25000 pieces are available on request, also for other pH-ranges.

pH indicator strips *Singly sealed pH indicator strips can be included or stuck in books, magazines, or brochures. These pH indicator strips are also used for product promotion and product differentiation purposes by adding them to a specific product.*

> Further information in our brochure "Simply rapid" (W 242101)

Merckoquant®

pH-test strips and papers from page 14

Universal, fast and simple

Test strips actually constitute a genuine high-tech product: each one is a mobile lab taking up just a few square millimeters and easily fits in your pocket to be taken wherever you go. Merckoquant® test strips are ideally suited for the semi-quantitative determination of ions and compounds. They can be used in concentration ranges from 1 resp. 10 mg/l right up to the g/l range.

As a screening tool they enable the user to run a swift check on the contents of his sample and help save many time-consuming and cost-intensive analytical procedures. Quality- and process control operations are carried out more rapidly. Thanks to the PET film and the low reagent content, the test strips are also easy to dispose of.

Aquamerck® Microquant® Aquaquant® from page 26

Reflectoquant® Products from page 44

Spectroquant® Products from page 52

Turbiquant® Products from page 116

Merckoquant® *From a given order volume up, some Merckoquant® test strips can also be supplied in the customer's own package design.*

The advantages of the Merckoquant® test strips

- Small and easy to handle for on-the-spot use
- Results provided fast and easily
- Broad range with over 50 tests
- Flexible and universal application
- Ideal for screening – time-and cost-saving

Merckoquant® – take your pick!

Merckoquant® test strips yield a rapid measurement result in the semiquantitative range for over 30 parameters.

In some tests the sample must be pretreated. Again; no problem – all the necessary reagents are included in the pack.

Some test strips are also available individually sealed. This keeps them protected against external influences, and they can be easily inserted or stuck in books, magazines, and brochures.

New – the Merckoquant® Multi Test Strips. Now several application-specific parameters can be measured with just one test strip, saving you time and costs.

> Further information in our brochure "Simply rapid" (W 242101)

Merckoquant®

Merckoquant® – it's that simple!

1. *Merckoquant® test strips couldn't be easier to handle.*

2. *The reaction zones are wetted with the solution to be tested simply by dipping them briefly into the liquid sample. Any excess liquid is then shaken off or removed by drawing the test strip across the edge of the vessel.*

3. *After the specified reaction time of at most one minute has expired, the colour of the reaction zone is compared with the colour scale printed on the tube label and the corresponding concentration is read off.*

Shelf-life and storage

When stored cool (refrigeration is necessary in some cases) and dry, the test strips can be used at least up to the expiry date printed on the pack. The tube must be reclosed immediately after the removal of each strip to ensure the remaining test strips are protected.

Package sizes

Our standard package consists of 100 test strips packed in an aluminium tube. For certain parameters we also offer packs containing 25 test strips. In cases in which sample preparation is necessary, the additionally required reagents are also included in the pack.

Quality assurance

Merck checks and calibrates its tests and the exact comparison colours using certified standard solutions. These solutions can be traced back directly to primary reference materials originating from NIST and PTB. This enables us to achieve a consistently high quality of our Merckoquant® test strips.

Merckoquant® Blank Test Strips (Ord. No. 1.11860.0001) *The blank test strips incorporate a paperzone not impregnated with reagent. They are used to perform tests to see whether sample solutions turn the blank zone a different colour. A difference in colour can indicate that the intrinsic colour of the sample may affect results obtained with other Merckoquant® test strips.*

Merckoquant® Multi Test Strips

One test strip – several results

With the Merckoquant® Multi Test Strips you can determine several test parameters prepared with specific applications in mind with just one test strip. This means additional savings in time and costs.

Swimming-pool water analysis Total Hardness / Chlorine / pH Ord. No. 1.17967.0001

Merckoquant® Multi Test Strips TH – Cl_2 – pH have been specially developed for the analysis of swimming-pool water. This combination of parameters in just one test strip swiftly and simply gives you the necessary assurance of the correct chlorination process and thus helps prevent suboptimal or excessive chlorine dosage. At the same time it helps you notice deviations in the pH and is also capable of preventing any premature overconcentration of earth alkaline ions.

Cooling-lubricant analysis Total Hardness / Nitrite / pH Ord. No. 1.17966.0001

Merckoquant® Multi Test Strips TH – NO_2 – pH feature a combination of parameters for the analysis of cooling lubricants. The reaction zones on this test strip are bonded to a transparent film to enable the concentrations to be measured even in heavily contaminated samples. In such cases the changes in colour produced by the reaction can be evaluated on the reverse of the film.

Aquaristics analysis Nitrate / Nitrite / Total Hardness / Carbonate Hardness / pH Ord. No. 1.17970.0001

Merckoquant® Multi Test Strips NO_3 – NO_2 – TH – CH – pH combine the five most important parameters for aquaristics analysis in just one test strip. This test combination can be used to measure the parameter combinations of relevance for water flora and fauna at just a glance. This test strip can furthermore also be used for the preliminary analysis of surface waters. The test strip incorporates, among other things, a newly developed detection zone for total hardness that requires just one reaction zone. In addition, a new highly sensitive nitrite reaction zone is included that is capable of detecting nitrite concentrations as low as 0.5 mg/l, a level that can already be deleterious for fish.

> Further information in our brochure "Simply rapid" (W 242101)

Index A-P Merckoquant® test strips

	Parameter	Graduation	No. of tests	Ord. No.	Method	Type
A	Aluminium Test	10-25-50-100-250 mg/l Al	100	1.10015.0001	Aurin tricarboxylic acid	R
	Ammonium Test	10-30-60-100-200-400 mg/l NH_4	100	1.10024.0001	Neßler	R
	Arsenic Test	0.005-0.01-0.025-0.05-0.1-0.25-0.5 mg/l As	100	1.17927.0001	modified Gutzeit test	R
NEW	Arsenic Test	0.02-0.05-0.1-0.2-0.5 mg/l As 0.1-0.5-1.0-1.7-3 mg/l As	100	1.17917.0001	modified Gutzeit test	R
	Ascorbic Acid Test	50-100-200-300-500-700- 1000-2000 mg/l ascorbic acid	100	1.10023.0001	Phosphormolybdenum blue	
B	Blank strip		100	1.11860.0001		
C	Calcium Test	10-25-50-100 mg/l Ca	60	1.10083.0001	Glyoxal bishydroxyanil	R
	Carbonate Hardn. Test	4-8-12-16-24 °d	100	1.10648.0001	Mixed indicator	
	Chloride Test	500-1000-1500-2000-3000 mg/l Cl	100	1.10079.0001	Silver chromate	
	Chlorine Test	0.5-1-2-5-10-20 mg/l Cl_2	75	1.17925.0001	Redox reaction	
	Chlorine Test	25-50-100-200-500 mg/l Cl_2	100	1.17924.0001	Redox reaction	
	Chromate Test	3-10-30-100 mg/l CrO_4	100	1.10012.0001	Diphenylcarbazide	R
	Cobalt Test	10-30-100-300-1000 mg/l Co	100	1.10002.0001	Rhodanide	
	Copper Test	10-30-100-300 mg/l Cu	100	1.10003.0001	2,2'-Cuproin	
	Cyanide Test	1-3-10-30 mg/l CN	100	1.10044.0001	Barbituric acid derivative	R
F	Fixing Bath Test	0.5-1-1.7-3-5-7-10 g/l Ag pH 4-5-6-7-8	100	1.10008.0001	Cadmium sulfide/ Mixed indicator	
	Formaldehyde Test	10-20-40-60-100 mg/l HCHO	100	1.10036.0001	Triazole	R
NEW	Glucose Test	10-25-50-50-100-250-500 mg/l Glucose	50	1.17866.0001	Enzymatic reaction	
I	Iron Test	3-10-25-50-100-250-500 mg/l Fe(II)	100	1.10004.0001	2,2'-Bipyridine	
L	Lead Test	20-40-100-200-500 mg/l Pb	100	1.10077.0001	Rhodizonic acid	R
M	Manganese Test	2-5-20-50-100 mg/l Mn	100	1.10080.0001	Oxidation/Redox indicator	R
	Molybdenum Test	5-20-50-100-250 mg/l Mo	100	1.10049.0001	Toluene-3,4-dithiol	R
N	Nickel Test	10-25-100-250-500 mg/l Ni	100	1.10006.0001	Diacetyldioxime	
	Nitrate Test	10-25-50-100-250-500 mg/l NO_3	100	1.10020.0001	modified Griess' reaction	
	Nitrate Test	10-25-50-100-250-500 mg/l NO_3	25	1.10020.0002	modified Griess' reaction	
	Nitrate Test	10-25-50-100-250-500 mg/l NO_3	1000	1.10092.0021	modified Griess' reaction	IS
NEW	Nitrite Test	0.5-1-2-5-10 mg/l NO_2	75	1.10057.0001	Griess' reaction	
	Nitrite Test	2-5-10-20-40-80 mg/l NO_2	100	1.10007.0001	Griess' reaction	
	Nitrite Test	2-5-10-20-40-80 mg/l NO_2	25	1.10007.0002	Griess' reaction	
	Nitrite Test	0.1-0.3-0.6-1-2-3 g/l NO_2	100	1.10022.0001	Griess' reaction	
NEW	NO_3-NO_2-TH-CH-pH	10-25-50-100 mg/l NO_3 0.5-1-2-5 mg/l NO_2 TH: 2.5-5-10-20 °d CH: 4-8-12-16 °d pH: 5-6-7-8-9	50	1.17970.0001		
P	Peracetic Acid Test	5-10-20-30-50 mg/l Peracetic acid	100	1.10084.0001	Redox reaction	
	Peracetic Acid Test	100-150-200-250-300- 400-500 mg/l Peracetic acid	100	1.10001.0001	Redox reaction	
	Peracetic Acid Test	500-1000-1500-2000 mg/l Peracetic acid	100	1.17922.0001	Redox reaction	
	Peroxide Test	0.5-2-5-10-25 mg/l H_2O_2	100	1.10011.0001	Enzymatic reaction	
	Peroxide Test	0.5-2-5-10-25 mg/l H_2O_2	25	1.10011.0002	Enzymatic reaction	
	Peroxide Test	1-3-10-30-100 mg/l H_2O_2	100	1.10081.0001	Enzymatic reaction	
	Peroxide Test	100-200-400-600-800-1000 mg/l H_2O_2	100	1.10337.0001	Enzymatic reaction	
	Phosphate Test	10-25-50-100-250-500 mg/l PO_4	100	1.10428.0001	Phosphormolybdenum blue	R
	Potassium Test	250-450-700-1000-1500 mg/l K	100	1.10042.0001	Dipicrylamine	R

IS individually sealed R incl. reagent

Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
		■							■	■	■				■	■	■	Aluminium Test
■			■	■	■		■			■	■	■		■	■		■	Ammonium Test
							■	■		■		■		■	■		■	Arsenic Test
							■			■		■		■	■		■	Arsenic Test
■		■									■		■					Ascorbic Acid Test
		■							■		■						■	Blank strip
■		■		■	■			■			■	■	■	■	■			Calcium Test
	■			■	■			■				■		■	■			Carbonate Hardn. Test
■	■	■		■	■		■	■	■	■	■	■		■	■		■	Chloride Test
						■		■		■							■	Chlorine Test
						■				■							■	Chlorine Test
							■		■	■							■	Chromate Test
							■		■	■					■		■	Cobalt Test
		■					■		■	■							■	Copper Test
							■		■	■							■	Cyanide Test
										■								Fixing Bath Test
						■			■	■	■							Formaldehyde Test
■		■									■							Glucose Test
		■					■	■	■	■	■	■		■	■		■	Iron Test
							■		■	■							■	Lead Test
				■			■		■	■					■		■	Manganese Test
				■					■	■								Molybdenum Test
							■		■	■					■		■	Nickel Test
■	■	■		■	■			■		■	■	■	■	■			■	Nitrate Test
■	■	■		■	■			■		■	■	■	■	■			■	Nitrate Test
■	■	■		■	■			■		■	■	■	■	■			■	Nitrate Test
■	■			■	■		■		■	■	■	■	■		■		■	Nitrite Test
■	■			■	■		■		■	■	■	■	■		■		■	Nitrite Test
■	■			■	■		■		■	■	■	■	■		■		■	Nitrite Test
				■					■								■	Nitrite Test
	■									■		■						NO_3-NO_2-TH-CH-pH
						■				■								Peracetic Acid Test
						■												Peracetic Acid Test
						■												Peracetic Acid Test
						■					■		■				■	Peroxide Test
						■					■		■				■	Peroxide Test
						■											■	Peroxide Test
						■											■	Peroxide Test
■	■	■		■	■					■	■	■	■		■		■	Phosphate Test
■		■									■		■	■				Potassium Test

> Further information in our brochure "Simply rapid" (W 242101)

Index Q-Z Merckoquant® test strips

	Parameter	Graduation	No. of tests	Ord. No.	Method	Type
Q	Quaternary Ammonium Compounds	10-25-50-100-250-500 mg/l Benzalkonium chloride	100	1.17920.0001	Indicator	
S	Sulfate Test	200-400-800-1200-1600 mg/l SO_4	100	1.10019.0001	Ba-thorin complex	
	Sulfite Test	10-40-80-180-400 mg/l SO_3	100	1.10013.0001	Nitroprusside/ Zn-hexacyanoferrate	
NEW T	TH-Cl_2-pH	TH: 2.5-5-10-20 °d 0.5-1-2-5 mg/l Cl_2 pH: 6.0-6.5-7.0-7.5-8.0	50	1.17967.0001		
NEW	TH-NO_2-pH	TH: 2.5-5-10-20 °d 2-5-10-20 mg/l NO_2 pH 7.5-8.0-8.5-9.0-9.5	50	1.17966.0001		
	Tin Test	10-25-50-100-200 mg/l Sn	50	1.10028.0001	Toluene-3,4-dithiol	R
	Total Hardness Test	3-4-7-14-21 °d	100	1.10025.0001	EDTA	
	Total Hardness Test	3-4-7-14-21 °d	5000	1.10029.0001	EDTA	S
	Total Hardness Test	3-4-7-14-21 °d	1000	1.10032.0001	EDTA	IS
	Total Hardness Test	3-4-7-14-21 °d	25000	1.10032.0013	EDTA	IS
	Total Hardness Test	5-10-15-20-25 °d	100	1.10046.0001	EDTA	
	Total Hardness Test	5-10-15-20-25 °d	25000	1.10047.0013	EDTA	IS
Z	Zinc Test	10-40-100-250 mg/l Zn	100	1.10038.0001	Dithizone	R

IS individually sealed
R incl. reagent
S single test strips

Reagent papers

Lead acetate paper 3 rolls each with 4.8 meters Ord. No. 1.09511.0003

Lead acetate paper is used for the determination of sulfide and hydrogen sulfide

Potassium iodide-starch paper, Reag. Ph Eur 3 rolls each with 4.8 meters Ord. No. 1.09512.0003

Potassium iodide paper is used for the determination of oxidizing agents

Potassium iodate-starch paper, Reag. Ph Eur 3 rolls each with 4.8 meters Ord. No. 1.59225.0003

Potassium iodate paper is used for the determination of reducing agents

Chlorine test paper 3 rolls each with 4 meters Ord. No. 1.17923.0001

Graduation 0 - 25 - 50 - 100 - 200 - 500 mg/l Cl_2
Chlorine test paper is used for the determination of free chlorine and to monitor the concentration of disinfectants

Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
						■											■	Quaternary Ammonium Compounds
					■				■			■					■	Sulfate Test
		■		■			■				■						■	Sulfite Test
																■		TH-Cl_2-pH
				■														TH-NO_2-pH
							■		■		■				■		■	Tin Test
	■	■		■	■			■		■		■		■	■	■		Total Hardness Test
	■	■		■	■			■		■		■		■	■	■		Total Hardness Test
	■	■		■	■			■		■		■		■	■	■		Total Hardness Test
	■	■		■	■			■		■		■		■	■	■		Total Hardness Test
	■	■		■	■			■		■		■		■	■	■		Total Hardness Test
	■	■		■	■			■		■		■		■	■	■		Total Hardness Test
							■		■	■							■	Zinc Test

Merckoquant® *Sample vessels for Aquamerck® and Merckoquant® tests are ideally suited for the use of the Merckoquant® tests with reagent.* *For more details please see page 39 .*

Visual rapid tests

pH test strips and papers from page 14

Merckoquant® Products from page 18

Reflectoquant® Products from page 44

Spectroquant® Products from page 52

Turbiquant® Products from page 116

Variety and ease of handling

Convince yourself of just how easy it is to handle our visual rapid tests. These are simple to work with, even for users without in-depth chemical skills.

Each pack contains all the accessories and reagents necessary to perform the test. The reagent bottles have been designed in such a way that the liquid reagents can be easily metered drop by drop. The solid reagents can be measured in using the metering spoons integrated into the screw caps. A unique feature of these tests are the high-quality and brilliant colour cards, which decisively simplify the allocation of the stated values (colour dots). This gives you more precise results in no time at all.

Another practical feature: the corresponding refill packs. The bottles fit directly in the packs for the respective original test kits, and the number of determinations is the same as that for the original test kits. In this way you can use the colour comparators over and over again – reducing your costs per determination and helping to relieve the environmental burden at the same time.

The Aquamerck® system comprises titrimetric and colorimetric tests (evaluation using colour cards or test vessels)

Aquamerck®
Microquant®
Aquaquant®

The advantages of the rapid tests

- Practical for on-the-spot use
- Illustrated instructions for an easy to carry out procedure
- Application-oriented measuring ranges
- Brilliant colour scales and high-quality comparators deliver reliable results
- Long shelf-life
- Low analytical costs

The visual rapid tests at a glance

	Concentration range	Areas of application	The range comprises
Aquamerck®	Medium concentration range	• Aquaristics for freshwater and seawater • Aquaculture • Surface water • Swimming pool water • School lessons	• Inexpensive blister packs • Test kits with easy-to-use colour cards • Test kits with robust, colourfast test vessels • Titrimetric test kits with simple drop-counting and titration pipettes • Compact laboratories • Inexpensive refill packs
Microquant®	Medium to high concentration range, measurements possible in turbid or coloured samples	• Wastewater • Industrial water • Groundwater • Bottled water • Boiler water • Swimming pool water • Industrial applications	• Test kits with colour comparator disk with tenfold graduation • Inexpensive refill packs
Aquaquant®	Very low to medium concentration range	• Drinking water • Bottled water • Boiler water • Cooling water • Industrial applications	• Test kits with high-quality and brilliant colour cards • Inexpensive refill packs

> For further information see website:

Visual rapid tests

Aquamerck®

The Aquamerck® product range comprises both titrimetric as well as colorimetric tests. Their handling could not be easier. In the titration tests the sample is titrated until the colour changes, with the number of drops consumed to the turning point or the scalar value read off from a pipette corresponding to the concentration of the tested parameter. In the case of the colorimetric tests a colour reaction is produced by adding reagents to the sample solution. By allocating the colour to a colour value on a reference scale the corresponding concentration can be read off.

Microquant®

Microquant® tests evaluate the colour reaction according to the transmitted light method. This makes it possible to analyze even turbid and slightly coloured water samples without any further sample preparation. Thanks to the robust colour comparator disk it is also possible to use these tests without problem in industrial areas and in wet environments.
The ten-stage colour disk of the comparator is made of lightfast and thus extremely durable slides of plastic. Using the refill packs that are also available, the original test kit can be used for a very long time.

Aquaquant®

The special strength of the Aquaquant® range lies in the measurement of low concentrations. With Aquaquant® tests users can detect concentrations down to the ppb range. These specifically high measurement sensitivities are made possible by use of greater layer thickness and the special construction design of the Aquaquant® comparator. In the comparison method the reaction colour of the sample is compared with the blank sample tinted by the colour scale. This makes it possible to achieve an excellent match a colour-comparison concentration. The colour cards are of particular importance here. The unique brilliance of the print and the fine colour graduation enable precise analyses to be made, even at the lower end of the concentration range.

The Aquaquant® system: The comparator method convinces in its use!

Aquamerck®
Microquant®
Aquaquant®

Shelf-life and storage

When stored at temperatures between 15 and 25 °C, the visual test kits remain stable for up to three years from the date of production. Under other storage conditions the test kit should be checked prior to use by using a standard solution adjusted in the upper third of the measuring range. If test kit detects this set value, it is still capable of being used.

Package sizes

Merck's visual ready-for-use tests contain reagents for 50, 100, 200, 300, or even more determinations.

Quality assurance

We adjust our test kits and comparison colours with the aid of certified standard solutions. These can be traced back directly to primary reference materials originating from NIST und PTB. This enables us to achieve a consistently high quality standard of all our visual test kits.

The Microquant® system: All reagents and the colour comparator disk are contained in the kit.

Practical refill packs *We devote our efforts not just to the actual applications themselves, but also to ensuring that we offer you economically attractive solutions. This is why refill packs are also available for many of our test kits, reducing the price for individual analyses in the process. If you have a large specific requirement, we can also supply customer-specific packs with a modified number of determinations or different colour scales.*

> For further information see website:

Index A-C Aquamerck®, Microquant®, Aquaquant®

	Parameter	Graduation	No. of tests	Ord. No.	Method	System	Type
A	Acidity Test	0.1 mmol/l	200 at 10 mmol/l	1.11108.0001	Alkalimetric	Aquamerck	TP
	Alkalinity Test in freshwater and seawater	20 mg/l $CaCO_3$	50 at 200 mg/l $CaCO_3$	1.18764.0001	Acidimetric	Aquamerck	TD
	Alkalinity Test	0.1 mmol/l	200 at 10 mmol/l	1.11109.0001	Acidimetric	Aquamerck	TP
	Aluminium Test	0.07-0.12-0.2-0.35-0.5-0.65-0.8 mg/l Al	185	1.14413.0001	Chromazurol S	Aquaquant	TS
	Aluminium Test	0.1-0.2-0.35-0.5-0.75-1-2-3-6 mg/l Al	145	1.18386.0001	Chromazurol S	Microquant	DC
	Ammonium Test	0.025-0.05-0.075-0.1-0.15-0.2-0.25-0.3-0.4 mg/l NH_4	60	1.14428.0001	Indophenol blue	Aquaquant	TL
	Ammonium Test	0.05-0.1-0.15-0.2-0.3-0.4-0.5-0.6-0.8 mg/l NH_4	100	1.14400.0001	Neßler	Aquaquant	TL
	Ammonium Test	0.2-0.4-0.6-1-2-3-5 mg/l NH_4	50	1.08024.0001	Indophenol blue	Aquamerck	SC
	Ammonium Test	0.2-0.5-0.8-1.2-1.6-2-3-5-8 mg/l NH_4	250	1.14423.0001	Indophenol blue	Aquaquant	TS
	Ammonium Test	0.2-0.5-0.8-1.3-2-3-4.5-6-8 mg/l NH_4	250	1.14750.0001	Indophenol blue	Microquant	DC
	Ammonium Test in freshwater and seawater	0.5-1-2-3-5-10 mg/l NH_4	50	1.14657.0001	Indophenol blue	Aquamerck	CC
	Ammonium Test	0.5-1-3-5-10 mg/l NH_4	150	1.11117.0001	Neßler	Aquamerck	CC
C	Calcium Test	2 mg/l	170 at 200 mg/l Ca	1.11110.0001	Titriplex® III	Aquamerck	TP
	Carbonate Hardness Test/ Acid cap. to pH 4.3 (ANC)	0.2 °d and 0.1 mmol/l	300 at 12.5 °e	1.08048.0001	Acidimetric	Aquamerck	TP
	Carbonate Hardness Test/ Acid cap. to pH 4.3 (ANC)	1.25 °e	100 at 12.5 °e	1.11103.0001	Acidimetric	Aquamerck	TD
	Carbonate Hardness Test	1.25 °e	50 at 12.5 °e	1.14653.0001	Acidimetric	Aquamerck	TD
	Carbonic Acid (lime dissolving) Test	1.25 °e	50	1.11130.0001	Acidimetric	Aquamerck	TD
	Chloride Test	2 mg/l Cl	200 at 170 mg/l Cl	1.11106.0001	Mercury(II)-nitrate	Aquamerck	TD
	Chloride Test	3-6-10-18-30-60-100-180-300 mg/l Cl	200	1.14753.0001	Mercury(II)-thiocyanate	Microquant	DC
	Chloride Test	5-10-20-40-75-150-300 mg/l Cl	300	1.14401.0001	Mercury(II)-thiocyanate	Aquaquant	TS
	Chloride Test	25 mg/l Cl	100 at 150 mg/l Cl	1.11132.0001	Mercury(II)-nitrate	Aquamerck	TD
	Chlorine Test	0.01-0.025-0.045-0.06-0.08-0.1-0.15-0.2-0.3 mg/l Cl_2	300	1.14434.0001	DPD	Aquaquant	TL
	Chlorine Test in freshwater and seawater	0.1-0.25-0.5-1-2 mg/l Cl_2	100 free chlorine	1.14670.0001	TMB	Aquamerck	CC
	Chlorine Test	0.1-0.2-0.3-0.4-0.6-0.8-1.0-1.5-2.0 mg/l Cl_2	600 free chlorine	1.14978.0001	DPD	Microquant	DC
	Chlorine Test	0.25-0.5-0.75-1-2-4-7-10-15 mg/l Cl_2	1000 free chlorine	1.14976.0001	DPD	Microquant	DC

CC colour card
CV colour-matching vessel
SC sliding comparator
TD titration with dropping bottle
TL tubes, long
TS tubes, short
TP titration with pipette
DC disk comparator

Ord. No. Refill pack	Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
		■		■	■	■			■		■		■		■				Acidity Test
		■		■	■	■			■		■		■		■	■			Alkalinity Test
		■		■	■	■			■		■		■		■				Alkalinity Test
					■	■			■		■		■		■		■		Aluminium Test
			■		■	■			■	■	■		■		■		■	■	Aluminium Test
	■	■	■	■	■	■			■		■	■	■		■		■		Ammonium Test
				■	■	■							■						Ammonium Test
	■	■		■		■		■			■		■		■	■	■	■	Ammonium Test
1.18455.0002	■	■		■	■	■			■	■	■	■	■		■			■	Ammonium Test
1.18455.0002	■	■		■	■	■		■	■	■	■	■	■		■	■	■	■	Ammonium Test
	■	■		■		■		■			■		■		■	■			Ammonium Test
		■		■		■							■			■			Ammonium Test
	■	■			■	■			■		■		■		■	■			Calcium Test
		■			■	■			■				■		■				Carbonate Hardness Test / Acid cap. to pH 4.3 (ANC)
		■			■	■			■				■		■				Carbonate Hardness Test / Acid cap. to pH 4.3 (ANC)
		■			■	■			■				■		■				Carbonate Hardness Test
		■			■	■			■				■			■			Carbonic Acid (lime dissolving) Test
	■			■	■	■		■	■		■	■	■		■		■	■	Chloride Test
1.18322.0002	■			■	■	■		■	■		■	■	■		■		■	■	Chloride Test
1.18322.0002	■			■	■	■		■	■		■	■	■		■		■	■	Chloride Test
	■			■	■	■		■	■		■	■	■		■		■	■	Chloride Test
1.14977.0002		■					■		■	■	■				■				Chlorine Test
		■					■				■					■	■		Chlorine Test
1.14979.0002							■		■	■	■				■		■	■	Chlorine Test
1.14977.0002							■		■	■	■				■			■	Chlorine Test

> For further information see website:

Index C-H Aquamerck®, Microquant®, Aquaquant®

	Parameter	Graduation	No. of tests	Ord. No.	Method	System	Type
C	Chlorine Test	0.1-0.2-0.3-0.4-0.6-0.8-1-1.5-2 mg/l Cl_2	400 free chlorine 400 total chlorine	1.14801.0001	DPD	Microquant	DC
	Chlorine Test	0.25-0.5-0.75-1-2-4-7-10-15 mg/l Cl_2	400 free chlorine 400 total chlorine	1.14826.0001	DPD	Microquant	DC
	Chlorine- and pH Test	0.1-0.3-0.6-1-1.5 mg/l Cl_2 pH 6.8-7.1-7.4-7.6-7.8	150 (chlorine) 150 (pH)	1.11160.0001	DPD and phenol red indicator	Aquamerck	SC
	Chlorine- and pH Test	0.1-0.3-0.6-1-1.5 mg/l Cl_2 pH 6.8-7.1-7.4-7.6-7.8	200 (chlorine) 200 (pH)	1.11174.0001	DPD and phenol red indicator	Aquamerck	CV
	Chlorine-Test Reag. 1					Aquamerck	SR
	Chlorine-Test Reag. 2					Aquamerck	SR
	Chlorine-Test Reag. 3					Aquamerck	SR
	pH-Test Reag. pH					Aquamerck	SR
	Chlorine Dioxide Test	0.020-0.050-0.075-0.10-0.15-0.20-0.30-0.40-0.55 mg/l ClO_2	300	1.18754.0001	DPD	Aquaquant	TL
	Chlorine Dioxide Test	0.50-0.90-1.4-1.9-3.8-7.5-13-19-28 mg/l ClO_2	100	1.18756.0001	DPD	Microquant	DC
	Chromate Test	0.01-0.02-0.04-0.07-0.09-0.11-0.13-0.18-0.22 mg/l CrO_4	150	1.14402.0001	Diphenyl-carbazide	Aquaquant	TL
	Chromate Test	0.2-0.4-0.7-1-1.3-1.8-2.2-2.9-3.6 mg/l CrO_4	300	1.14441.0001	Diphenyl-carbazide	Aquaquant	TS
	Chromate Test	0.2-0.4-0.8-1.3-2.2-4-6.7-13-22 mg/l CrO_4	300	1.14756.0001	Diphenyl-carbazide	Microquant	DC
	Colour Test	5-10-20-30-40-50-70-100-150 HZ	no limit	1.14421.0001	Hazen	Aquaquant	TL
	Copper Test	0.05-0.08-0.12-0.16-0.2-0.25-0.3-0.4-0.5 mg/l Cu	100	1.14414.0001	Cuprizone	Aquaquant	TL
	Copper Test in freshwater and seawater	0.15-0.3-0.45-0.6-0.8-1.2-1.6 mg/l Cu	50	1.14651.0001	Cuprizone	Aquamerck	CC
	Copper Test	0.3-0.6-1-1.5-2-2.5-3-5 mg/l Cu	100	1.14418.0001	Cuprizone	Aquaquant	TS
	Copper Test	0.3-0.6-1-1.5-2-3-5-7-10 mg/l Cu	100	1.14765.0001	Cuprizone	Microquant	DC
	Cyanide Test	0.002-0.004-0.007-0.01-0.013-0.016-0.02-0.025-0.03 mg/l CN	65	1.14417.0001	König's reaction	Aquaquant	TL
	Cyanide Test	0.03-0.06-0.1-0.15-0.2-0.3-0.4-0.5-0.7 mg/l CN	200	1.14429.0001	König's reaction	Aquaquant	TS
	Cyanide Test	0.03-0.07-0.13-0.2-0.3-0.5-1-2-5 mg/l CN	200	1.14798.0001	König's reaction	Microquant	DC
F	Formaldehyde Test	0.1-0.25-0.4-0.6-0.8-1-1.5 mg/l HCHO	100	1.08028.0001	Triazole derivative	Aquamerck	SC
H	Hydrazine Test	0.1-0.25-0.5-1 mg/l N_2H_2	100	1.08017.0001	Dimethylamoni-benzaldehyde	Aquamerck	CV

CC colour card
CV colour-matching vessel
DC disk comparator
SC sliding comparator
SR single reagent
TD titration with dropping bottle
TL tubes, long
TS tubes, short
TP titration with pipette

Ord. No. Refill pack	Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
1.14803.0002							■		■	■	■						■	■	Chlorine Test
1.18326.0002							■			■	■							■	Chlorine Test
																	■		Chlorine- and pH Test
1.11157.0001 1.11143.0001 1.11113.0001 1.11114.0001 1.11115.0001 1.11116.0001																	■		Chlorine- and pH Test
1.18757.0002					■		■		■										Chlorine Dioxide Test
1.18757.0002					■		■		■										Chlorine Dioxide Test
1.18456.0002						■				■	■		■					■	Chromate Test
1.18456.0002						■			■	■	■		■					■	Chromate Test
1.18456.0002						■				■	■		■					■	Chromate Test
			■						■		■		■		■			■	Colour Test
			■		■			■	■	■	■		■			■	■	■	Copper Test
		■			■			■	■	■	■		■			■	■	■	Copper Test in freshwater and seawater
					■			■	■	■	■		■			■	■	■	Copper Test
			■		■			■	■	■	■		■			■	■	■	Copper Test
1.18457.0002								■	■	■	■	■	■					■	Cyanide Test
1.18457.0002								■		■	■		■					■	Cyanide Test
1.18457.0002								■		■	■		■					■	Cyanide Test
							■			■	■	■							Formaldehyde Test
necessary 1.08018.0001					■														Hydrazine Test

> For further information see website:

Index I-O Aquamerck®, Microquant®, Aquaquant®

	Parameter	Graduation	No. of tests	Ord. No.	Method	System	Type
I	Iron Test	0.01-0.02-0.03-0.04-0.06-0.08-0.1-0.15-0.2 mg/l Fe	300	1.14403.0001	Triazine	Aquaquant	TL
	Iron Test in freshwater and seawater	0.05-0.1-0.2-0.4-0.6-0.8-1 mg/l Fe	50	1.14660.0001	Triazine	Aquamerck	CC
	Iron Test	0.1-0.2-0.5-0.8-1.2-2-3-5 mg/l Fe	500	1.14759.0001	Triazine	Microquant	DC
	Iron Test	0.1-0.3-0.5-1-2.5-5-7.7-12.5-25-50 mg/l Fe	200	1.11136.0001	2,2'-Bipyridine	Aquamerck	CV
	Iron Test	0.2-0.4-0.6-0.8-1-1.3-1.6-2-2.5 mg/l Fe	500	1.14438.0001	Triazine	Aquaquant	TS
	Iron Test	0.25-0.5-1-2-3-5-7.5-10-15 mg/l Fe	300	1.14404.0001	2,2'-Bipyridine	Aquaquant	TS
M	Magnesium Test	100-200-300-500-1000-1500 mg/l Mg	50	1.11131.0001	Xylidyl blue	Aquamerck	CC
	Manganese Test	0.03-0.06-0.1-1.5-2-2.5-0.3-0.4-0.5 mg/l Mn	110	1.14406.0001	Formaldoxime	Aquaquant	TL
	Manganese Test	0.3-0.7-1.3-2-3-4-5-7-10 mg/l Mn	110	1.14768.0001	Formaldoxime	Microquant	DC
N	Nickel Test	0.02-0.04-0.07-0.1-0.15-0.2-0.3-0.4-0.5 mg/l Ni	125	1.14420.0001	Dimethylglyoxime	Aquaquant	TL
	Nickel Test	0.5-1.5-2-2.5-3-4-6-8-10 mg/l Ni	500	1.14783.0001	Dimethylglyoxime	Microquant	DC
	Nitrate Test	5-10-20-30-40-50-60-70-90 mg/l NO_3	90	1.14771.0001	Nitrospectral / sulfuric acid	Microquant	DC
	Nitrate Test in freshwater	10-25-50-75-100-125-150 mg/l NO_3	100	1.11169.0001	Sulfanilic acid / Gentisine acid	Aquamerck	CC
	Nitrate Test	10-25-50-75-100-125-150 mg/l NO_3	200	1.11170.0001	Sulfanilic acid / Gentisine acid	Aquamerck	SC
	Nitrite Test	0.005-0.012-0.02-0.03-0.04-0.05-0.06-0.08-0.1 mg/l NO_2	110	1.14408.0001	Griess' reaction	Aquaquant	TL
	Nitrite Test	0.025-0.05-0.075-0.1-0.15-0.2-0.3-0.5 mg/l NO_2	200	1.08025.0001	Griess' reaction	Aquamerck	SC
	Nitrite Test in freshwater and seawater	0.05-0.15-0.25-0.5-1 mg/l NO_2	100	1.14658.0001	Griess' reaction	Aquamerck	CC
	Nitrite Test	0.1-0.2-0.3-0.4-0.6-0.8-1-1.3-2 mg/l NO_2	400	1.14424.0001	Griess' reaction	Aquaquant	TS
	Nitrite Test	0.1-0.2-0.4-0.6-1-1.8-3-6-10 mg/l NO_2	400	1.14774.0001	Griess' reaction	Microquant	DC
O	Oxygen Test	0.1 mg/l O_2	100 at 8.5 mg/l O_2	1.11107.0001	Titrimetry, modified Winkler method	Aquamerck	TP
	Oxygen Test in freshwater and seawater	1-3-5-7-9-12 mg/l O_2	50	1.14662.0001	modified Winkler method	Aquamerck	CC

CC colour card
CV colour-matching vessel
DC disk comparator
SC sliding comparator
TD titration with dropping bottle
TL tubes, long
TS tubes, short
TP titration with pipette

Ord. No. Refill pack	Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
1.18458.0002					■	■			■		■				■	■			Iron Test
		■				■					■		■			■		■	Iron Test in freshwater and seawater
1.18458.0002					■	■					■	■	■		■	■		■	Iron Test
1.08023.0001						■					■		■					■	Iron Test
1.18458.0002					■	■					■		■		■	■		■	Iron Test
					■	■					■		■		■	■		■	Iron Test
						■			■										Magnesium Test
1.18460.0002	■				■	■			■	■	■		■		■			■	Manganese Test
1.18460.0002	■				■	■			■	■	■		■		■			■	Manganese Test
1.18461.0002									■	■	■	■						■	Nickel Test
1.18461.0002									■	■	■	■						■	Nickel Test
	■		■	■					■		■	■	■	■	■		■		Nitrate Test
		■							■		■	■	■				■		Nitrate Test in freshwater
	■	■							■		■	■	■				■		Nitrate Test
1.18463.0002	■			■	■				■	■	■	■	■		■	■			Nitrite Test
	■	■		■					■		■	■	■		■	■			Nitrite Test
		■											■			■			Nitrite Test in freshwater and seawater
1.18463.0002	■			■	■				■	■	■	■	■		■	■			Nitrite Test
1.18463.0002	■			■	■			■	■	■	■	■	■		■	■		■	Nitrite Test
1.11152.0001 1.14663.0001		■									■		■			■		■	Oxygen Test
necessary: 1.14663.0001		■									■		■			■			Oxygen Test in freshwater and seawater

> For further information see website:

Index O-S Aquamerck®, Microquant®, Aquaquant®

	Parameter	Graduation	No. of tests	Ord. No.	Method	System	Type
O	Ozone Test	0.007-0.017-0.03-0.04-0.055-0.07-0.1-0.14-0.2 mg/l O_3	300	1.18755.0001	DPD	Aquaquant	TL
	Ozone Test	0.15-0.35-0.5-0.7-1.4-2.7-5-7-10 mg/l O_3	100	1.18758.0001	DPD	Microquant	DC
P	Perex-Test (Peroxide Test)	10-25-50-50-100-200-300-500 mg/l H_2O_2	60	1.16206.0001	Redox reaction	Aquamerck	SC
	pH Universal indicator, liquid	pH 4-4.5-5-5.5-6-6.5-7-7.5-8-8.5-9-9.5-10	100 ml	1.09175.0100	Mixed indicator	Aquamerck	CC
	pH Universal indicator, liquid	pH 4-4.5-5-5.5-6-6.5-7-7.5-8-8.5-9-9.5-10	1 l	1.09175.1000	Mixed indicator	Aquamerck	CC
	pH Iindicator liquid	pH 9-10-11-12-13	100 ml	1.09176.0100	Mixed indicator	Aquamerck	CC
	pH Indicator liquid	pH 0-0.5-1-1.5-2-2.5-3-3.5-4-4.5-5-5.5	100 ml	1.09177.0100	Mixed indicator	Aquamerck	CC
	pH Test in freshwater and seawater	pH 5.0-5.2-5.4-5.6-5.8-6.0-6.2-6.4-6.6-6.8-7.0-7.2-7.4-7.6-7.8-8.0-8.2-8.4-8.6-8.8-9.0	200	1.18763.0001	Mixed freshwater and seawater indicator	Aquamerck	CC
	pH Test	pH 4.5-5-5.5-6-6.5-7-7.5-8-8.5-9	400	1.08027.0001	Mixed indicator	Aquamerck	SC
	pH Test	pH 4.5-5-5.5-6-6.5-7-7.5-8-8.5-9	100	1.08038.0001	Mixed indicator	Aquamerck	CV
	pH Test in swimming pool	pH 6.5-6.8-7.1-7.4-7.6-7.8-8.2	200	1.14669.0001	Phenol red	Aquamerck	CC
	Phosphate Test	0.046-0.092-0.14-0.18-0.25-0.34-0.43 mg/l PO_4	200	1.14445.0001	Phosphor-molybdenum blue	Aquaquant	TL
	Phosphate Test in freshwater and seawater	0.25-0.5-0.75-1.0-1.5-2-3 mg/l PO_4	100	1.14661.0001	Phosphor-molybdenum blue	Aquamerck	CC
	Phosphate Test	0.6-1.2-1.8-2.5-3.1-4.6-6.1-7.7-9.2 mg/l PO_4	200	1.14846.0001	Phosphor-molybdenum blue	Microquant	DC
	Phosphate Test	1.3-3.3-6.7-10-13 mg/l PO_4	200	1.11138.0001	Phosphor-molybdenum blue	Aquamerck	CV
	Phosphate Test	3.1-6.1-10.7-18.4-30.7-61.3-123 mg/l PO_4	190	1.14449.0001	Vanadium molybdate	Aquaquant	TS
	Phosphate Test	4.6-9.2-18-28-37-49-61-123-307 mg/l PO_4	300	1.18388.0001	Vanadium molybdate	Microquant	DC
R	Residual Hardness Test	0.05-0.1-0.19 °e	400	1.11142.0001	Mixed indicator	Aquamerck	CC
S	Silicate (Silicic Acid) Test	0.02-0.04-0.09-0.13-0.17-0.21-0.32-0.43-0.53 mg/l SiO_2	150	1.14410.0001	Silico-molybdenum blue	Aquaquant	TL
	Silicate (Silicic Acid)Test	0.6-1.3-2.1-3.2-4.3-6.4-11-15-21 mg/l SiO_2	200	1.14792.0001	Silico-molybdenum blue	Microquant	DC
	Sulfate Test	25-50-75-100-130-160-190-240-300 mg/l SO_4	90	1.18389.0001	Tannic acid	Microquant	DC
	Sulfate Test	25-50-80- 110-140-200-300 mg/l SO_4	90	1.14411.0001	Tannic acid	Aquaquant	TS

CC colour card
CV colour-matching vessel
DC disk comparator
SC sliding comparator
TD titration with dropping bottle
TL tubes, long
TS tubes, short
TP titration with pipette

Ord. No. Refill pack	Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
							■		■						■				Ozone Test
1.18759.0002							■		■						■				Ozone Test
							■												Perex-Test (Peroxide Test)
	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	pH Universal indicator, liquid
	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	pH Universal indicator, liquid
										■	■							■	pH Indicator liquid
										■	■							■	pH Indicator liquid
	■	■				■			■		■		■		■	■			pH Test in freshwater and seawater
	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	pH Test
1.08043.0001					■						■		■						pH Test
																	■		pH Test in swimming pool
1.18465.0002	■			■	■				■	■	■		■		■	■			Phosphate Test
		■									■		■			■		■	Phosphate Test in freshwater and seawater
1.18465.0002	■			■	■			■	■	■	■	■	■			■		■	Phosphate Test
1.08046.0001	■			■							■		■			■			Phosphate Test
				■	■				■	■	■				■	■			Phosphate Test
				■	■					■	■					■			Phosphate Test
					■														Residual Hardness Test
1.18323.0002					■	■			■										Silicate (Silicic Acid)Test
1.18323.0002					■	■					■								Silicate (Silicic Acid) Test
						■			■		■		■		■			■	Sulfate Test
						■			■		■		■		■			■	Sulfate Test

Index S-Z Aquamerck®, Microquant®, Aquaquant®

	Parameter	Graduation	No. of tests	Ord. No.	Method	System	Type
S	Sulfide Test	0.02-0.04-0.06-0.1-0.13-0.16-0.2-0.25 mg/l S	100	1.14416.0001	Dimethyl-p-phenylendiamine	Aquaquant	TL
	Sulfide Test	0.1-0.3-0.5-0.7-1-2-3-4-5 mg/l S	200	1.14777.0001	Dimethyl-p-phenylendiamine	Microquant	DC
	Sulfite Test	0.5 mg/l Na_2SO_3 (0.3 mg/l SO_3)	200 at 40 mg/l Na_2SO_3	1.11148.0001	Titrimetry, Iodate / Starch	Aquamerck	TP
T	Total Hardness Test	0.1 °d and 1 mg/l $CaCO_3$	300 at 3.75 °e	1.08047.0001	Titriplex® III	Aquamerck	TP
	Total Hardness Test	0.2 °d and 0.1 mmol/l	300 at 12.5 °e	1.08039.0001	Titriplex® III	Aquamerck	TP
	Total Hardness Test in freshwater	1.25 °e	50 at 12.5 °e	1.14652.0001	Titriplex® III	Aquamerck	TD
	Total Hardness Test	1.25 °e	200 at 12.5 °e	1.08011.0002	Titriplex® III	Aquamerck	TD
	Total Hardness Test	1.25 °e	100 at 12.5 °e	1.11104.0001	Titriplex® III	Aquamerck	TD
	Total Hardness Test	20 mg/l $CaCO_3$	200	1.08312.0001	Titriplex® III	Aquamerck	TD
U	Urea Test	0.3-0.6-1-1.5-2-3-4-5-8 mg/l $(NH_2)_2CO$	100	1.14843.0001	Indophenol blue	Microquant	DC
Z	Zinc Test	0.1-0.2-0.3-0.4-0.5-0.7-1-2-5 mg/l Zn	100	1.14780.0001	Thiocyanate / Brilliant green	Microquant	DC
	Zinc Test	0.1-0.2-0.3-0.4-0.5-0.7-1-2-5 mg/l Zn	120	1.14412.0001	Thiocyanate / Brilliant green	Aquaquant	TS

NEW

CC colour card
CV colour-matching vessel
DC disk comparator
SC sliding comparator
TD titration with dropping bottle
TL tubes, long
TS tubes, short
TP titration with pipette

Deep-frying fats tests

Product	Graduation	No. of tests	Ord. No.	Method
Fritest®	Perfect – still good – change of fat advisable – deep-frying fat gone off	60	1.10652.0001	Colorimetric, acc. to the alkali colour count principle
Fritest® refill pack		30	1.10651.0001	Colorimetric, acc. to the alkali colour count principle
Oxifrit Test®	fresh deep-frying fat – change of fat advisable – deep-frying fat gone off	60	1.10653.0001	Colorimetric, acc. to the principle of determination of oxidized fatty acids (OFAs)
Oxifrit Test® refill pack		30	1.10654.0001	Colorimetric, acc. to the principle of determination of oxidized fatty acids (OFAs)

Ord. No. Refill pack	Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
1.18468.0002		■		■				■	■		■		■		■			■	Sulfite Test
1.18468.0002		■		■				■			■		■		■			■	Sulfide Test
			■		■	■					■	■							Sulfide Test
1.08040.0001		■		■	■	■			■		■		■		■				Total Hardness Test
1.08033.0001 1.11122.0001 1.08203.0001		■		■	■	■			■		■		■		■				Total Hardness Test
		■											■						Total Hardness Test in freshwater
1.11140.0002 1.11141.0001		■		■	■	■			■		■		■		■		■		Total Hardness Test
		■		■	■	■			■		■		■		■		■		Total Hardness Test
		■		■	■	■			■		■		■		■				Total Hardness Test
1.14845.0002														■			■		Urea Test
1.14782.0002			■	■	■			■	■	■	■		■		■			■	Zinc Test
1.14782.0002			■	■	■			■	■	■	■		■		■			■	Zinc Test

Accessories for Aquamerck®, Microquant®, Aquaquant®, Merckoquant®

Product	Ord. No.
Flat-bottomed tubes inclusive screw caps for Microquant® Tests (1 pack = 12 pcs)	1.14902.0001
Flat-bottomed tubes inclusive screw caps for Aquaquant® Tests (1 pack = 12 pcs)	1.14901.0001
Test vessels with 5 ml und 10 ml graduations, for Aquamerck® and Merckoquant® Tests (1 pack = 30 pcs)	1.17989.0001

Aquamerck® compact laboratories

On site with the lab

No matter whether you wish to check a specific concentration range for a given parameter on the spot or if you just want to check a limit – the Aquamerck® compact laboratory contains all the reagents and accessories necessary for the application in question. The robust carry-case provides protection for the contents, and the opened cover can be used as an on-the-spot workbench.

Economical refill packs are available for each parameter for the compact laboratories, too. These reagent bottles can be placed in the case directly and reduce the costs for the later determinations.

The advantages of the compact laboratories

- User-oriented compilation of the reagents
- All reagents in a minimum space
- No further instruments or accessories necessary
- Safely packaged
- Easy to handle and robust
- Always ready for use

The compact laboratories at a glance

Aquamerck® compact laboratory for aquaristics

Ord. No. 1.11102.0001

Compact laboratory for the determination of pH, carbonate hardness, total hardness, ammonium/ammonia, nitrite and nitrate in freshwater and seawater.

This parameter combination can be used to check and monitor the most important quality-relevant water constituents, in freshwater and in some cases also the seawater of an aquarium. With the help of available literature data, these results can be used to control the parameter concentrations that must be observed for the fish stock. An appropriate range of separate tests are also available for other parameters that must also be monitored.

Scope of delivery

Parameter	Measuring range	No. of tests	Ord. No. refill pack
Aquamerck® Ammonium Test in freshwater and seawater	0,5-10 mg/l NH_4	50	1.14657.0001
Aquamerck® Carbonate Hardness Test	1.25 °e	50 bei 10°d	1.14653.0001
Aquamerck® Total Hardness Test in Freshwater	1.25 °e	100 bei 10°d	1.14652.0001
Aquamerck® Nitrate test in Freshwater	10 - 150 mg/l NO_3	100	1.11169.0001
Aquamerck® Nitrite Test in Freshwater and Seawater	0.05 - 1 mg/l NO_2	100	1.14658.0001
Aquamerck® pH Test in Freshwater and Seawater	pH 5.0-9.0	200	1.18763.0001
Test vessels with 5 ml and 10 ml graduations for Aquamerck® and Merckoquant® Tests		1 pack = 30 pcs	1.17989.0001

> For further information see website:

Aquamerck® compact laboratories

Ord. No. 1.11151.0001

Aquamerck® compact laboratory for water testing

Compact laboratory for the determination of pH, ammonium, biological oxygen demand (BOD), carbonate hardness, total hardness and (residual hardness), nitrate and nitrite, phosphate and oxygen.

The tests of this compact laboratory can be used to rapidly check all major parameters of standing or flowing surface water and to assess the current water quality. The compact laboratory is optimally suited for use in school lessons as well as for professional applications e.g. by water monitors.

Scope of delivery

Parameter	Measuring range	No. of tests	Ord.No. refill pack
Aquamerck® Ammonium Test	0.2 - 5 mg/l NH_4	50	1.08024.0001
Aquamerck® Carbonate Hardness Test/ Acid cap. to pH 4.3 (ANC)	0.25 - 25 °e ANC: 0.1-7.2 mmol/l	300 at 12.5 °e	1.08048.0001
Aquamerck® Total Hardness Test	0.25 °e - 25 °e	300 at 12.5 °e	1.08033.0001
Aquamerck® Nitrate Test	10 - 150 mg/l NO_2	200	1.11170.0001
Aquamerck® Nitrite Test	0.025 - 0.5 mg/l NO_2	200	1.08025.0001
Aquamerck® pH Test	pH 4.5 - 9	400	1.08027.0001
Aquamerck® Phosphate Test in freshwater and seawater	0.5 - 3 mg/l PO_4	100	1.14661.0001
Aquamerck® Oxygen Test	0.1 mg/l O_2	100 at 8.5 mg/l O_2	1.11152.0001
Flat-bottomed tubes inclusive screw caps for Microquant ® Tests		1 pack = 12 pcs	1.14902.0001
Thermometer			
Aquamerck® Oxygen Reaction bottle		1 bottle	1.14663.0001

Agroquant® soil laboratory 3 x N and pH

Ord. No. 1.14602.0001

Compact laboratory with test strips, reagents, balance, timer and accessories for the determination of nitrate, nitrite, ammonium nitrogen and pH in soils, water, plant, animal fodder, compost, solid and liquid manure.

Scope of delivery

Parameter	Measuring range	No. of tests	Ord. No. refill pack
Merckoquant® Nitrate Test	10 - 500 mg/l NO_3	100	1.10020.0001
pH indicator strips Universal indicator	pH 2.0 - 9.0	100	1.09584.0001
pH indicator strips Special indicator	pH 2 - 9	100	1.09502.0001
Aquamerck® Ammonium Test	0.5 - 10 mg/l NH_4	50	1.14657.0001
Merckoquant® Ammonium Test	10 - 400 mg/l NH_4	100	1.10024.0001
Agroquant® Extraction Reagent Potassium chloride for analysis			1.04936

Aquamerck® compact laboratory for offset printing

Ord. No. 1.11154.0001

Compact laboratory for the determination of pH in water, pH in paper, pH in printing inks, carbonate hardness, total hardness, buffering capacity against bases and acids, temperature, alcohol content and dip-wetting power.

This compact laboratory was specifically developed and designed to meet the wishes and requirements of the printing industry. This gives the printer the opportunity to check and correct various print-relevant parameters to ensure that the offset printing technique is consistently carried out under identical and standardized conditions.

Scope of delivery

Parameter	Measuring range	No. of tests	Ord. No. refill pack
pH-indicator strips Universal indicator	pH 0 - 14	100	1.09535.0001
pH-indicator strips Special indicator	pH 4.0 - 7.0	100	1.09542.0001
Aquamerck® Carbonate Hardness Test/ Acid cap. to pH 4.3 (ANC)	1 drop corresponds to 1.25 °e	100 at 12.5 °e	1.11103.0001
Merckoquant® Total Hardness Test	< 4 - > 26 °e	100	1.10025.0001
Sodium hydroxide solution	1 mol/l		1.09137
Hydrochloric acid	1 mol/l		1.09057
Areometer (for the determination of the isopropanol content)			1.11165.0001
Thermometer			

> Further information in our brochure "And where do you carry your lab?" (W 240111)

Reflectoquant®

pH test strips and papers from page 14

Merckoquant® Products from page 18

Aquamerck® Microquant® Aquaquant® from page 26

Spectroquant® Products from page 52

Turbiquant® Products from page 116

The laboratory for your waistcoat pocket

The simplest possible handling combined with the precision of instrumental analysis: the Reflectoquant® system is in a class of its own. Monitor the raw materials you use in all stages of your production processes and thus assure a consistently high quality. The system consists of the following modules: test strips, test kits and the RQeasy®, RQflex® 10 and RQflex® 10 plus reflectometers.

No matter whether you work in agriculture, in food or water analysis, in cleaning control, or in industrial analysis – with the Reflectoquant® system you have an inexpensive, mobile laboratory at your disposal for on-the-spot analysis.

The Reflectoquant® system offers you numerous tests with a broad range of parameters, measuring ranges and applications for the widest conceivable spectrum of sample materials.

Reflectoquant® Alkaline Phosphatase simplifies the in-process controls for milk pasteurization.

The advantages of Reflectoquant®

- Small and easy to handle for on-the-spot analysis
- Bar-code calibration for reliable, quantitative results in a matter of minutes
- Many applications available
- Low analysis costs
- Environmentally friendly thanks to a minimal requirement of reagents

The Reflectoquant® product range at a glance

RQeasy® – simple and powerful for one parameter

Instrument	Test spectrum	Measuring range	Applications
RQeasy® Nitrat	Single test for nitrate	mg/l	Food, agriculture
RQeasy® Ascorbic	Single test for ascorbic acid	mg/l	Food
NEW RQeasy® Malic	Single test for malic acid	mg/l	Viniculture

RQflex® 10/RQflex® 10 plus – the compact solution for more than 50 parameters

Instrument	Test spectrum	Measuring range	Applications
RQflex® 10	More than 50 tests available	mg/l	Universal
RQflex® 10 plus	More than 50 tests available plus cell test kits for five further tests	mg/l µg/l	Universal Focus on water, waste water, sea water, agriculture

> Further information in our brochure "Take it RQeasy" (W 285116)

Reflectoquant® instruments

RQeasy® reflectometers

Ord. No. 1.17960.0001 — **RQeasy® Nitrat**

Reflectometer for the evaluation of RQeasy® Nitrate test strips

Contents of pack	Result storage slots for 250 results (date, time, result), batch-specific calibration function, battery operation with one 3 V lithium battery, detailed instruction manual for reflectometer and tests

Ord. No. 1.17962.0001 — **RQeasy® Ascorbic**

Reflectometer for the evaluation of RQeasy® Ascorbic Acid test strips

Contents of pack	Result storage slots for 250 results (date, time, result), batch-specific calibration function, battery operation with one 3 V lithium battery, detailed instruction manual for reflectometer and tests

Ord. No. 1.17964.0001 — **RQeasy® Malic**

NEW

Reflectometer for the evaluation of RQeasy® Malic Acid test strips

Contents of pack	Result storage slots for 250 results (date, time, result), batch-specific calibration function, battery operation with one 3 V lithium battery, detailed instruction manual for reflectometer and tests

RQflex® 10/RQflex® 10 plus reflectometers

RQflex® 10	Ord. No. 1.16970.0001
Reflectometer for the evaluation of Reflectoquant® test strips	
Contents of pack	includes test-strip adapter and recalibration set, double optical system (option for evaluation for two reaction zones), memory for five methods, memory slots for 50 results (with date, time, parameter, and result), interface to PC, batch-specific calibration function (bar-code technology), battery operation with 4 AAA batteries, detailed manual for reflectometer and tests

RQflex® 10 plus	Ord. No. 1.16955.0001
Reflectometer for the evaluation of Reflectoquant® test strips and Reflectoquant® plus test kits	
Contents of pack	Features as above for Ord. No. 1.16970.0001, also contains cell adapter and eight empty cells

RQflex® sample preparation

Dilution and decolouration	Ord. No.
Reflectoquant® dilution set	1.17990.0001
Polyvinylpolypyrrolidone Divergan® RS, 100 g	1.07302.0100
Activated charcoal decolouration set, 4 x 9 g	1.17992.0001

Preserving milk samples	Ord. No.
Acidiol, 1 l	4.80203.1000
Sodium azide tablets, 5000 tabs	1.06687.0001
Potassium dichromate tablets, 5000 tabs	1.04858.0001

RQflex® accessories

	Ord. No.
RQdata for RQflex® 10 and RQflex® 10 plus Interface and software package for transfer and documentation of results on IBM-compatible PCs	1.16998.0001
Test-strip adapter for RQflex® 10 and RQflex® 10 plus	1.16953.0001
Cell adapter for RQflex® 10 plus	1.16729.0001
Recalibration set for RQflex® 10 and RQflex® 10 plus	1.16954.0001
Empty cells for RQflex® 10 plus, 100 disposable cells	1.16727.0001
RQcheck check set for RQflex® 10 and RQflex® 10 plus	1.16957.0001

> For further information see website:

Index A-N Reflectoquant® tests

	Parameter	Measuring range	No. of tests	Ord. No.	Method	Type
NEW	A Acetic Acid Test	40 - 400 mg/l acetic acid	50	1.17950.0001	Enzymatic reaction	
NEW	Alcohol Test	15 - 150 mg/l alcohol	50	1.17946.0001	Enzymatic reaction	R
	Alkaline Phosphatase Test in Milk	1.0 - 10.0 U/l alkal. phosphatase	50	1.16123.0001	Enzymatic reaction	R
	Aluminium Test	5.0 - 50.0 mg/l Al	50	1.16994.0001	Aurin tricarboxylic acid	R
	Ammonium Test	0.2 - 7.0 mg/l NH_4	50	1.16892.0001	Indophenol blue	R
	Ammonium Test	20 - 180 mg/l NH_4	50	1.16977.0001	Nessler	R
	Ascorbic Acid Test	25 - 450 mg/l ascorbic acid	50	1.16981.0001	Phosphormolybd. blue	
	Ascorbic Acid Test RQeasy	25 - 450 mg/l ascorbic acid	50	1.17963.0001	Phosphormolybd. blue	
	B Blank Strip		50	1.16730.0001		
	C Calcium Test	2.5 - 45.0 mg/l Ca	50	1.16993.0001	Glyoxalbishydroxyanil	R
	Calcium Test	5 - 125 mg/l Ca	50	1.16125.0001	Phthaleinkomplexone	
	Carbonate Hardness Test	0.5 - 20.0 °d	50	1.16126.0001	Mixed indicator	
	Chloride Test RQflex plus	2 - 50 mg/l Cl	100	1.17944.0001	Iron(III)-thiocyanate	
	Chloride Test	0.05 - 1.00 g/l Cl	50	1.16143.0001	Iron(III)-thiocyanate	R
	Chlorine Test RQflex plus	0.05 - 2.00 mg/l Cl_2	100	1.17940.0001	DPD	
	Chlorine Test	0.5 - 10.0 mg/l Cl_2	50	1.16896.0001	Redox reaction	R
	Chlorine/Chlorine Dioxide Test	25 - 400 mg/l Cl_2 47.6 - 761 mg/l ClO_2	50	1.17951.0001	Redox reaction	
	Chromate Test	1.0 - 45.0 mg/l CrO_4	50	1.16988.0001	Diphenylcarbazide	R
	Copper Test	5 - 200 mg/l Cu	50	1.16984.0001	2.2'-Cuproine	
	F Fixing Bath Test	0.2 - 5.0 g/l Ag	50	1.16980.0001	Cadmium sulfide	
	Formaldehyde Test	1.0 - 45.0 mg/l formaldehyde	50	1.16989.0001	Triazole	R
	Free Sulfurous Acid	1.0 - 40.0 mg/l SO_2	50	1.16137.0001	Nitroprusside/ Zn-hexacyanoferrate	R
	G Glucose Test	1 - 100 mg/l glucose	50	1.16720.0001	Enzymatic reaction	
NEW	H Hydroxymethylfurfural Test	1.0 - 60 mg/l HMF	50	1.17952.0001	Enzymatic reaction	
	I Iron Test	0.5 - 20.0 mg/l Fe(II)	50	1.16982.0001	Triazine	
	Iron Test	20 - 200 mg/l Fe(II)	50	1.16983.0001	2.2'-Bipyridine	
	L Lactic Acid Test	1.0 - 60.0 mg/l lactic acid	50	1.16127.0001	Enzymatic reaction	
	Lipase Test	10 - 400 µg/l lipase	50	1.05851.0001	Enzymatic reaction	R
	M Magnesium Test	5 - 100 mg/l Mg	50	1.16124.0001	Phthaleinkomplexone	
	Malic Acid Test	5.0 - 60.0 mg/l malic acid	50	1.16128.0001	Enzymatic reaction	
NEW	Malic Acid Test RQeasy	5.0 - 60.0 mg/l malic acid	50	1.17965.0001	Enzymatic reaction	
	Manganese Test	0.5 - 45.0 mg/l Mn	50	1.16991.0001	Oxidation/Redox indic.	R
	Molybdenum Test	1.0 - 45.0 mg/l Mo	50	1.16979.0001	Toluene-3.4-dithiol	R
	N Nickel Test	10 - 200 mg/l Ni	50	1.16985.0001	Diacetyldioxime	
	Nitrate Test	3 - 90 mg/l NO_3	50	1.16995.0001	Modified Griess' reaction	
	Nitrate Test	5 - 225 mg/l NO_3	50	1.16971.0001	Modified Griess' reaction	
	Nitrate Test RQeasy	5 - 250 mg/l NO_3	50	1.17961.0001	Modified Griess' reaction	
	Nitrite Test RQflex plus	0.02 - 1.00 mg/l NO_2	100	1.17941.0001	Griess' reaction	
	Nitrite Test	0.5 - 25.0 mg/l NO_2	50	1.16973.0001	Griess' reaction	
	Nitrite Test	0.03 - 1.00 g/l NO_2	50	1.16732.0001	Aromatic amine	

R incl. reagent

Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
		■	■								■							Acetic Acid Test
		■									■							Alcohol Test
													■					Alkaline Phosphatase Test in Milk
		■							■	■	■				■	■	■	Aluminium Test
■		■	■	■			■	■		■	■	■	■	■			■	Ammonium Test
■							■			■					■		■	Ammonium Test
■		■									■		■					Ascorbic Acid Test
■		■									■		■					Ascorbic Acid Test RQeasy
		■									■							Blank Strip
■		■		■				■			■	■	■	■	■			Calcium Test
■		■		■				■			■	■	■	■				Calcium Test
	■			■				■				■		■				Carbonate Hardness Test
■	■	■		■			■	■		■	■	■		■	■		■	Chloride Test RQflex plus
■	■	■		■	■		■	■		■	■	■		■	■		■	Chloride Test
						■		■		■					■	■	■	Chlorine Test RQflex plus
						■		■		■					■		■	Chlorine Test
						■		■									■	Chlorine/Chlorine Dioxide Test
							■		■	■							■	Chromate Test
		■					■	■	■	■					■		■	Copper Test
										■								Fixing Bath Test
						■			■	■	■							Formaldehyde Test
		■																Free Sulfurous Acid
		■	■								■							Glucose Test
		■									■							Hydroxymethylfurfural Test
		■					■	■	■	■	■	■		■	■		■	Iron Test
		■					■	■	■	■	■	■		■	■		■	Iron Test
■		■									■		■					Lactic Acid Test
			■								■		■					Lipase Test
■		■						■			■	■	■	■				Magnesium Test
		■									■							Malic Acid Test
		■									■							Malic Acid Test RQeasy
				■			■	■	■	■		■			■		■	Manganese Test
				■						■								Molybdenum Test
							■		■	■					■		■	Nickel Test
■	■	■		■	■			■		■	■	■	■	■			■	Nitrate Test
■	■	■		■	■			■		■	■	■	■	■			■	Nitrate Test
■	■						■	■		■	■		■	■		■	■	Nitrate Test RQeasy
■	■	■					■	■	■	■	■	■	■	■	■		■	Nitrite Test RQflex plus
■	■	■					■			■	■	■	■		■			Nitrite Test
				■					■								■	Nitrite Test

> For further information see website:

Index P-Z Reflectoquant® tests

	Parameter	Measuring range	No. of tests	Ord. No.	Method	Comment Type
P	Peracetic Acid Test	1.0 - 22.5 mg/l peracetic acid	50	1.16975.0001	Redox reaction	
	Peracetic Acid Test	75 - 400 mg/l peracetic acid	50	1.16976.0001	Redox reaction	
	Peroxidase Test in Milk	5 - 200 U/l peroxidase	50	1.16121.0001	Enzymatic reaction	R
	Peroxide Test	0.2 - 20.0 mg/l H_2O_2	50	1.16974.0001	Enzymatic reaction	
	Peroxide Test	100 - 1,000 mg/l H_2O_2	50	1.16731.0001	Enzymatic reaction	
	pH Test	pH 1.0 - 5.0	50	1.16894.0001	Mixed indicator	
	pH Test	pH 4.0 - 9.0	50	1.16996.0001	Mixed indicator	
	pH Test	pH 9.0 - 13.0	50	1.16895.0001	Mixed indicator	
	pH Test for Cooling Lubricants	pH 7.0 - 10.0	50	1.16898.0001	Mixed indicator	
	Phosphate Test RQflex plus	0.1 - 5.0 mg/l PO_4	100	1.17942.0001	Phosphormolybd. blue	
	Phosphate Test	5 - 120 mg/l PO_4	50	1.16978.0001	Phosphormolybd. blue	R
	Potassium Test	0.25 - 1.20 g/l K	50	1.16992.0001	Dipicrylamine	R
	Potassium Test RQflex plus	1.0 - 25.0 mg/l K	100	1.17945.0001	Kalignost, turbidimetric	
S	Sucrose Test	0.25 - 2.5 g/l	50	1.16141.0001	Enzymatic reaction	R
	Sulfite Test	10 - 200 mg/l SO_3	50	1.16987.0001	Nitroprusside/ Zn-hexacyanoferrate	
T	Tartaric Acid Test	0.5 - 5.0 g/l tartaric acid	50	1.16721.0001	Ammonium vanadate	R
	Total Acidity Test pH 7.0	2.0 - 14.0 g/l (as tartaric acid)	100	1.16135.0001	Mixed indicator	R
	Total Acidity Test pH 8.2	2.0 - 14.0 g/l (as tartaric acid)	100	1.16138.0001	Mixed indicator	R
	Total Hardness Test	0.1 - 30.0 °d	50	1.16997.0001	Phthaleinkomplexone	
	Total Sugar Test (glucose and fructose)	65 - 650 mg/l total sugar	50	1.16136.0001	Enzymatic reaction	R
	Total Sulfurous Acid Test in White Wine	10 - 200 mg/l SO_3	50	1.16722.0001	Nitroprusside/ Zn-hexacyanoferrate	R
U	Urea Test in Milk Application	0.2 - 7.0 mg/l NH_4	50	1.16892.0001	Indophenol blue	R

R incl. reagent

Agriculture	Aquaristics	Beverages	Biotechnology, fermenter	Boiler water, cooling water	Construction-material	Disinfection control	Disposal drainage water	Drinking water	Electroplating	Environment	Food	Groundwater, surface water	Milk, dairy products	Mineral water	Seawater	Swimming pools	Wastewater	Parameter
						■												Peracetic Acid Test
						■												Peracetic Acid Test
													■					Peroxidase Test in Milk
						■					■		■		■		■	Peroxide Test
						■									■		■	Peroxide Test
		■					■			■	■							pH Test
■	■	■		■			■	■		■	■	■	■	■	■	■	■	pH Test
		■					■			■								pH Test
									■									pH Test for Cooling Lubricants
■	■	■		■						■		■			■		■	Phosphate Test RQflex plus
■	■	■		■						■	■	■	■		■		■	Phosphate Test
■		■									■		■	■				Potassium Test
■		■									■		■	■	■			Potassium Test RQflex plus
		■									■		■					Sucrose Test
		■		■			■				■						■	Sulfite Test
		■									■							Tartaric Acid Test
		■																Total Acidity Test pH 7.0
		■																Total Acidity Test pH 8.2
	■	■		■				■		■		■		■		■		Total Hardness Test
		■																Total Sugar Test (glucose and fructose)
		■																Total Sulfurous Acid Test in White Wine
													■					Urea Test in Milk Application

> For further information see website:

Spectroquant® analysis system

pH-test strips and test papers page 14

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Aquamerck® Microquant® Aquaquant® page 26

Reflectoquant® products page 44

Turbiquant® products page 116

Safety in water analysis

Today quality assurance is a decisive factor in water and wastewater analysis – after all, the results must be reliable. Only by ensuring start-to-finish quality-assurance measures can your findings ultimately count as secure, reproducible, and recognized analytical results.

Our Spectroquant® analysis system and the components that make up our professional AQA concept make your Internal Quality Control (IQC) operations reliable and secure.

The Spectroquant® analysis system: user-friendly cell tests – unmistakeable thanks to bar-code identification

The Spectroquant®-system at a glance

> For further information see website:

Spectroquant® instruments

The suitable instrument for each application

From simple pocket instruments all the way to the powerful lab-bench photometer – our product range offers the appropriate measurement instrument for every area of application. The instruments that make up the Spectroquant® colorimeter series are robust, easy to operate, and excellently suited for on-the spot use. If you need to determine just one or two parameters, then the Picco colorimeter is the instrument of choice for you. For users who prefer a comprehensive and mobile solution, Merck has developed the Spectroquant® Multy colorimeter.

A high measurement quality coupled with ease of handling and start-to-finish analytical quality assurance – these are the outstanding features of the Spectroquant® NOVA and Pharo photometers. To complement the robust NOVA filter photometers, the Spectroquant® family has now been extended to include the Pharo spectrophotometers for universal application.

Both types of instrument use the practical bar-code scanning system for both cell and reagent tests, thus dispensing with the need to enter the applicable method manually. What's more, the cell formats are automatically identified and the correct measuring range selected accordingly. The proven instrument-supported Analytical Quality Assurance system (AQA) is of particular benefit in ensuring GLP-compliant operations. Due to the consistently high quality of the Spectroquant® tests it is not even necessary to prepare a blank sample – the blank value has already been accounted for in the programming.

Spectroquant® – Colorimeters and photometers at a glance

Spectroquant® Picco – the mobile solution in a practical carrycase

Spectroquant® Colorimeter	Compact instrument for the measurement of	Barcode-identific.	Number of test param.	Mains operation	battery-operation
Picco Cl_2 / pH / O_3	Chlor, pH, Ozon		3		■
Picco COD / CSB	COD (chemical oxygen demand)		1		■
NEW Picco F	fluoride		1		■
Picco NH_4-N	ammonium		1		■
Picco NO_3-N	nitrate		1		■
Picco N	nitrogen (total)*		1		■
Picco PO_4-P	o-phosphate und phosphorus (total)*		2		■

*after decomposition

Spectroquant® Multy – compact and powerful

Spectroquant® Colorimeter	Compact instrument for the measurement of	Barcode-identific.	Number of test param.	Mains operation	battery-operation
Multy	for all water types (more than 120 methods available)		>120	■	■

Spectroquant® NOVA – the easy-to-operate filter photometer

Spectroquant® Colorimeter	Compact instrument for the measurement of	Barcode-identific.	Number of test param.	Mains operation	battery-operation
Spectroquant® NOVA 30 A	Basic instrument for routine measurements in wastewater	■	>60	■	■
Spectroquant® NOVA 60	Routine measurem. for drinking and wastewater and all other water types	■	>170	■	
Spectroquant® NOVA 60 A	As for NOVA 60, can also be operated with rechargeable powerpack	■	>170	■	■

Spectroquant® Pharo – the versatile spectrophotometer

Spectroquant® Colorimeter	Compact instrument for the measurement of	Barcode-identific.	Number of test param.	Mains operation	battery-operation
NEW Spectroquant® Pharo 100	Spectral photometer for all routine measurements as well as for individual applications in the VIS area	■	*	■	*
NEW Spectroquant® Pharo 300	Spectral photometer for all routine measurements as well as for individual applications in the UV/VIS area	■	*	■	*

* For more information on Pharo 100 and Pharo 300 accessories please contact your local Merck supplier.

> For further information see website:

Spectroquant® instruments

Spectroquant®
Picco colorimeters

Spectroquant® Picco colorimeters are extremely easy to operate and are pre-programmed for the use of Spectroquant® test kits. Users have the choice between easy-to-handle, ready-to-use cell tests and inexpensive reagent tests. And because every stage of the working procedure is described in an easy-to-understand manner, even untrained staff can operate Spectroquant® Picco instruments without any problem.

General technical data for all Picco Colorimeters:

Housing	ABS
Keypad	3 keys, polycarbonate membrane, conditionally acid-and solvent-resistant
Sample Chamber	waterproof
Optics	temperature-compensated LED
Power supply	9 V battery, providing 40 h of operation (equivalent to approx. 600 measurement cycles of 4 minutes)
Dimensions case	270 x 225 x 80 mm (L x W x H)
Dimensions instrument	190 x 110 x 55 mm (L x W x H, without adapter)
Weight instrument	0.4 kg
Auto-OFF	automatic switch-off
Ambient temperature	0 °C to +40 °C
Allowable relative humidity	30 - 90 %, non condensing
CE-conformity	DIN EN 50 081-1, VDE 0839 part 81-1 1993-03, DIN EN 50 082-2, VDE 0839 part 82-2 1996-02

Picco

Spectroquant® Colorimeter Picco Cl_2/pH/O_3 — Ord. No. 1.73600.0001

for the determination of free and total chlorine, pH and ozone

Delivery incl.	Case with photometer, 9 V battery, adapter for 16 mm round cells, lid for adapter, 3 x 24 mm round cells, operating instructions instrument, brief instructions for chemistry
Measuring wavelength	528 nm (LED plus filter)
Measuring time	3 - 4 s
Auto-OFF	20 minutes after last key press

Spectroquant® test kit	Measuring range in mg/l	Number of tests	Ord. No.
Chlorine Test, free	0.02 - 5.00	200	1.00598.0002
Chlorine Test, free	0.02 - 5.00	1200	1.00598.0001
Chlorine Test, total	0.02 - 5.00	200	1.00602.0001
Chlorine Test, total	0.02 - 5.00	1200	1.00602.0002
Chlorine Cell Test, free and total	0.02 - 5.00	200	1.00599.0001
Chlorine Cell Test, free	0.05 - 6.00	200	1.00595.0001
Chlorine Cell Test, free and total	0.05 - 6.00	200	1.00597.0001
pH Cell Test	pH 6.4 - 8.8	280	1.01744.0001
Ozone Test	0.02 - 3.40	200	1.00607.0001
Ozone Test	0.02 - 3.40	1200	1.00607.0002

Spectroquant® Colorimeter Picco COD / CSB — Ord. No. 1.73601.0001

for the determination of COD

Delivery incl.	Case with photometer, 9 V battery, adapter for 16 mm round cells, lid for adapter, operating instructions instrument, brief instructions for chemistry
Measurement accuracy	±3.5 %
Measuring wavelength	605 nm (LED)
Measuring time	3 - 4 s
Auto-OFF	20 minutes after last key press

Spectroquant® test kit	Mesuring range in g/l	Number of tests	Ord. No.
COD Cell Test	0.03 - 1.50	25	1.14541.0001
COD Cell Test	0.30 - 3.50	25	1.14691.0001
COD Cell Test	0.50 - 10.00	25	1.14555.0001

Remark: For the digestion of COD a thermoreactor is required. Details see in chapter Spectroquant® Thermoreactors.

Spectroquant® instruments

NEW **Ord. No. 1.73606.0001** — **Spectroquant® Colorimeter Picco F**

for the determination of fluoride

Delivery incl.	Case with photometer, 9 V battery, adapter for 16 mm round cells, lid for adapter, 3 x 16 mm empty round cells, operating instructions instrument, brief instructions for chemistry
Measurement accuracy	±3.5 %
Measuring wavelength	620 nm (LED)
Measuring time	3 - 4 s
Auto-OFF	15 minutes after last key press

Spectroquant® test kit	Measuring range in mg/l	Number of tests	Ord. No.
Fluoride Test	0.10 - 2.00	100	1.14598.0001
		250	1.14598.0002
Fluoride Test	1.0 - 20.0	100	1.14598.0001
		250	1.14598.0002
Fluoride Cell Test	0.10 - 1.50	25	1.14557.0001
Fluoride Cell Test	25 - 500 µg/l	25	1.14557.0001

Ord. No. 1.73602.0001 — **Spectroquant® Colorimeter Picco NH_4-N**

for the determination of ammonium

Delivery incl.	Case with photometer, 9 V battery, adapter for 16 mm round cells, lid for adapter, 3 x 16 mm empty round cells, operating instructions instrument, brief instructions for chemistry
Measurement accuracy	±3.5 %
Measuring wavelength	660 nm (LED plus Filter)
Measuring time	3 - 4 s
Auto-OFF	20 minutes after last key press

Spectroquant® test kit	Measuring range in mg/l	Number of tests	Ord. No.
Ammonium Cell Test	0.20 - 8.00	25	1.14558.0001
Ammonium Cell Test	4.30 - 80.0	25	1.14559.0001
Ammonium Test	2.0 - 50.0	100	1.00683.0001
	5 - 100	100	1.00683.0001

Picco

Spectroquant® Colorimeter Picco NO_3-N

Ord. No. 1.73603.0001

for the determination of nitrate

Delivery incl.	Case with photometer, 9 V battery, adapter for 16 mm round cells, lid for adapter, 3 x 16 mm empty round cells, operating instructions instrument, brief instructions for chemistry
Measurement accuracy	±3.5 %
Measuring wavelength	370 nm (LED plus Filter)
Measuring time	3 - 4 s
Auto-OFF	15 minutes after last key press

Spectroquant® test kit	Measuring range in mg/l	Number of tests	Ord. No.
Nitrate Test	1.0 - 25.0	100	1.09713.0001
		250	1.09713.0002
Nitrate Cell Test	1.0 - 25.0	25	1.14563.0001
Nitrate Cell Test	2.0 - 50.0	25	1.14764.0001
Nitrate Cell Test	23 - 225	25	1.00614.0001

Spectroquant® Colorimeter Picco N

Ord. No. 1.73604.0001

for the determination of total nitrogen

Delivery incl.	Case with photometer, 9 V battery, adapter for 16 mm round cells, lid for adapter, 3 x 16 mm empty round cells, operating instructions instrument, brief instructions for chemistry
Measurement accuracy	±3.5 %
Measuring wavelength	370 nm (LED plus Filter)
Measuring time	3 - 4 s
Auto-OFF	15 minutes after last key press

Spectroquant® test kit	Measuring range in mg/l	Number of tests	Ord. No.
Nitrogen Cell Test total	1.0 - 15.0	25	1.00613.0001
Nitrogen Cell Test total	10 - 150	25	1.14763.0001

Remark: For the digestion of total nitrogen a thermoreactor is required. Details see in chapter Spectroquant® Thermoreactors.

Spectroquant® instruments

Ord. No. 1.73605.0001 — **Spectroquant® Colorimeter Picco PO_4 – P**

for the determination of o-phosphate and total phosphorus

Delivery incl.	Case with photometer, 9 V battery, adapter for 16 mm round cells, lid for adapter, 3 x 16 mm empty round cells, operating instructions instrument, brief instructions for chemistry
Measurement accuracy	±3.5 %
Measuring wavelength	660 nm (LED plus Filter)
Measuring time	3 - 4 s
Auto-OFF	10 minutes after last key press

Spectroquant® test kit	Measuring range in mg/l	Number of tets	Ord. No.
Phosphate Cell Test ortho-phosphate and total phosphorus	0.05 - 4.00	25	1.14543.0001
Phosphate Cell Test ortho-phosphate and total phosphorus	0.5 - 20.0	25	1.14729.0001
Phosphate Test ortho-phosphate	1.0 - 70.00	100	1.00798.0001

Remark: For the digestion of total phosphorus a thermoreactor is required.
Details see in chapter Spectroquant® Thermoreactors.

Spectroquant® Colorimeter Picco und Multy accessories

Empty cells 24 mm with screw caps	package of 12 pcs	Ord. No. 1.73650.0001
Empty cells 16 mm with screw caps	package of 25 pcs	Ord. No. 1.14724.0001

Spectroquant®
Multy colorimeter

The new Spectroquant® Multy colorimeter is the ideal instrument for all users looking for an inexpensive and all-round solution for photometric water analysis. Over 120 methods on the basis of the established Spectroquant® test kits cover all essential parameters in the field of drinking-water and wastewater analysis. The included rechargeable batteries and the practical carrycase enable the instrument to be used anywhere, anytime. Thanks to the battery-charging feature integrated in the instrument, the batteries can be recharged while running the device off the mains power supply. The connection port for an optional printer or PC also makes it possible to transmit sets of measurement data and to download new software updates via the internet effortlessly.

Spectroquant® Colorimeter Multy **Ord. No. 1.73630.0001**

Delivery incl.	Case, colorimeter, adapter unit for 16 mm round cells, lid for adapter unit, 7 rechargeable batteries, lithium battery (to ensure data storage), interface cable for connection to the PC or printer, 3 x 16 mm round cells, 3 x 24 mm round cells, screw driver (for battery compartment), 100 ml plastic beaker, operating manual
Display	Large format graphic display
Optics	6 temperature compensated LED with interference filters, internal reference channel (dual beam technology)
Measuring wavelength	430 nm, 530 nm, 560 nm, 580 nm, 610 nm, 660 nm
Interface	RS 232 for printer and PC connection
Methods	Programming of more than 120 methods for Spectroquant® cell and reagent tests, as well as physical measurements and preprogrammed applications
Keypad	Acid and solvent resistant, touch-sensitive with audible feedback
Power Supply	7 NiCd-battery pack (AA/Mignon), charged whilst in the unit with integrated mains charger, integrated overload cut-out.
Ambient Conditions	up to max. 90 % humidity (non condensing), approx. 0-50 °C
System check	automatic selfcheck of the instrument
Storage capacity	for 1000 data sets, with date, time and registration number
CE approval	yes
Dimensions	approx. 265 x 195 x 70 mm (unit), 440 x 370 x 140 mm (case)

Spectroquant® NOVA 30 A

The Spectroquant® NOVA 30 A, the basic instrument for comfortable wastewater analysis, is compact, robust, and – whenever the circumstances demand – mobile, too. This instrument is capable of running all important cell tests for waste-water analysis. It goes without saying that even this basic model incorporates advanced features such as the bar-code reading system, AQA support, and documentation.

Ord. No. 1.09748.0001	Spectroquant® Photometer NOVA 30 A
Net version, incl. rechargeable battery, graphic display 128 x 64 pixel	
Wavelength	6 filters in array-technique with reference beam: 340, 445, 525, 550, 605, 690 nm ±2 nm, half band width 10 nm
Photometric reproducibility	0.001 A at 1.000 A
Photometric resolution	0.001 A
Types of determination	Absorbance, concentration, transmission
Measur. range of absorbance	-0.300 A to 3.200 A
Lamp	Tungsten halogen lamp, preset, no warm-up time, measuring time 2 s
Date/Time	real time clock integrated in the photometer
Cell compartment	16 mm ø cells
Test recognition	AutoSelect function (bar-code reading system) automatic cell recognition
Method-update	via Internet
AQA	3 quality control modes
Turbidity correction	simultaneous multiwavelength measurement to correct turbidity
Interface	RS 232 C serial interface for printer and computer
Methods	Programming of more than 60 methods for Spectroquant® cell and reagent tests, as well as physical measurements and preprogrammed applications
Storage capacity	up to 500 results
Power supply	110 - 130 V~, 60 Hz; 210 - 250 V~, 50 Hz
Temperature	Storage: -25 °C to +65 °C, operations: +5 °C to +40 °C
Allowable relative humidity	Annual mean: ≤ 75 %, 30 days/year: 95 %, other days: 85 %
Dimensions	140 x 270 x 260 mm (H x D x B)
Weight	2.8 kg incl. battery

NOVA accessories *For further information please see page 67.*

Spectroquant® NOVA 60 and 60 A

The Spectroquant® NOVA 60 is an instrument for the routine analysis of all water types and is capable of measuring both the ready-to-use cell tests as well as inexpensive reagent tests. Over 130 test kits with different measuring ranges and practically relevant forms of reference make the NOVA 60 a photometer with a universal range of applications. The instrument can store up to 50 user-defined methods. The Spectroquant® NOVA 60A can also be used as a mobile analysis station. The convenient Multi-Achat II software makes it easier to transmit results to the PC and to programme own methods.

Spectroquant® Photometer NOVA 60		Ord. No. 1.09751.0001
Net version, graphic display 128 x 64 pixel		
Wavelength	12 filter in array-technique with refer. beam: 340, 410, 445, 500, 525, 550, 565, 605, 620, 665, 690, 820 nm ±2 nm, half band width 10 nm	
Photometric reproducibility	0.001 A at 1.000 A	
Photometric resolution	0.001 A	
Types of determination	Absorbance, concentration, transmission	
Measur. range of absorbance	-0.300 A bis 3.200 A	
Lamp	Tungsten halogen lamp, preset, no warm-up time, measuring time 2 s	
Date/Time	real time clock integrated in the photometer	
Cell compartment	10, 20, 50 mm cuvettes and 16 mm ø cells	
Test recognition	AutoSelect function (bar-code reading system) automatic cell recognition	
Method-update	via Internet	
AQA	3 quality control modes	
Turbidity correction	simultaneous multiwavelength measurement to correct turbidity	
Interface	RS 232 C serial interface for printer and computer	
Methods	Programming of more than 170 methods for Spectroquant® cell and reagent tests, as well as physical measurements and preprogrammed applications	
Storage capacity	up to 1000 results	
Special functions	50 free programmable methods	
Power supply	110 - 130 V~, 60 Hz; 210 - 250 V~, 50 Hz	
Temperature	Storage: -25 °C to +65 °C, operations: +5 °C to +40 °C	
Allowable relative humidity	Annual mean: ≤ 75 %, 30 days/year: 95 %, other days: 85 %	
Dimensions	140 x 270 x 260 mm (H x D x B)	
Weight	2.3 kg	

Spectroquant® Photometer NOVA 60 A	Ord. No. 1.09752.0001
Net version incl. rechargeable battery, graphic display 128 x 64 pixel	
All technical details same as NOVA 60 (Ord. No. 1.09751.0001)	
Weight 2.8 kg incl. battery	

> For further information see website:

Spectroquant® instruments

The Spectroquant® Pharo range of spectrophotometers

The new Spectroquant® Pharo 100 and 300 spectrophotometers combine the advantages of a system photometer – such as test kits optimally adapted to the instrument – with those of a spectrophotometer.

No matter whether you wish to program your own methods, record spectra or kinetic profiles, or make multi-wavelength measurements – here everything is right at your fingertips.

In addition you can make use of all the advantages of the established Spectroquant® system, such as instrument-supported Analytical Quality Assurance (AQA) and the bar-code scanning system for both cell and reagent tests. The adapterless, automatic identification of all types and formats of cells, and also the intuitive menu interface and the large-format display make the instrument's operation child's play. USB and RS-232 interfaces enable the simple transfer of data to printers, PCs or in wireless mode to a USB stick. The Pharo spectrophotometers also support the user in ensuring GLP-compliant operations.

Spectroquant® Pharo 100

The Spectroquant® Pharo 100 spectrophotometer with a wavelength spectrum from 320 to 1100 nm is well suited for all routine measurements as well as for individual use in the VIS range. Combined with the bar-code scanning system as well as AQA support and documentation, the Pharo 100 is truly a photometer with universal applications.

NEW

Spectroquant® Spectrophotometer Pharo 100	Ord. No. 1.00706.0001
Spectrophotometer with plug-in power supply, backlit graphic display	
Wavelength range	320 - 1100 nm
Technology	Stabilized single-beam
Source lamp	Tungsten halogen lamp
Measuring modes	Concentration, absorbance, transmission, multi wavelengths, scans and kinetics in absorbance or transmission mode
Spectral bandwidth	4 nm
Wavelength resolution	1 nm
Wavelength accuracy	± 1 nm
Photometric range	± 3.3 A
Absorbance resolution	0.001 A
Absorbance accuracy	0.003 A bei < 0.600 A; 0.5 % of the reading for 0.600 ≤ A ≥ 2,000
Scan	Scans in 1 nm increments with free selectable wavelength range
Cells	16 mm round, 10, 20, 50 mm rectangular with automatic cell recognition
Test recognition	Autom. bar-code reading system for all Spectroquant® cell and reagent tests
Method update	via Internet / PC or via USB stick
Instrument-supported quality assurance	AQS 1: Instrument check using PhotoCheck and CertiPUR® UV/VIS standards AQS 2: System check using CombiCheck resp. CertiPUR® UV/VIS standards AQS 3: Testing samples for interferences by means of the MatrixCheck function
Communication interfaces	1 USB-A, 1 USB-B, 1 RS 232
Data storage	1000 single measured values; 4 MB for scans and kinetics, i.e. approx. 100 scans (300 - 900 nm) and 400 kinetic curves with 150 single values each
Languages	German, English, Spanish, French, Italian*
Methods and profiles	Programmed methods of all Spectroquant® cell and reagent tests, 100 user-defined methods, 20 profiles for kinetic and absorption scans each
Protection class	IP 30 and drain device for spilled cell contents
Power supply	Country specific power supply, length of the connection cable: 2.0 m
Power requirements	100 – 240 V ~ / 50 – 60 Hz / 0,70 A
Temperature	Operating: +10 °C to +35 °C, Storage: -25 °C to +65 °C
Allowable relative humidity	Annual mean: ≤ 75 %; 30 days / year: 95 %; other days: 85 %
Dimensions	404 x 197 x 314 mm (width x height x depth)
Weight (without plug-in power supply)	approx. 4.5 kg

*please contact your Merck representative for availability of additional languages

Spectroquant® instruments

Spectroquant® Pharo 300

All functions of the Spectroquant® Pharo 100 plus an additional wavelength spectrum from 190 to 1100 nm make the Spectroquant® Pharo 300 an instrument with a virtually limitless range of applications, enabling to carry out all your measurements with ease and comfortably.

NEW **Ord. No. 1.00707.0001**

Spectroquant® UV/VIS Spectrophotometer Pharo 300

Spectrophotometer with plug-in power supply for all routine measurements and for individual use in the UV/VIS range, backlit graphic display

Wavelength range	190-1100 nm
Technology	Stabilized single-beam
Source lamp	Xenon flashlamp
Measuring modes	Concentration, absorbance, transmission, multi wavelengths, scans and kinetics in absorbance or transmission mode
Spectral bandwidth	4 nm
Wavelength resolution	1 nm
Wavelength accuracy	± 1 nm
Photometric range	± 3.3 A
Absorbance resolution	0.001 A
Absorbance accuracy	0.003 A bei < 0.600 A / 0.5 % of the reading for 0.600 ≤ A ≥ 2.000
Scan	Scans in 1 nm increments with free selectable wavelength range
Cells	16 mm round, 10, 20, 50 mm rectangular with automatic cell recognition
Test recognition	Automatic bar-code reading system for all Spectroquant® cell and reagent tests
Method update	via Internet / PC or via USB stick
Instrument-supported quality assurance	AQS 1: Instrument check using PhotoCheck and CertiPUR® UV/VIS standards AQS 2: System check using CombiCheck resp. CertiPUR® UV/VIS standards AQS 3: Testing samples for interferences by means of the MatrixCheck function
Communication interfaces	1 USB-A, 1 USB-B, 1 RS 232
Data storage	1000 single measured values; 4 MB for scans and kinetics, i.e. approx. 100 scans (300 - 900 nm) and 400 kinetic curves with 150 single values each
Languages	German, English, Spanish, French, Italian *
Methods and profiles	Programmed methods of all Spectroquant® cell and reagent tests, 100 user-defined methods, 20 profiles for kinetic and absorption scans each
Protection class	IP 31 and drain device for spilled cell contents
Power supply	Country specific power supply, length of the connection cable: 2.5 m
Power requirements	100 – 240 V ~ / 50 – 60 Hz / 0.70 A
Temperature	Operating: +10 °C to +35 °C, Storage: -25 °C to +65 °C
Allowable relative humidity	Annual mean: ≤ 75 %, 30 days / year: 95 %, other days: 85 %
Dimensions	404 x 197 x 314 mm (width x heigth x depth)
Weight (without plug-in power supply)	approx. 4.5 kg

*please contact your Merck representative for availability of additional languages

Spectroquant® NOVA photometer accessories

Cases	Ord. No.
Case for Spectroquant® NOVA 30 and NOVA 60 photometers	1.09769.0001

PC software and cable	Ord. No.
Multi-Achat II for Windows (German Version + English Version on CD-ROM). PC software for transferring data from the Spectroquant® NOVA 30, NOVA 60, and NOVA 400 photometers. Additional tool enables control WTW pH, oxygen and conductivity meters	1.14964.0001
PC cable cable for Spectroquant® NOVA 30, NOVA 60, NOVA 400 photometers (for serial bus)	1.14667.0001
Printer cable (for serial bus)	1.09759.0001

Halogen lamps	Ord. No.
Halogen lamp for Spectroquant® NOVA 30 and NOVA 60 spectrophotometers	1.09749.0001
Halogen lamp for Spectroquant® NOVA 400 spectrophotometers	1.09778.0001

Spectroquant® Pharo photometer accessories

NEW Cases and cables for portable use*	Ord. No.
Halogen lamp modul for Spectroquant® spectrophotometer Pharo 100	1.00660.0001
Case for Spectroquant® spectrophotometer Pharo 100 and Pharo 300 spectrophotometers	1.00670.0001
12 V adapter for Spectroquant® spectrophotometer Pharo 100 and Pharo 300 (car, PowerPack)	1.00786.0001

* For the mobile use of the Spectroquant® Pharo spectrophotometers we recommend using a PowerPack rechargeable battery with a 12 V plug adapter as the power source.

For further information on Pharo 100 and Pharo 300 accessories please contact your local Merck agent.

Spectroquant® photometer accessories (for use with the NOVA and Pharo instruments)

Rectangular cells, emppty cells and other accessories	Ord. No.
Rectangular cells 10 mm (1 pack = 2 pcs)	1.14946.0001
Rectangular cells 20 mm (1 pack = 2 pcs)	1.14947.0001
Rectangular cells 50 mm (1 pack = 2 pcs)	1.14944.0001
NEW **Semi-microcells 50 mm** (1 pack = 2 pcs)	1.73502.0001
NEW **Rectangular cells quartz 10 mm** (1 pack = 2 pcs)	1.00784.0001
Empty cells 16 mm ø (1 pack = 25 pcs) with screw cap	1.14724.0001

Cleaning agents *for cells and glass vessels.*
For more information see page 113.

> For further information see website:

Spectroquant® sample preparation

Simply effective

Sample preparation is an integral component of the Spectroquant® analysis system. Some test kits already contain all the reagents necessary for preparing the sample material for analysis. For a broad range of other analytical tasks we also offer Spectroquant® Crack Sets for simple and effective sample pretreatment. Samples can then be effortlessly decomposed in the thermoreactors.

COD, TOC, AOX, total nitrogen, total phosphorus, total chromium, and silver can be swiftly and easily determined with our tests. The test kit contains all the necessary reagents – even those required for the decomposition. The illustrated working instructions guide you safely to the correct result.

The reagents contained in the package and the analysis instructions accessible at http://photometry.merck.de *make sample digestion child's play.*

Simply correct – Crack Sets

It's not always a matter of determining the total content. This is why decomposition reagents for sample preparation are also available as separate packs. In this way you retain your working flexibility, while at the same time you save having to order all the chemicals in the test kit.

Crack Set 10 for 100 digestions

Ord. No. 1.14687.0001

The Crack Set 10 for 100 decompositions contains digestion reagents for the determination of the total content of cadmium, chromium, copper, iron, lead, nickel, phosphorus, and zinc for use in conjunction with the thermoreactor.
Contents: digestion reagent, acid, neutralizing agent for pH adjustment.

Crack Set 10 C for 25 digestions

Ord. No. 1.14688.0001

The »C« stands for cells. This means that the cells necessary for the decomposition in the thermoreactor are contained in the set. The digestion reagent is predosed, and the set's application is identical to that of the Crack Set 10.
Contents: digestion reagent filled into round cells, acid, neutralizing agent for pH adjustment.

Crack Set 20 for 90 digestions

Ord. No. 1.14963.0001

The Crack Set 20 contains digestion reagents for the determination of total nitrogen for use with the thermoreactor.
Contents: digestion reagent, lye.

When the objective is to determine the total content of certain parameters, the Crack Sets contain all the necessary reagents.

> For further information see website:

Spectroquant® sample preparation

Simply comfortable – thermoreactors

Developed in practice for practice, we offer a system of thermoreactors that fulfils every conceivable requirement.

The standard digestion programmes

Standard programmes for routine digestions help avoid operating mistakes from occurring in the first place. The Spectroquant® thermoreactor family features seven standard programmes for day-to-day routine use:

- 148 °C, 120 min for COD
- 148 °C, 20 min for COD (rapid digestion method)
- 150 °C, 120 min for COD acc. to USEPA
- 120 °C, 120 min for TOC
- 120 °C, 60 min for total nitrogen, total contents of Cr, Cu, Ni, Pb, Cd, Fe, and Zn
- 120 °C, 30 min for AOX and total phosphorus, cyanide
- 100 °C, 60 min for Ag

A description of the digestion procedures is already integrated in the instruction sheets included with the test kits. For special digestion variants there are applications available as downloads from the internet.

The standard digestion programmes are already stored in the thermoreactors. The TR 420 and TR 620 thermoreactors are capable up digesting as many as 24 samples at the same time.

The advantages of the Spectroquant® thermoreactors

- Practically oriented tuning of the digestion reagents to the thermoreactors
- Simple handling thanks to user-friendly description of the digestion procedures
- Flexible selection between standard programmes and individual programming
- Time-saving COD rapid digestion method

Thermoreactors at a glance

Spectroquant® Thermoreactor TR 320 – the starter model

Instrument	Functions	Area of application
Thermoreactor TR 320	7 stored standard programmes Simultaneous digestion of 12 samples	The instrument features all you need for handling digestions simply and correctly.

Spectroquant® Thermoreactor TR 420 – the advanced instrument for experts

Instrument	Functions	Area of application
Thermoreactor TR 420	Free temperature and time selection 7 stored standard and 8 free programmes Simultaneous digestion of 24 samples Thermosensor and PC cable available AQA documentation for control purposes Individual programming for future assignments	The instrument already has all digestion programmes necessary for wastewater analysis preinstalled, but can also be individually used in the temperature range up to 170 °C and with digestion times of up to three hours.

Spectroquant® Thermoreactor TR 620 – the two-in-one instrument for professional use

Instrument	Functions	Area of application
Thermoreactor TR 620	as for the TR 420 thermoreactor, but with two separate temperature-selectable heating zones 7 stored standard and 8 free programmes Simultaneous digestion of 2 x 12 samples AQA documentation	As a two-in-one professional model this instrument features all the advantages of the TR 420. It has two separate controllable heating blocks, which makes it possible to run different digestion programmes at one and the same time. It is e.g. capable of simultaneously digesting 12 COD and 12 TOC samples at the different temperature required, yielding results after just 120 minutes.

> For further information see website:

Spectroquant® sample preparation

Ord. No. 1.71200.0001 — **Spectroquant® Thermoreactor TR 320**

incl. integrated protective hood for the determination of COD and TOC, as well as of total contents of cadmium, chromium, copper, cyanide, iron, lead, nickel, nitrogen, phosphorus, silver, and zinc.

Display	LCD display for temperature and time, desired and actual values for heating time and temperature continually shown in the LCD display
Heater	On/off display (the LED blinks red during the heating phase and is permanently on during the digestion phase), contact guard on the surface of the heating-block
Holes	12 for cell tests ø 16 mm
Temperature selection	100 °C, 120 °C and 148 °C ±1.0 °C Heat variation: within the heating block between the inner and outer bore (relative to the set temperature) ±1.5 °C
Heating time	7 temperature heating-time programs for simplest possible operation: 148 °C (20 min or 120 min), 150 °C (120 min), 120 °C (30 min, 60 min or 120 min), 100 °C (60 min) automatic power switch-off at the end of the heating time
Mains version	115 V~ / 230 V~, 50 Hz / 60 Hz convertible
Dimensions	180 x 256 x 307 mm (H x B x D)
Weight	2.85 kg

Ord. No. 1.71201.0001 — **Spectroquant® Thermoreactor TR 420**

incl. integrated protective hood for the determination of COD and TOC, as well as of total contents of cadmium, chromium, copper, cyanide, iron, lead, nickel, nitrogen, phosphorus, silver, and zinc.

Display	LCD display for temperature and time, desired and actual values for heating time and temperature continually shown in the LCD display
Heater	On/off display (the LED blinks red during the heating phase and is permanently on during the digestion phase), contact guard on the surface of the heating-block
Holes	24 for cell tests ø 16 mm
Temperature selection	Room temperature -170 °C ±1.0 °C
Heat variation	Within the heating block between the inner and outer bore (relative to the set temperature) ±1.5 °C
Timer	0 - 180 min freely selectable
Heating time	7 temperature heating-time programmes for simplest possible operation: 148 °C (20 min or 120 min), 150 °C (120 min), 120 °C (30 min, 60 min or 120 min), 100 °C (60 min), as well as eight freely selectable programmes, automatic power switch-off at the end of the heating time
Optional accessories	Thermosensor: heating-block temperature-monitoring option via integrated serial interface and control software for AQA, brass adapter with integrated Pt sensor fitting the holes incl. connector cable (for checking equipment)
Mains version	115 V~ / 230 V~, 50 Hz / 60 Hz convertible
Dimensions	180 x 256 x 307 mm (H x B x D)
Weight	3.6 kg

Spectroquant® Thermoreactor TR 620 — **Ord. No. 1.71202.0001**

two separate temperature-selectable heating zones, incl. integrated protective hood for the determination of COD and TOC, as well as of total contents of cadmium, chromium, copper, cyanide, iron, lead, nickel, nitrogen, phosphorus, silver, and zinc.

Display	LCD display for temperature and time, desired and actual values for heating time and temperature continually shown in the LCD display
Heater	On/off display (the LEDs blink red during the heating phase and are permanently on during the digestion phase), contact guard on the surface of the heating block
Holes	24 (2 x 12) for cell tests ø 16 mm, the temperature of each of the two heating zones can be set and controlled separately
Temperature selection	Room temperature - 170 °C ±1.0 °C Heat variation: within the heating block between the inner and outer bore (relative to the set temperature) ±1.5 °C
Timer	0-180 min freely selectable
Heating time	7 temperature heating-time programmes for simplest possible operation: 148 °C (20 min or 120 min), 150 °C (120 min), 120 °C (30 min, 60 min or 120 min), 100 °C (60 min) as well as eight freely selectable programmes, automatic power switch-off at the end of the heating time
Optional accessories	Thermosensor: heating-block temperature-monitoring option via integratedserial interface and control software for AQA, brass adapterwith integrated Pt sensor fitting the holes incl. connector cable (for checking equipment)
Mains version	115 V~ / 230 V~, 50 Hz / 60 Hz convertable
Dimensions	180 x 256 x 307 mm (H x B x D)
Weight	3.6 kg

Spectroquant®
Thermoreactor accessories

Thermosensor for Thermoreactors TR 420/620 — **Ord. No. 1.71203.0001**

The thermosensor measures the current temperature in the bore of the thermoreactor and compares it with the specified temperature. The results can be transmitted to a PC for documentation purposes.

PC cable for Thermoreactors TR 420/620 — **Ord. No. 1.71204.0001**

> For further information see website:

Spectroquant® test kits

Validation provides security

All Spectroquant® analysis methods are validated. Validation data are registered for each single Spectroquant® test kit and recorded in the validation document. Many Spectroquant® analysis methods conform with international standards and are thus comparable with references. This gives you the sense of security you need in your operations.

Reagent test kits

Spectroquant® reagent test kits contain highly stable, ready-to-use reagent mixtures in a user-friendly design. Selection of the appropriate cell format makes it easy to vary the measuring range as you require. We check the linearity of the calibration function for all cell formats. Each pack contains an AutoSelector that gives the bar code for the selection of the correct method in the photometer.

The lower limit of detection (LLD) can in many cases be extended into the ppb range by the use of 50 mm cells. Spectroquant® test kits can be used in conjunction with all spectrophotometers and also with photometers from other suppliers.

The reagents are either in liquid or in powder form and are added to the sample using a dropper, pipette, or metering spoon. The outstanding features of these products are the extremely long shelf-life (up to three years) and the avoidance of the necessity for storage in a refrigerator.

The AutoSelector is an integral component of each and every reagent test set and enables the automatic selection of the correct method by bar-code identification.

The advantages of the Spectroquant® test kits

- Validated and standard-compliant analysis reagents for your sense of security
- Bar-code system enables rapid and simple operation
- Free selection between cell and reagent tests helps contain costs
- Comprehensive documentation of the quality control for every test
- Batch and quality certificates downloadable from the internet at http://photometry.merck.de

Cell test kits

The characteristic feature of the Spectroquant® cell test kits is their high user-friendliness. Virtually all of the reagents necessary for the analysis are contained in cells. The bar code on each of these cells ensures that no mistakes can occur. When you insert your cell into a Spectroquant® NOVA or Pharo photometer, the instruments automatically select the correct method of analysis. As you can see – mistakes are fully excluded.

The packaging concept offers the cells ideal protection from fluctuations in temperature and moisture during transport. The external label contains important information on the contents and also gives data regarding safety and risk issues, the batch number, and the shelf-life of the test kit (up to three years).

The package insert provides an easy-to-survey presentation of all relevant information – for example the reaction principle, an exact description of the working procedure, area of application, the influence of foreign ions, and on the accuracy.

The cell label with the bar code shows the parameters and item number, risk phrases, and the contents and bar-code identification – a whole lot of information in just a little space.

Reagents that must be added for the determination or for the pretreatment of the sample are contained in easy-to-handle dose-metering bottles.

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
A	Absorbance	-0.300 - 3.000 A ●	-3.300 - 3.300 A	-2.600 - 2.600 A			
	Acid Capacity Cell Test to pH 4.3 (total alkalinity) [3]	0.20 - 8.00 mmol/l ● 10 - 400	0.20 - 8.00 mmol/l 10 - 400	0.20 - 8.00 mmol/l 10 - 400	$CaCO_3$	90	1.01762.0001
	Acid Capacity Cell Test to pH 4.3 (total alkalinity) [3]	0.20 – 8.00 mmol/l ● 10 - 400	0.20 – 8.00 mmol/l 10 - 400	0.20 - 8.00 mmol/l 10 - 400	$CaCO_3$	450	1.01762.0002
	Alkalinity						
NEW	Aluminium Cell Test	0.02 - 0.50 ●	0.02 - 0.50	0.02 - 0.50	Al	25	1.00594.0001
	Aluminium Test	0.020 - 1.20	0.020 - 1.20	20 - 700 µg/l	Al	350	1.14825.0001
	Ammonium Cell Test	0.010 - 2.000 ● 0.01 - 2.58	0.010 - 2.000 0.01 - 2.58	10 - 2.000 µg/l 10 - 2.576 µg/l	NH_4-N NH_4	25	1.14739.0001
NEW	Ammonium Test	0.010 - 3.00 0.013 - 3.86	0.010 - 3.00 0.013 - 3.86	0.02 - 1.30 0.03 - 1.67	NH_4-N NH_4	250 500	1.14752.0002 1.14752.0001
	Ammonium Cell Test	0.20 - 8.00 ● 0.26 - 10.30	0.20 - 8.00 0.26 - 10.30	0.20 - 8.00 0.26 - 10.30	NH_4-N NH_4	25	1.14558.0001
	Ammonium Cell Test	0.5 - 16.0 ● 0.6 - 20.6	0.5 - 16.0 0.6 - 20.6			25	1.14544.0001
	Ammonium Test	2.0 - 150.0 2.6 - 193	2.0 - 150.0 2.6 - 193	1.0 - 50.0 1.3 - 64.4	NH_4-N NH_4	100	1.00683.0001
	Ammonium Cell Test	4.0 - 80.0 ● 5.2 - 103.0	4.0 - 80.0 5.2 - 103.0	4.0 - 80.0 5.2 - 103.0	NH_4-N NH_4	25	1.14559.0001
	Antimony	0.10 - 8.00	0.10 - 8.00	-	Sb		
	AOX Cell Test	0.05 - 2.50 ●	0.05 - 2.50	0.05 - 2.50	AOX	25	1.00675.0001
	AOX Sample Preparation Set					25	1.00677.0001
	AOX Enrichment Set					2	1.00678.0001
	AOX Standard 0.2 – 2.0 mg/l			8 – 16			1.00680.0001
	Arsenic Test	0.001 - 0.100	0.001 - 0.100	5 -100 µg/l	As	30	1.01747.0001
	Arsenic reagent 2: Sulfuric Acid 95-97 % GR					50	1.00731.1000
	Arsenic reagent 7: Zinc granular GR, particle size 3-8 mm, ISO					27	1.08780.0500
	Absorption Tube for Arsenic with ground joint NS29					1	1.73501.0001

● useable in NOVA 30

[3] The cell test contains three or four round-bottomed cells each bearing a barcode label. The sample is prepared and measured in the round-bottomed cell. After measurement the round-bottomed cells can be emptied and cleaned for subsequent measurements. The round-bottomed cells can thus be used several times.

Index A

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
own colouring	physical measurement	-	10, 20, 50			
Indicator		0.2 + 1.0 + 5.0	-	0.104 mmol/l	+/- 0.20 mmol/l	2,5, 9, 10, 11, 13, 15,18
Indicator		0.2 + 1.0 + 5.0	-	0.104 mmol/l	+/- 0.20 mmol/l	2, 5, 9, 10, 11, 13, 15,18
	see Acid capacity Cell Tests to pH 4.3					
Chromazurol S	analogous APHA 3500-Al D, DIN ISO 10566 E29	0.25	-	0.006	+/- 0.02	1, 7, 8, 9, 11, 13, 15, 18
Chromazurol S	analogous APHA 3500-Al D, DIN ISO 10566 E30	0.25 + 1.2 + 5.0	10, 20, 50	0.010	+/- 0.07	1, 6, 9, 11, 13, 15, 16, 17, 18
Indophenol blue	analogous EPA 350.1, APHA 4500-NH_3 D, ISO 7150/1, DIN 38406 E5	5.0	-	0.0060	+/- 0.060	1, 2, 9, 11, 13, 15, 17, 18
Indophenol blue	analogous EPA 350.1, APHA 4500-NH_3 D, ISO 7150/1, DIN 38406 E5	0.6 + 5.0	10, 20, 50	0.004	+/- 0.08	1, 2, 9, 11, 13, 15, 17, 18
Indophenol blue	analogous EPA 350.1, APHA 4500-NH_3 D, ISO 7150/1, DIN 38406 E5	1.0	-	0.016	+/- 0.20	1, 2, 6, 8, 9, 11, 13, 15, 16, 18
Indophenol blue	analogous EPA 350.1, APHA 4500-NH_3 D, ISO 7150/1, DIN 38406 E5	0.5	-	0.04	+/- 0.6	1, 6, 8, 11, 13, 16, 18
Indophenol blue	analogous EPA 350.1, APHA 4500-NH_3 D, ISO 7150/1, DIN 38406 E5	0.1 / 0.2 + 5.0	10	0.27	+/- 4	1, 4, 8, 12, 18
Indophenol blue	analogous EPA 350.1, APHA 4500-NH_3 D, ISO 7150/1, DIN 38406 E5	0.1	-	0.10	+/- 2.0	1, 4, 8, 16, 18
	Application	4.0 + 1.0 + 5.0	10			
Iron(III)-thiocyanate		0.5 + 5.0	-	0.025	+/- 0.20	5, 8, 18
	additionally required for AOX measurement					
	for multiple use, additionally required for AOX measurement					
	for 8 – 16 quality tests, analogous DIN EN 1485	5.0 / 10.0				5, 8, 9, 11, 13, 15, 18
Silver DDTC	analogous EPA 206.4, APHA 3500-As, EN 26595	1.0 + 5.0 + 20 (+ 350)	10, 20	0.0004	+/- 0.005	5, 8, 11, 13, 18
	additionally required for Arsenic measurement					
	additionally required for Arsenic measurement					
	for multiple use, additionally required for Arsenic measurement					

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
B	BOD Cell Test [3]	0.5 - 3.000 ●	0.5 - 3.000	0.5 - 3.000	BOD	50	1.00687.0001
	BOD (Oxygen) Reaction bottle					1	1.14663.0001
	BOD Nutrient Salt Mixture (with allyl thiourea)					12 l	1.00688.0001
	BOD Standard 210 +/- 20 mg/l					10 l	1.00718.0001
	Boron Test	0.050 - 0.800	0.050 - 0.800	–	B	60	1.14839.0001
	Boron Cell Test	0.05 - 2.00	0.05 - 2.00	0.05 - 2.00	B	25	1.00826.0001
NEW	Bromate	0.003 - 0.150	0.003 - 0.150	–			
	Bromine Test	0.020 - 10.00	0.020 - 10.00	0.10 - 5.00	Br_2	200	1.00605.0001
C	Cadmium Test [2]	0.002 - 0.500	0.002 - 0.500	5 - 500 µg/l	Cd	55	1.01745.0001
	Cadmium Cell Test [2]	0.025 - 1.000 ●	0.025 - 1.000	25 - 1.000 µg/l	Cd	25	1.14834.0001
NEW	Calcium Test	0.20 - 4.00	0.20 - 4.00	–	Ca	100	1.00049.0001
	Calcium Test	5 - 160 7 - 224 12 - 400 1.0 - 15.0 1.4 - 21.0 2.5 - 37.5	5 - 160 7 - 224 12 - 400 1.0 - 15.0 1.4 - 21.0 2.5 - 37.5	5 - 160 7 - 224 13 - 400	Ca CaO $CaCO_3$ Ca CaO $CaCO_3$	100	1.14815.0001
	Calcium Cell Test	10 - 250 ● 14 - 350 25 - 624	10 - 250 14 - 350 25 - 624	10 – 250 14 - 350 25 - 625	Ca CaO $CaCO_3$	25	1.00858.0001
NEW	Chloride Test	2.5 - 250	2.5 - 250	10 - 250	Cl	100 175	1.14897.0001 1.14897.0002
	Chloride Cell Test	5 - 125 ●	5 - 125	5 - 125	Cl	25	1.14730.0001
	Chlorine Test (free chlorine) USEPA approved [1b]	0.010 - 6.00	0.010 - 6.00	0.02 - 3.00	Cl_2	200	1.00598.0002
	Chlorine Test (free chlorine) USEPA approved [1b]	0.010 - 6.00	0.010 - 6.00	0.02 - 3.00	Cl_2	1200	1.00598.0001
	Chlorine Cell Test [3] (free chlorine) USEPA approved [1b]	0.03 - 6.00 ●	0.03 - 6.00	0.05 - 5.00	Cl_2	200	1.00595.0001
	Chlorine Test (total chlorine) USEPA approved [1c]	0.010 - 6.00	0.010 - 6.00	0.02 - 3.00	Cl_2	200	1.00602.0001

● useable in NOVA 30

1) This method is officially recognized by the USEPA as an alternative method for the investigation of [a] wastewater, [b] drinking water, and, respectively, [c] drinking water and wastewater.

2) For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

3) The cell test contains three or four round-bottomed cells each bearing a barcode label. The sample is prepared and measured in the round-bottomed cell. After measurement the round-bottomed cells can be emptied and cleaned for subsequent measurements. The round-bottomed cells can thus be used several times.

Index B-C

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
mod. Winkler method		-	-	0.05	+/- 0.5	2, 8, 9, 11, 16, 18
	4 bottles are necessary for 1 determination, 6 for 2, 8 for 3 etc.					
	for 12 x 1 l nutrient salt solution, additionally required for BOD measurement, anal. EN 1899	20				
	for 10 x 1 l standard solution, analogous EN 1899					
Rosocyanine	analogous EPA 213.3, APHA 4500-B B	08 + 10 + 15 + 50 + 60	10	0.007	+/- 0.035	1, 9, 13, 15, 18
Azomethine H	analogous DIN 38405 D17	1.0 + 4.0	-	0.030	+/- 0.10	1, 9, 13, 15, 16
		10 + 0.10 + 0.20	50			7, 9, 13, 15
DPD		10	10, 20, 50	0.008	+/- 0.25	5, 7, 9, 17
Cadion derivative		0.2 + 1.0 + 10	10, 20 ,50	0.001	+/- 0.012	5, 8, 9, 10, 11, 13, 15, 18
Cadion derivative		5.0	-	0.005	+/- 0.025	4, 8, 9, 10, 11, 13, 15, 16, 18
Phthalein derivate		0.5	10	-	+/- 0.12	2, 3, 8, 9, 11, 12, 13, 16, 19
Glyoxalbis-hydroxyanil		0.10 + 5.0	10, 20	2.3	+/- 6	1, 2, 5, 6, 9, 13, 15, 16,
	for determinations in the low measuring range see manual NOVA	1.0 + 10	10, 20			
Phthalein-komplexone		0.5 + 1.0	-	1.5	+/- 7	1, 2, 5, 6, 9, 13, 15, 16,
Iron (III)-thiocyanate	analogous EPA 325.1, APHA 4500-Cl⁻ E	1.0 / 5.0 + 0.5 + 2.5	10	0.40	+/- 10	2, 5, 6, 8, 9, 10, 12, 13, 15, 16, 18
Iron (III)-thiocyanate	analogous EPA 325.1, APHA 4500-Cl⁻ E	0.5 + 1.0	–	1.5	+/- 9	2, 5, 6, 8, 9, 10, 12, 13, 15, 16, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	10, 20, 50	0.0035	+/- 0.12	2, 5, 7, 9, 12, 13, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	10, 20, 50	0.0035	+/- 0.12	2, 5, 7, 9, 12, 13, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	5.0	–	0.016	+/- 0.23	2, 5, 7, 9, 12, 13, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	10, 20, 50	0.0035	+/- 0.12	7, 17, 18

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
C	Chlorine Test (total chlorine) USEPA approved [1c]	0.010 - 6.00	0.010 - 6.00	0.02 - 3.00	Cl_2	1200	1.00602.0002
	Chlorine Test 100 tests free chlorine + 100 tests chlorine (total) USEPA approved [1c]	0.010 - 6.00	0.010 - 6.00	0.02 - 3.00	Cl_2	200	1.00599.0001
	Chlorine Cell Test [3] 100 tests free chlorine + 100 tests chlorine (total) USEPA approved [1c]	0.03 - 6.00 ●	0.03 - 6.00	0.05 - 5.00	Cl_2	200	1.00597.0001
NEW	Chlorine Reagent Cl_2-1 (liquid)	0.010 - 6.00 ●	0.010 - 6.00	0.02 - 3.00	Cl_2	200	1.00086.0001
NEW	Chlorine Reagent Cl_2-2 (liquid)	0.010 - 6.00 ●	0.010 - 6.00	0.02 - 3.00	Cl_2	400	1.00087.0001
NEW	Chlorine Reagent Cl_2-3 (liquid)	0.010 - 6.00 ●	0.010 - 6.00	0.02 - 3.00	Cl_2	600	1.00088.0001
NEW	Cells and accessories for the photometric chlorine measurement with liquid reagents 1.00086, 1.00087 and 1.00088	0.010 - 6.00 ●	0.010 - 6.00	0.02 - 3.00	Cl_2	25	1.00089.0001
	Chlorine dioxide Test	0.020 - 10.00	0.020 - 10.00	0.10 - 5.00	ClO_2	200	1.00608.0001
	Chromate Test [2] for the determination of chromium (VI)	0.010 - 3.00 0.02 - 6.69	0.010 - 3.00 0.02 - 6.69	10 - 1400 22 - 3123	Cr CrO_4	250	1.14758.0001
	Chromate Cell Test [2] for the determination of chromium (VI) and chromium (total) USEPA approved [1a]	0.05 - 2.00 ● 0.11 - 4.46	0.05 - 2.00 0.11 - 4.46	0.05 - 2.00 0.11 - 4.46	Cr CrO_4	25	1.14552.0001
	Chromium in electroplating baths	4 - 400 g/l ●	4 - 400 g/l	–	CrO_3		
	COD Cell Test [2] USEPA approved [1a]	4.0 - 40.0 ●	4.0 - 40.0	–	COD	25	1.14560.0001
	COD Cell Test [2] USEPA approved [1a]	10 - 150 ●	10 - 150	10 - 150	COD	25	1.14540.0001
	COD Cell Test [2] USEPA approved [1a]	15 - 300 ●	15 - 300	15 - 300	COD	25	1.14895.0001

● useable in NOVA 30

[1] This method is officially recognized by the USEPA as an alternative method for the investigation of [a] wastewater, [b] drinking water, and, [c] respectively, drinking water and wastewater.

[2] For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

[3] The cell test contains three or four round-bottomed cells each bearing a barcode label. The sample is prepared and measured in the round-bottomed cell. After measurement the round-bottomed cells can be emptied and cleaned for subsequent measurements. The round-bottomed cells can thus be used several times.

Index C

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	10, 20, 50	0.0035	+/- 0.12	7, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	10, 20, 50	0.0035	+/- 0.12	2, 7, 9, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	5.0	–	0.011	+/- 0.23	2, 7, 9, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	16, 50	0.0035	+/- 0.08	2, 7, 9, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	16, 50	0.0035	+/- 0.08	2, 7, 9, 17, 18
DPD	analogous EPA 330.5, APHA 4500-Cl G, DIN EN ISO 7393-2	10	16, 50	0.0035	+/- 0.08	2, 7, 9, 17, 18
DPD	Measuring range of NOVA 30 is 0.03 - 6.00 mg/l Cl_2, for free chlorine: Cl_2-1 and Cl_2-2 for total chlorine: Cl_2-1, Cl_2-2 and Cl_2-3					
DPD	analogous APHA 4500-ClO_2 D, DIN 38408 G5	10	10, 20, 50	0.0066	+/- 0.20	5, 7, 9,
Diphenylcarbazide	analogous APHA 3500-Cr D, DIN 38405 D24	5.0	10, 20, 50	0.003	+/- 0.04	5, 6, 8, 9, 10, 11, 13, 14, 15, 16, 18
Diphenylcarbazide	analogous APHA 3500-Cr D, DIN 38405 D24	5.0 (+10)	–	0.005	+/- 0.04	5, 6, 8, 10, 11, 14, 16, 18
	Application	5.0 + 4.0	10, 20, 50			
Oxidation with chromosulfuric acid, determination as chromate	analogous EPA 410.4, APHA 5220 D, ISO 15705	3.0	–	2.5	+/- 1.8	2, 5, 6, 9, 11, 13, 18
Oxidation with chromosulfuric acid, determination as chromate	analogous EPA 410.4, APHA 5220 D, ISO 15705	3.0	–	5.0	+/- 6	2, 5, 11, 13, 18
Oxidation with chromosulfuric acid, determination as chromate	analogous EPA 410.4, APHA 5220 D, ISO 15705	2.0	–	5.3	+/- 7	2, 11, 13, 18

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
C	COD Cell Test [2] USEPA approved [1a]	25 - 1500 ●	25 - 1500	25 - 1500	COD	25	1.14541.0001
	COD Cell Test [2] USEPA approved [1a]	50 - 500 ●	50 - 500	50 - 500	COD	25	1.14690.0001
	COD Cell Test [2] USEPA approved [1a]	300 - 3500 ●	300 - 3500	300 - 3500	COD	25	1.14691.0001
	COD Cell Test [2] USEPA approved [1a]	500 - 10000 ●	500 - 10000	500 - 10000	COD	25	1.14555.0001
	COD Cell Test (Hg free) [2]	10 - 150 ●	10 - 150	–	COD	25	1.09772.0001
	COD Cell Test (Hg free) [2]	100 - 1500 ●	100 - 1500	–	COD	25	1.09773.0001
	Colour, true and apparent	0 - 1000	0 - 1000	0 - 1000	Pt/Co or HZ		
	Colour measurement	0.5 - 50.0 m^{-1}	0.5 - 50.0 m^{-1}	–			
	Copper Test	0.02 - 6.00	0.02 - 6.00	0.10 - 6.00	Cu	250	1.14767.0001
	Copper Cell Test	0.05 - 8.00 ●	0.05 - 8.00	0.05 - 8.00	Cu	25	1.14553.0001
	Copper in electroplating baths	2.0 - 80.0 g/l ●	2.0 - 80.0 g/l	–			
	Cyanide Test [2] for the determination of free and readily liberated cyanide	0.002 - 0.500	0.002 - 0.500	5 - 200 µg/l	CN	100	1.09701.0001
	Cyanide Cell Test [2] for the determination of free and readily liberated cyanide USEPA approved [1a]	0.010 - 0.500 ●	0.010 - 0.500	10 - 350 µg/l	CN	25	1.14561.0001
D	Detergents						

● useable in NOVA 30

[1] This method is officially recognized by the USEPA as an alternative method for the investigation of [a] wastewater, [b] drinking water, and, [c] respectively, drinking water and wastewater.

[2] For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

Index C-D

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
Oxidation with chromosulfuric acid, determination as chromium(III)	analogous EPA 410.4, APHA 5220 D, ISO 15705	3.0	–	6.9	+/- 30	8, 10, 11, 18
Oxidation with chromosulfuric acid, determination as chromate	analogous EPA 410.4, APHA 5220 D, ISO 15705	2.0	–	8.7	+/- 11	2, 11, 18
Oxidation with chromosulfuric acid, determination as chromium(III)	analogous EPA 410.4, APHA 5220 D, ISO 15705	2.0	–	14.6	+/- 75	8, 10, 11, 18
Oxidation with chromosulfuric acid, determination as chromium(III)	analogous EPA 410.4, APHA 5220 D, ISO 15705	1.0	–	53	+/- 130	8, 10, 11, 18
Oxidation with chromosulfuric acid, determination as chromate		2.0	–	5.0	+/- 6	9, 11, 13, 18
Oxidation with chromosulfuric acid, determination as chromium(III)		2.0	–	10.2	+/- 30	11, 18
own colouring	physical measurement (Pt-Co / APHA / Hazen)	–	10, 20, 50			
own colouring	physical measurement anal. EN ISO 7887; at 445, 525 and 620 nm with NOVA 60 at 436, 525 and 620 nm simult. with NOVA 400	–	50			
Cuprizone		5.0	10, 20, 50	0.001	+/- 0.15	1, 2, 5, 6, 8, 9, 10, 11, 13, 16, 18
Cuprizone		5.0	–	0.011	+/- 0.13	1, 2, 5, 6, 8, 9, 10, 11, 13, 16, 18
	Application	25 + 5.0	10, 20, 50			
Barbituric acid, pyridine-carboxylic acid	analogous EPA 335.2, ISO 6703; DIN 38405 D13 and D14	5.0 (+ 10)	10, 20, 50	0.0007	+/-0.012	8, 9, 10, 11, 13, 15, 18
Barbituric acid, pyridine-carboxylic acid	analogous EPA 335.2, ISO 6703, DIN 38405 D13 and D14	5.0 (+ 10)	–	0.0010	+/- 0.012	8, 10, 11, 13, 15, 18
	see Surfactants					

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
F	Fluoride Cell Test	0.10 - 1.50 0.025 - 0.500	0.10 - 1.50 0.025 - 0.500	0.10 - 1.50	F	25	1.14557.0001
NEW	Fluoride Test [4]	0.10 - 20.0	0.10 - 20.0	0.10 - 2.00	F	100 250	1.14598.0001 1.14598.0002
	Formaldehyde Test	0.02 - 8.00	0.02 - 8.00	–	HCHO	100	1.14678.0001
	Formaldehyde Cell Test	0.10 - 8.00 ●	0.10 - 8.00	–	HCHO	25	1.14500.0001
G	Gold Test	0.5 - 12.0	0.5 - 12.0	–	Au	80	1.14821.0001
H	Hardness						
	Hazen Colour Number (Pt-Co / APHA / Hazen)	1 - 1000	1 - 1000	0 - 1000	Pt/Co (HZ)		
	Hydrazine Test	0.005 - 2.00	0.005 - 2.00	10 - 1200 µg/l	N_2H_4	100	1.09711.0001
NEW	Hydrogen Peroxide Test	0.015 - 6.00	0.015 - 6.00	–	H_2O_2	100	1.18789.0001
	Hydrogen Peroxide Cell Test	2.0 - 20.0 0.25 - 5.00	2.0 - 20.0 0.25 - 5.00	–	H_2O_2 H_2O_2	25	1.14731.0001
	Hydrogen sulfide						
I	Iodine colour number	0.010 - 50.0	0.010 - 50.0	–	IFZ		
	Iodine Test	0.050 - 10.00	0.050 - 10.00	0.10 - 5.00	I_2	200	1.00606.0001
	Iron Test [2]	0.005 - 5.00	0.005 - 5.00	0.01 - 2.00	Fe	250	1.14761.0002
	Iron Test [2]	0.005 - 5.00	0.005 - 5.00	0.01 - 2.00	Fe	1000	1.14761.0001
	Iron Test [2]	0.010 - 5.00	0.010 - 5.00	0.10 - 5.00	Fe	150	1.00796.0001
	Iron Cell Test [2]	0.05 - 4.00 ●	0.05 - 4.00	0.05 - 4.00	Fe	25	1.14549.0001
	Iron Cell Test [2]	1.0 - 50.0 ●	1.0 - 50.0	–		25	1.14896.0001
L	Lead Test [2]	0.010 - 5.00	0.010 - 5.00	0.05 - 5.00	Pb	50	1.09717.0001
	Lead Cell Test [2]	0.10 - 5.00 ●	0.10 - 5.00	0.10 - 5.00	Pb	25	1.14833.0001
M	Magnesium Cell Test	5.0 - 75.0 ●	5.0 - 75.0	5.0 - 75.0	Mg	25	1.00815.0001
	Manganese Test	0.005 - 2.00	0.005 - 2.00	0.05 - 1.80	Mn	250	1.01739.0001
NEW	Manganese Test	0.010 - 10.00	0.010 - 10.00	0.05 - 6.00	Mn	250 500	1.14770.0002 1.14770.0001
	Manganese Cell Test	0.10 - 5.00 ●	0.10 - 5.00	0.10 - 5.00	Mn	25	1.00816.0001
	Mercury	0.025 - 1.000	0.025 - 1.000	–	Hg		
	Molybdenum Cell Test	0.02 - 1.00	0.02 - 1.00	0.02 - 1.00	Mo	25	1.00860.0001
	Monochloramine Test	0.050 - 10.00 0.036 - 7.25 0.010 - 1.96	0.050 - 10.00 0.036 - 7.25 0.010 - 1.96	0.10 - 5.00 0.07 - 3.63 0.02 - 0.99	Cl_2 NH_2Cl NH_2Cl-N	150	1.01632.0001

● useable in NOVA 30

[2] For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

[4] Cat. No. 1.01051 (Water for on-line analysis) is required for digestion of the sample.

Index F-M

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
Alizarinkomplexone	analogous EPA 340.3, APHA 4500-F⁻ E for determinations in the low measuring range see manual NOVA	5.0	- 10	0.045 50	+/- 0.07	9, 13, 15, 18
Alizarinkomplexone	analogous EPA 340.3, APHA 4500-F⁻ E	0.5 + 2.0 + 5.0	10	0.040	+/- 1.2	9, 10, 13, 15, 18
Chromotropic acid		3.0 + 4.5	10, 20, 50	0.040	+/- 0.30	10, 11, 18
Chromotropic acid		2.0	–	0.020	+/- 0.26	10, 11, 18
Rhodamine B		2.0 + 6.0	10	0.11	+/- 0.5	13, 16,
	see Total Hardness or Residual Hardness					
own colouring	physical measurement	–	10, 20, 50			
4-(Dimethylamino)-benzaldehyde	analogous DIN 38413 P1	2.0 + 5.0	10, 20, 50	0.002	+/- 0.04	5
Neocuproin		8.0	10, 20	0.006	+/- 0.06	3, 7, 9, 11, 12, 13, 14, 15
Titanyl sulfate	analogous DIN 38409 H15 for determinations in the low measuring range see manual NOVA	10	– 10	0.41 50	+/- 1.0	7, 9, 16, 18
	see Sulfide					
own colouring	analogous to DIN 6162 A	–	10, 20, 50			
DPD		10	10, 20, 50	0.012	+/- 0.30	7,9,17
Triazine		5.0	10, 20, 50	0.0012	+/- 0.08	1,2,5,6,9,13, 15,16,17,18
Triazine		5.0	10, 20, 50	0.0012	+/- 0.08	1, 2, 5, 6, 9,13, 15,16,17,18
1,10-Phenan-throline	distinction between Fe(II) and Fe(III) possible, analogous APHA 3500-Fe D, DIN 38406 E1	0.5 + 8.0	10, 20, 50	0.0052	+/- 0.06	1,2,5,6,9,10, 13,15,16,17,18
Triazine		5.0	–	0.014	+/- 0.08	1,2,6,9,10, 13,15,16,18
2,2'-Bipyridine	distinction between Fe(II) and Fe(III) possible	1.0	–	0.14	+/- 0.7	6, 10, 18
PAR		0.5 + 8.0	10, 20, 50	0.006	+/- 0.13	5, 8, 9, 10,11, 15, 18
PAR		5.0	–	0.033	+/- 0.10	1,2,6,9,12, 13,15,16,18
Phthaleinkomplexone		1.0	–	0.26	+/- 3.5	1,2, 9,10,15,18
PAN		0.25 + 2.0 + 8.0	10, 20, 50	0.0023	+/- 0.04	1,2,9,10,13,15,18
Formaldioxime	analogous DIN 38406 E2	5.0	10, 20, 50	0.0028	+/- 0.15	1,2,9,10,13,15,18
Formaldioxime	analogous DIN 38406 E2	7.0	–	0.010	+/- 0.08	1,2,9,10,13,18
	Application	2.5 + 5.0 + 1.0 + 1.6	50			
Bromopyrogallol red		10	–	0.011	+/- 0.02	1,5,18
Indophenol blue		0.6 + 10	10, 20, 50	0.0029	+/- 0.25	7,9,17

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
N	Nickel Test [2]	0.02 - 5.00	0.02 - 5.00	0.02 - 5.00	Ni	250	1.14785.0001
	Nickel Cell Test [2]	0.10 - 6.00 ●	0.10 - 6.00	0.10 - 6.00	Ni	25	1.14554.0001
	Nickel in electroplating baths	2.0 - 120 g/l ●	2.0 - 120 g/l	-			
NEW	Nitrate Test [2]	0.10 - 25.0	0.10 - 25.0	-	NO_3-N	100	1.09713.0001
		0.4 - 110.7	0.4 - 110.7		NO_3	250	1.09713.0002
	Nitrate Test [2]	0.2 - 20.0	0.2 - 20.0	0.5 - 15.0	NO_3-N	100	1.14773.0001
		0.9 - 88.5	0.9 - 88.5	2.2 - 66.4	NO_3		
	Nitrate Cell Test [2]	0.5 - 18.0 ●	0.5 - 18.0	0.5 - 15.0	NO_3-N	25	1.14542.0001
		2.2 - 79.7	2.2 - 79.7	2.2 - 66.4	NO_3		
	Nitrate Cell Test [2]	0.5 - 25.0 ●	0.5 - 25.0	-	NO_3-N	25	1.14563.0001
		2.2 - 110.7	2.2 - 110.7		NO_3		
	Nitrate Cell Test [2]	1.0 - 50.0 ●	1.0 - 50.0	-	NO_3-N	25	1.14764.0001
		4 - 221	4 - 221		NO_3		
	Nitrate Cell Test	23 - 225 ●	23 - 225	-	NO_3-N	25	1.00614.0001
		102 - 996	102 - 996		NO_3		
	Nitrate Cell Test in seawater	0.10 - 3.00	0.10 - 3.00	0.10 - 3.00	NO_3-N	25	1.14556.0001
		0.4 - 13.3	0.4 - 13.3	0.4 - 13.3	NO_3		
	Nitrate Test in seawater	0.2 - 17.0	0.2 - 17.0	-	NO_3-N	50	1.14942.0001
		0.9 - 75.3	0.9 - 75.3		NO_3		
	Nitrite Test	0.002 - 1.00	0.002 - 1.00	5 - 400 µg/l	NO_2-N	335	1.14776.0002
		0.007 – 3.28	0.007 – 3.28	16 - 1313 µg/l	NO_2		
	Nitrite Test	0.002 - 1.00	0.002 - 1.00	5 - 400 µg/l	NO_2-N	1000	1.14776.0001
		0.007 - 3.28	0.007 - 3.28	16 - 1313 µg/l	NO_2		
	Nitrite Cell Test	0.010 - 0.700 ●	0.010 - 0.700	10 - 700 µg/l	NO_2-N	25	1.14547.0001
		0.03 - 2.30	0.03 - 2.30	33 - 2299 µg/l	NO_2		
NEW	Nitrite Cell Test	1.0 - 90.0 ●	1.0 - 90.0	1.0 - 90.0	NO_2-N	25	1.00609.0001
		3.3 - 295.2	3.3 - 295.2	3.3 - 295.2	NO_2		
	Nitrogen (total) Cell Test [2]	0.5 - 15.0 ●	0.5 - 15.0	-		25	1.00613.0001
	Nitrogen (total) Cell Test [2]	0.5 - 15.0 ●	0.5 - 15.0	0.5 - 15.0	N	25	1.14537.0001
	Nitrogen (total) Cell Test [2] [4]	10 - 150 ●	10 - 150	-	N	25	1.14763.0001
O	Organic Carbon, Total						
	Oxygen Cell Test	0.5 - 12.0 ●	0.5 - 12.0	-	O_2	25	1.14694.0001
	Oxygen Demand, Biological						
	Oxygen Demand, Chemical						

● useable in NOVA 30

[1] This method is officially recognized by the USEPA as an alternative method for the investigation of [a] wastewater, [b] drinking water, and, [c] respectively, drinking water and wastewater.

[2] For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

[4] Cat. No. 1.01051 (Water for on-line analysis) is required for digestion of the sample.

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Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
Dimethylglyoxime	analogous APHA 3500-Ni E	5.0	10, 20, 50	0.006	+/- 0.11	3, 5, 8, 9, 10, 11, 13, 15, 18
Dimethylglyoxime	analogous APHA 3500-Ni E	5.0	–	0.035	+/- 0.16	3, 5, 8, 10, 11, 18
	Application	5.0	10, 20, 50			
2,6-Dimethylphenol	analogous ISO 7890/1, DIN 38405 D9	0.5 + 4.0	10, 20, 50	0.050	+/- 0.5	2, 6, 8, 9,11, 13,15,17,18
Nitrospectral		1.5 + 5.0	10, 20	0.05	+/- 0.7	2, 6, 9,11,13, 15,17,18
Nitrospectral		1.5	–	0.06	+/- 0.6	1, 2, 6, 9,11, 13,15,17,18
2,6-Dimethylphenol	analogous ISO 7890/1, DIN 38405 D9	1.0	–	0.13	+/- 0.5	1, 2, 6, 9,11, 13, 15,17,18
2,6-Dimethylphenol	analogous ISO 7890/1, DIN 38405 D9	0.5 + 1.0	–	0.30	+/- 1.2	1, 8,11,18
2,6-Dimethylphenol	analogous ISO 7890/1, DIN 38405 D9	0.1 + 1.0	–	1.2	+/- 6	1,8,11,18
Resorcinol		2.0	–	0.014	+/- 0.30	1,2,8,11,13,16,18
Resorcinol		1.0 + 1.5 + 5.0	10	0.04	+/- 0.5	1,2,8,11,13,16,18
Griess' reaction	analogous EPA 354.1, APHA 4500-NO2- B, DIN EN 26777 D10	5.0	10, 20, 50	0.0006	+/- 0.02	2,5,8,9,10,11, 13,15,16,18
Griess' reaction	analogous EPA 354.1	5.0	10, 20, 50	0.0006	+/- 0.02	2,5,8,9,10,11, 13,15,16,18
Griess' reaction	analogous EPA 354.1, APHA 4500-NO2- B, DIN EN 26777 D10	5.0	–	0.0008	+/- 0.009	2,5,8,9,10, 11,13,15,16,18
Iron sulfate		8.0	–	0.40	+/- 2.7	5,10,13,16,18
Koroleff digestion, 2,6-dimethylphenol	digestion analogous DIN EN ISO 11905-1 H36, determination analogous ISO 7890/1, DIN 38405 D9	1.0 + 10	–	0.19	+/- 0.8	1,2,5,11,13,14,18
Koroleff digestion, nitrospectral	digestion analogous to DIN EN ISO 11905-1 H36	1.5 + 10	–	0.17	+/- 0.8	1,2,5,11,13,14,18
Koroleff digestion, 2,6-dimethylphenol	digestion analogous DIN EN ISO 11905-1 H36, determination analogous ISO 7890/1, DIN 38405 D9	1.0 + 9.0	–	2.1	+/- 6	1,8,11,14,18
	see TOC					2, 5, 11, 13, 17
mod. Winkler method			–	0.05	+/- 0.3	
	see BOD					
	see COD					

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
O	Ozone Test	0.010 - 4.00	0.010 - 4.00	0.02 - 2.00	O_3	200	1.00607.0001
	Ozone Test	0.010 - 4.00	0.010 - 4.00	0.02 - 2.00	O_3	1200	1.00607.0002
P	Palladium	0.05 - 1.25	0.05 - 1.25	-			
	Peroxide						
	pH Cell Test [3]	pH 6.4 - 8.8 ●	pH 6.4 - 8.8	pH 6.4 - 8.8		280	1.01744.0001
	Phenol Test	0.002 - 0.100 0.025 - 5.00	0.002 - 0.100 0.025 - 5.00	0.10 - 5.00	Phenol	50 - 250	1.00856.0001
	Phenol Cell Test	0.10 - 2.50	0.10 - 2.50	0.10 - 2.50	Phenol	25	1.14551.0001
NEW	Phosphate Test [2] for the determination of ortho-phosphate	0.010 - 5.00 0.03 - 15.3 0.02 - 11.46	0.010 - 5.00 0.03 - 15.3 0.02 - 11.46	0.01 - 2.50 0.03 - 7.66 0.02 - 5.73	PO_4-P PO_4 P_2O_5	220 420	1.14848.0002 1.14848.0001
	Phosphate Cell Test [2] for the determination of ortho-phosphate and phosphorus (total) USEPA approved [1c]	0.05 - 5.00 ● 0.2 - 15.3 0.11 - 11.46	0.05 - 5.00 0.2 - 15.3 0.11 - 11.46	0.05 - 4.00 0.15 - 12.26 0.11 - 9.17	PO_4-P PO_4 P_2O_5	25	1.14543.0001
	Phosphate Cell Test [2] for the determination of ortho-phosphate and phosphorus (total) USEPA approved [1c]	0.5 - 25.0 ● 1.5 - 76.7 1.1 - 57.3	0.5 - 25.0 1.5 - 76.7 1.1 - 57.3	0.5 - 20.0 1.5 - 61.3 1.1 - 45.8	PO_4-P PO_4 P_2O_5	25	1.14729.0001
	Phosphate Cell Test for the determination of ortho-phosphate	0.5 - 25.0 ● 1.5 - 76.7 1.1 - 57.3	0.5 - 25.0 1.5 - 76.7 1.1 - 57.3	-	PO_4-P PO_4 P_2O_5	25	1.14546.0001
	Phosphate Test for the determination of ortho-phosphate	0.5 - 30.0 1.5 - 92.0 1.1 - 68.7	0.5 - 30.0 1.5 - 92.0 1.1 - 68.7	-	PO_4-P PO_4 P_2O_5	400	1.14842.0001
	Phosphate Test for the determination of ortho-phosphate	1.0 - 100.0 3 - 307 2 - 229	1.0 - 100.0 3 - 307 2 - 229	1.0 - 60.0 3.1 - 184 2.3 - 137.5	PO_4-P PO_4 P_2O_5	100	1.00798.0001
	Phosphate Cell Test for the determination of ortho-phosphate	3.0 - 100.0 ● 9 - 307 7 - 229	3.0 - 100.0 9 - 307 7 - 229	3.0 - 100.0 9 - 307 7 - 229	PO_4-P PO_4 P_2O_5	25	1.00616.0001
	Platinum	0.10 - 1.25	0.10 - 1.25	-	Pt		
	Platinum-Cobalt Standard Method						
	Potassium Cell Test	5.0 - 50.0 ●	5.0 - 50.0	5.0 - 50.0	K	25	1.14562.0001
	Potassium Cell Test	30 - 300 ●	30 - 300	-	K	25	1.00615.0001
	Protein Test (Bioquant®)	0.01 - 1.4 g/l	0.01 - 1.4 g/l	-	Protein	200	1.10306.0500
	Protein Test (Bioquant®)	0.5 - 10 g/l	0.5 - 10 g/l	-	Protein	250	1.10307.0500

● useable in NOVA 30

1) This method is officially recognized by the USEPA as an alternative method for the investigation of [a] wastewater, [b] drinking water, and, [c] respectively, drinking water and wastewater.

2) For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

3) The cell test contains three or four round-bottomed cells each bearing a barcode label. The sample is prepared and measured in the round-bottomed cell. After measurement the round-bottomed cells can be emptied and cleaned for subsequent measurements. The round-bottomed cells can thus be used several times.

Index O-P

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
DPD	analogous DIN 38409 G3	10	10, 20, 50	0.0024	+/- 0.10	7,9,15
DPD	analogous DIN 38409 G3	10	10, 20, 50	0.0024	+/- 0.10	7,9,15
	Application	5.0 + 1.0 + 0.20	10			
	see Hydrogen peroxide					
Indicator		10	–		+/- 0.1 pH	5,7,9,13,15,17
4-Aminoantipyrine	analogous EPA 420.1, APHA 5530, ISO 6439	5.0 + 10 0.5 + 10	20 10, 20, 50	0.002 0.015	+/- 0.005 +/- 0.08	8,9,11,13,16,18
MBTH		10	–	0.018	+/- 0.11	8,11,13,16,18
Phosphor-molybdenum blue	analogous EPA 365.2+3, APHA 4500-P E, DIN EN ISO 6878	5.0	10, 20, 50	0.0026	+/- 0.10	1,2,5,9,11, 13,15,16,18
Phosphor-molybdenum blue	analogous EPA 365.2+3, APHA 4500-P E, DIN EN ISO 6878	5.0	–	0.008	+/- 0.07	1,2,5,9,11, 13,16,18
Phosphor-molybdenum blue	analogous EPA 365.2+3, APHA 4500-P E, DIN EN ISO 6878	1.0	-	0.04	+/- 0.5	1,4,8,11,16,18
Vanadato-molybdate	analogous APHA 4500-P C	5.0	-	0.09	+/- 0.5	5,16
Vanadato-molybdate	analogous APHA 4500-P C	1.2 + 5.0	10, 20	0.18	+/- 0.5	5,16
Phosphor-molybdenum blue	analogous EPA 365.2+3, APHA 4500-P E, DIN EN ISO 6878	0.5 + 8.0	10	0.17	+/- 1.3	1,4,8,11,12,18
Phosphor-molybdenum blue	analogous EPA 365.2+3, APHA 4500-P E, DIN EN ISO 6878	0.2	-	0.14	+/- 2.0	1,4,8,11,16,18
	Application	5.0 + 1.0 + 0.50	10			
	see Colour					
Kalignost, turbidimetric		2.0	-	0.55	+/- 2.5	9,12,13,15,16
Kalignost, turbidimetric		0.5	-	0.5	+/- 15	1,16
Bradford Method	Method not programmed in the photometers		10			
Biuret Method	Method not programmed in the photometers		10			

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Zitierform form	Number of tests	Ord. No.
R	Residual Hardness Cell Test	0.50 - 5.00 ●	0.50 - 5.00	0.50 - 5.00	Ca	25	1.14683.0001
		0.070 - 0.700	0.070 - 0.700	0.070 - 0.700	°d		
		0.087 - 0.874	0.087 - 0.874	0.087 - 0.874	°e		
		0.12 - 1.25	0.12 - 1.25	0.12 - 1.25	°f		
		0.70 - 7.00	0.70 - 7.00	0.70 - 7.00	CaO		
		1.2 - 12.5	1.2 - 12.5	1.2 - 12.5	$CaCO_3$		
S	Silicate (Silicic Acid) Test	0.005 - 5.00	0.005 - 5.00	0.05 - 4.00	Si	300	1.14794.0001
		0.01 - 10.70	0.01 - 10.70	0.11 - 8.56	SiO_2		
	Silicate (Silicic Acid) Test [4]	0.5 - 500	0.5 - 500	5 - 500	Si	100	1.00857.0001
		1.1 - 1070	1.1 - 1070	11 - 1070	SiO_2		
	Silver Test [2]	0.25 - 3.00	0.25 - 3.00	-	Ag	100	1.14831.0001
	Sodium Cell Test in nutrient solutions for fertilization	10 - 300 ●	10 - 300	-	Na	25	1.00885.0001
	Sulfate Cell Test USEPA approved [1a]	5 - 250 ●	5 - 250	5 - 250	SO_4	25	1.14548.0001
	Sulfate Test	25 - 300	25 - 300	-		200	1.14791.0001
	Sulfate Cell Test	50 - 500 ●	50 - 500	50 - 500	SO_4	25	1.00617.0001
	Sulfate Cell Test USEPA approved [1a]	100 - 1000 ●	100 - 1000	100 - 1000	SO_4	25	1.14564.0001
	Sulfide Test	0.020 - 1.50	0.020 - 1.50	0.10 - 1.50	S^{2-}	220	1.14779.0001
	Sulfite Cell Test	1.0 - 20.0	1.0 - 20.0	1.0 - 20.0	SO_3	25	1.14394.0001
		0.05 - 3.00	0.05 - 3.00				
	Sulfite Test	1.0 - 60.0	1.0 - 60.0	1.0 - 60.0	SO_3	150	1.01746.0001
		0.8 - 48.0	0.8 - 48.0				
	Surfactants (anionic) Cell Test	0.05 - 2.00	0.05 - 2.00	0.05 - 2.00	MBAS	25	1.14697.0001
	Surfactants (cationic) Cell Test	0.05 - 1.50	0.05 - 1.50	0.05 - 1.50	CTAB	25	1.01764.0001
	Surfactants (nonionic) Cell Test	0.10 - 7.50 ●	0.10 - 7.50	0.10 - 7.50	Triton® X-100	25	1.01787.0001
	Suspended solids	25 - 750 ●	25 - 750	50 - 750	susp. solids		

● useable in NOVA 30

[1] This method is officially recognized by the USEPA as an alternative method for the investigation of [a] wastewater, [b] drinking water, and, [c] respectively, drinking water and wastewater.

[2] For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

[4] Cat. No. 1.01051 (Water for on-line analysis) is required for digestion of the sample.

Index R-S

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
Phthalein komplexone		0.2 + 4.0	–	0.055	+/- 0.20	2, 5, 9
Silico-molybdenum blue	analogous APHA 4500-Si E, DIN 38405 D21	5.0	10, 20, 50	0.0030	+/- 0.15	5, 6, 9, 13, 16
Molybdosilicate	analogous APHA 4500-Si D	0.5 + 2.0 + 4.0 / 5.0	10	0.17	+/- 10	5, 6, 9, 13,
Eosine, 1,10-phenanthroline	reagents for the digestion in the thermoreactor are contained in the test kit	1.0 + 10	10, 20	0.023	+/- 0.15	10, 18
Iron(III)-thiocyanate	determination as chloride	0.5	-	2.7	+/- 12	1
Barium sulfate, turbidimetric	analogous EPA 375.4, APHA 4500-SO42- E	5.0	-	2.1	+/- 13	1, 6, 9, 11, 13, 15, 16
Tannic acid		2.5	10	9.9	+/- 15	6, 9, 11, 13, 15
Barium sulfate, turbidimetric	analogous EPA 375.4, APHA 4500-SO42- E	2.0	-	17	+/- 22	1, 6, 9, 11, 13, 15, 16
Barium sulfate, turbidimetric	analogous EPA 375.4, APHA 4500-SO42- E	1.0	-	41	+/- 45	1, 4, 6, 8, 9, 11, 13, 15, 16, 18
Dimethyl-p-phenyl enediamine	analogous EPA 376.2, APHA 4500-S2- D, ISO 10530; DIN 38405 D26	5.0	10, 20, 50	0.0010	+/- 0.08	2, 8, 9, 11, 13, 15, 18
Ellman's reagent	for determinations of the low measuring range see manual NOVA	3.0 7.0	- 50	0.13	+/- 0.4	3, 5, 1, 15, 18
Ellman's reagent		2.0 + 3.0 + 5.0	10	0.11	+/- 0.8	3, 5, 12, 13, 15, 18
Methylene blue	analogous EPA 425.1, APHA 5540 C, DIN EN 903 H24	5.0	-	0.029	+/- 0.14	9, 11, 13, 18
Disulfine blue	analogous DIN 38409 H20	0.5 + 5.0	-	0.027	+/- 0.02	9, 11, 13, 18
TBPE		4.0	-	0.062	+/- 0.10	9, 11, 13, 18
	physical measurement	-	16, 20			

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

	Parameter	Measuring range [mg/l] NOVA 30/60/400	Measuring range [mg/l] Pharo 100/300	Measuring range [mg/l] Multy	Reference form	Number of tests	Ord. No.
T	Tin Cell Test	0.10 - 2.50	0.10 - 2.50	0.10 - 2.50	Sn	25	1.14622.0001
	TOC Cell Test	5.0 - 80.0 ●	5.0 - 80.0	5.0 - 80.0	TOC	25	1.14878.0001
	TOC Cell Test [4b)]	50 - 800 ●	50 - 800	50 - 800	TOC	25	1.14879.0001
	Screw caps for Spectroquant® TOC digestion					6	1.73500.0001
	TOC-Standard 1000 ± 10 mg/l			100 ml			1.09017.0100
	Total Alkalinity						
	Total Hardness Cell Test	5 - 215 ●	5 - 215	5 - 215	Ca	25	1.00961.0001
		0.7 - 30.1	0.7 - 30.1	0.7 - 30.1	°d		
		0.9 - 37.6	0.9 - 37.6	0.9 - 37.6	°e		
		1.2 - 53.7	1.2 - 53.7	1.2 - 53.7	°f		
		7 - 300	7 - 300	7 - 300	CaO		
		12 - 537	12 - 537	12 - 537	$CaCO_3$		
	Total Nitrogen						
	Transmission	0.0 - 100.0 % ●	0.0 - 100.0 %	-	T		
	Turbidity	1 - 100	1 - 100	1 - 100	FAU		
V	Volatile Organic Acids Cell Test	50 - 3000 ●	50 - 3000	50 - 3000	acetic acid	100	1.01763.0001
W	Water Hardness						
Z	Zinc Cell Test [2)]	0.025 - 1.000 ●	0.025 - 1.000	25 - 1000 µg/l	Zn	25	1.00861.0001
	Zinc Test [2)]	0.05 - 2.50	0.05 - 2.50	-	Zn	90	1.14832.0001
	Zinc Reagent 6 (Isobutylmethylketone GR)					200	1.06146.1000
	Zinc Cell Test [2)]	0.20 - 5.00 ●	0.20 - 5.00	0.20 - 5.00	Zn	25	1.14566.0001

● useable in NOVA 30

[1)] This method is officially recognized by the USEPA as an alternative method for the investigation of [a)] wastewater, [b)] drinking water, and, [c)] respectively, drinking water and wastewater.

[2)] For details of the sample preparation and of the determination of the total content please look into the package inserts in the internet.

[4)] Cat. No. 1.01051 (Water for on-line analysis) is required for digestion of the sample.

Index T-Z

Method	Comments	Pipette volume [ml]	Cell size [mm] NOVA / Pharo	LLD [mg/l]	Accuracy [mg/l]	Areas of application
Pyrocatechol violet		0.5	–	0.006	+/- 0.08	5, 10, 16, 18
Indicator		3.0	–	0.91	+/- 3.0	9, 11, 13, 18
Indicator		1.0 + 3.0 + 9.0	–	9.1	+/- 30	8, 11, 13, 18
	for multiple use, additionally required for TOC measurement					
	analogous EN 1484-H43, DIN 38409-H3					
	see Acid capacity to pH 4.3					
Phthalein komplexone		1.0	–	1.2	+/- 5	2, 9, 13
	see Nitrogen (total)					
	–	10, 20, 50				
		–	50			
Hydroxamic acids / iron(III) salt		0.5 + 0.75 + 5.0	–	31.3	+/- 32	4, 8, 11, 18
	see Total Hardness or Res. Hardness					
PAR		0.5 + 2.0	–	0.014	+/- 0.025	1, 5, 9, 10, 11, 13, 15, 18
Cl-PAN		5.0	10	0.015	+/- 0.10	5, 6, 8, 9, 10, 11, 15, 18
	Extracting agent for Zinc Test 1.14832.0001					
PAR		0.5	–	0.090	+/- 0.22	5, 6, 8, 9, 10, 11, 15, 18

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter
5 Boiler water, cooling water
6 Construction-material industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surf. refin.
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming pools
18 Wastewater

> For further information see website:

Spectroquant® test kits

Spectroquant® test kits for Hach instruments

The following Spectroquant® test kits are suitable for use only in conjunction with Hach instruments. They do not require any further device-specific calibration, but instead use the original programmes installed by Hach and work exactly according to the specifications supplied by Hach in the respective instrument operation manual.

Thus you don't need to forego Merck's quality documentation when using Hach instruments. The corresponding batch certificates can be downloaded from the internet at **http://photometry.merck.de**.

Overview A-C Spectroquant® test kits for Hach instruments

	Parameter	Measuring range in mg/l	No. of tests	Merck Ord. No.	Method
A	Aluminium Reagent Set for non-Merck photometers for 20-ml-samples	0 - 0.250 Al^{3+}	100	1.73001.0001	Eriochrome Cyanine R
C	Chlorine Powder Packs for non-Merck photometers for 10-ml-samples (free Chlorine)	0 - 2.00 Cl_2	100 1000	1.73002.0001 1.73002.0002	DPD
	Chlorine Powder Packs for non-Merck photometers for 25-ml-samples (free Chlorine)	0 - 10.00 Cl_2	100	1.73003.0001	DPD
	Chlorine Powder Packs for non-Merck photometers for 10-ml-samples (total Chlorine)	0 - 2.00 Cl_2	100	1.73004.0001	DPD
	Chlorine Powder Packs for non-Merck photometers for 25-ml-samples (total Chlorine)	0 - 10.00 Cl_2	100	1.73005.0001	DPD
	COD Cell Tests for non-Merck photometers USEPA approved	0 - 40.0 COD	25	1.18750.0001	Oxidation with Chromosulfuric acid, determination as chromate
	COD Cell Tests for non-Merck photometers USEPA approval pending	0 - 150.0 COD	25	1.18751.0001	Oxidation with Chromosulfuric acid, determination as chromate
	COD Cell Tests for non-Merck photometers USEPA approval pending	0 - 1500 COD	25	1.18752.0001	Oxidation with Chromosulfuric acid, determination as chromate
	COD Cell Tests non-Merck photometers USEPA approval pending	0 - 15 000 COD	25	1.18753.0001	Oxidation with Chromosulfuric acid, determination as chromate

Hach Ord. No.	Comments	Pipette-volume	Cell size Hach	Areas of Application
26037-00	analogous APHA 3500-Al B	20 ml	1 inch	5, 9, 11, 13, 15, 17, 18
21055-69	analogous EPA 330.5, APHA 4500-Cl G	10 ml	1 inch	2, 7, 9, 11, 13, 16, 17, 18
14070-99	analogous EPA 330.5, APHA 4500-Cl G	25 ml	1 inch	2, 7, 9, 11, 13, 16, 17, 18
21056-69	analogous EPA 330.5, APHA 4500-Cl G	10 ml	1 inch	2, 7, 9, 11, 13, 16, 17, 18
14064-99	analogous EPA 330.5, APHA 4500-Cl G	25 ml	1 inch	2, 7, 9, 11, 13, 16, 17, 18
24158-25 24158-15 24158-51	analogous EPA 410.4, APHA 5220 D and ISO 15705	2.0 ml	16 mm	5, 9, 10, 11, 13 15, 17, 18
21258-25 21258-15 21258-51	analogous EPA 410.4, APHA 5220 D and ISO 15705	2.0 ml	16 mm	5, 9, 10, 11, 13, 15, 17, 18
21259-25 21259-15 21259-51	analogous EPA 410.4, APHA 5220 D and ISO 15705	2.0 ml	16 mm	3, 4, 5, 8, 10, 11, 13, 18
24159-25 24159-15 24159-51	analogous EPA 410.4, APHA 5220 D and ISO 15705	0.2 ml	16 mm	3, 4, 5, 8, 10, 11, 13, 18

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter control
5 Boiler water, cooling water
6 Construction material, industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surface refinement
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming-pool
18 Wastewater

> For further information see website:

Spectroquant® test kits

Overview C-Z Spectroquant® test kits for Hach instruments

	Parameter	Measuring range in mg/l	No. of tests	Merck Ord. No.	Method
C	Copper Powder Packs for non-Merck photometers	0 - 5.00 Cu	100	1.730060001	Bicinchoninate
I	Iron Powder Packs for non-Merck photometers for 10-ml-samples	0 - 3.00 Fe	100	1.73007.0001	Phenanthroline
M	Manganese Reagent Set for non-Merck photometers for 10-ml-samples	0 - 0.700 Mn	50	1.73008.0001	PAN
N	Nitrite Powder Packs for non-Merck photometers für 10-ml-Proben	0 - 0.300 NO_2-N	100	1.73009.0001	Diazotization
	Nitrite Powder Packs for non-Merck photometers for 25-ml-samples	0 - 0.300 NO_2-N	100	1.73010.0001	Diazotization
P	Phosphate Powder Packs for non-Merck photometers for 10-ml-samples	0.02 - 2.50 PO_4	100	1.73011.0001	Ascorbic acid
S	Silicate Reagent Set for non-Merck photometers for 10-ml-samples	0 - 1.600 SiO_2	100	1.73012.0001	Heteropoly Blue
	Silicate Reagent Set for non-Merck photometers for 25-ml-samples	0 - 100 SiO_2	100	1.73013.0001	Silicomolybdate
	Sulfate Powder Packs for non-Merck photometers for 10-ml-samples	0 - 70.0 SO_4	100	1.73014.0001	Barium chloride
	Sulfate Powder Packs for non-Merck photometers for 25-ml-samples	0 - 70.0 SO_4	100	1.73015.0001	Barium chloride

Hach Ord. No.	Comments	Pipette-volume	Cell size Hach	Areas of Application
21058-69		10 ml	1 inch	1, 2, 3, 5, 7, 8, 9, 10, 11, 13, 15, 18
21057-69	analogous APHA 3500-Fe D	10 ml	1 inch	1, 2, 5, 7, 8, 9,10, 11, 13, 15, 17, 18
26517-00		10 ml	1 inch	1, 2, 9, 10, 11, 13 15, 18
21071-69		10 ml	1 inch	1, 2, 3, 5, 8, 9, 10, 11, 13, 15, 18
14065-99		25 ml	1 inch	1, 2, 3, 5, 8, 9, 10, 11, 13, 15, 18
21060-69	analogous EPA 365.2 and APHA 4500-P E	10 ml	1 inch	1, 3, 4, 5, 8, 9, 10, 11, 13, 15, 17, 18
24593-00	analogous APHA 4500-Si D	10 ml	1 inch	1, 5, 9, 10, 11, 13, 15
24296-00	analogous APHA 4500-Si E	10 ml	1 inch	1, 5, 6, 9, 10, 11, 13, 15
12065-99	analogous EPA 375.4	10 ml	1 inch	1, 5, 6, 7, 8, 9, 10 11, 13, 15, 18
21067-69	analogous EPA 375.4	25 ml	1 inch	1, 5, 6, 7, 8, 9, 10 11, 13, 15, 18

Areas of application:

1 Agriculture
2 Aquaristics
3 Beverages
4 Biotechnology, fermenter control
5 Boiler water, cooling water
6 Construction material, industry
7 Disinfection control
8 Disposal drainage water
9 Drinking water
10 Electroplating surface refinement
11 Environment
12 Food
13 Groundwater, surface water
14 Milk, dairy products
15 Mineral water
16 Seawater
17 Swimming-pool
18 Wastewater

> For further information see website:

Spectroquant® quality

Simply reliable

Quality is a given at Merck. We draw our competence in this field from more than 100 years of experience in the analytical sector. This is also reflected in the official titles of approval awarded to us: Merck has been certified according to DIN EN ISO 9001 ever since 1992 and DIN EN ISO 14001 since 2001.

Quality of the Spectroquant® test kits

Stringent controls on our raw materials, effective in-process controls and documented final controls are a confirmation for the consistently high quality of our test kits. Every batch that is manufactured receives an individual batch certificate, meaning that you can be released with the effort of checking the quality of the test kit upon its receipt. Our batch certificates, which can be downloaded from the internet at **http://photometry.merck.de**, can also be presented for inspection at official audits. The American Environmental Protection Agency has officially approved the suitability of many of our Spectroquant® Tests and awarded them the quality seal "USEPA Approved".

Validation of the methods of analysis

Merck precisely documents all process-related data obtained in the development laboratory, from measuring ranges and limits of detection all the way to calibration functions. These data are for us key quality characteristics and as such constitute the basis for quality assurance in routine analysis.

Certificate for the suitability of Spectroquant® test kits for self-monitoring operations

The characteristic procedural data, determined according to standardized methods, are given summarically in the form of a quality certificate. This certificate is proof of the consistent quality of all batches that have been delivered to customers so far. Quality certificates as well as batch certificates for each individual Spectroquant® test kit can be accessed on the internet at **http://photometry.merck.de**.

Quality of the Spectroquant® photometers

The same principles apply to the manufacture of the photometers: each instrument is accompanied by an inspection protocol that confirms not only the quality of the optics systems (photometric accuracy, linearity, reproducibility, wavelength accuracy), but also the electrical safety according to IEC 1010.

> For further information see website:

Spectroquant® quality assurance

Simply complete

Start-to-finish quality-assurance measures ensure that your measurement results count as secure and reproducible analytical results. What's more, the Spectroquant® NOVA and Pharo photometers support you in ensuring GLP-compliant operations. The components of our professional AQA concept are established media for your Internal Quality Control (IQC) activities, such as those required e.g. in the A704 official memorandum of the "Abwassertechnische Vereinigung" (German Wastewater Engineering Association). It's your choice:

AQA-1 mode for monitoring the photometer

In the AQA1 mode the photometer itself is monitored by means of certified colour standards (Spectroquant® PhotoCheck) as well as the CertiPUR® UV/VIS standards.

Ord. No. 1.14693.0001

Spectroquant® PhotoCheck

Spectroquant® PhotoCheck is a complete set of highly stable colour solutions. A check in a reference spectrophotometer - which itself is monitored using primary standards (NIST standards) – confirms that this checking medium can be traced back to international standards. Spectroquant® PhotoCheck can hence be tracked back to international standards and is thus for test-instrument checking purposes according to DIN EN ISO 9001 resp. 14001. All results can be subsequently transferred to a printer or a PC for documentation purposes.

CertiPUR® UV/VIS standards

The consistent and correct functioning of your UV/VIS spectrophotometer can be checked using the CertiPUR® standards. The CertiPUR® solutions can be used to check the following parameters as per Ph. Eur:

- Absorption
- Stray-light profile
- Wavelength accuracy

Operations as per GLP, GMP, USP and DIN 9001 or EN 45001 demand these regular controls.

CertiPUR® UV/VIS Standards

Designation	Content	Ord. No.	Useable in Pharo 100	Useable in Pharo 300
UV/VIS Standard 1	Potassium dichromate solution for absorbance according to DAB and Ph. Eur. 2 x 10 ml $K_2Cr_2O_7$ 60.06 mg/l in H_2SO_4 0.01 N and 6 x 10 ml H_2SO_4 0.01 N	1.08160.0001	■	■
UV/VIS Standard 1A	Potassium dichromate solution for absorbance at 430 nm nach DAB und Ph. Eur. 2 x 10 ml $K_2Cr_2O_7$ 600.06 mg/l in H_2SO_4 0.01 N and 6 x 10 ml H_2SO_4 0.01 N	1.04660.0001	■	■
UV/VIS Standard 2	Sodium nitrite solution for stray light testing according DAB and Ph. Eur. 3 x 10 ml $NaNO_2$ 50 g/l in H_2O	1.08161.0001	■	■
UV/VIS Standard 3	Sodium iodide solution for stray light testing according DAB and Ph. Eur. 3 x 10 ml NaI 10 g/l in H_2O	1.08163.0001	-	■
UV/VIS Standard 6	Holmium oxide solution reference material for wavelength testing according to DAB and Ph. Eur. 3 x 10 ml Ho_2O_3 40 g/l in $HClO_4$ (10 % v/v)	1.08166.0001	■	■

Spectroquant® quality assurance

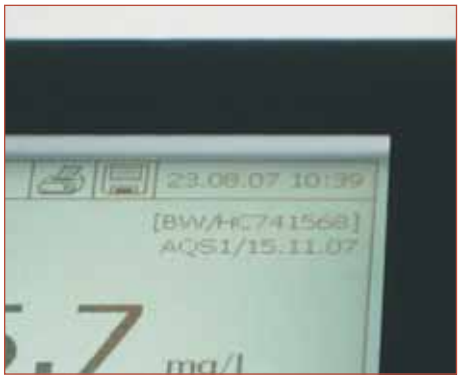
AQA-2 mode for monitoring the overall system

In the AQA2 mode the entire system is exhaustively monitored using certified multiparameter standards (Spectroquant® CombiCheck) ► see page 104

AQA-3 Matrix Check

Besides testing the overall system, it is also necessary to identify any measurement errors due to possible interferences within the sample. Standard addition (see also Spectroquant® CombiCheck addition solutions R-2) or dilution can be used to recognize measurement errors due to matrix effects. Any such interferences can be analyzed on the basis of the recovery rates and correspondingly rectified by taking appropriate countermeasures, such as e.g. pretreating the sample accordingly.

In the Spectroquant® Pharo spectrophotometers, this function is also supported by the instrument itself. (AQA-3 mark)



AQA-1 + AQA-2:
The photometer shows when the next AQA check is due. The intervals can be freely selected by time and, in the case of AQA-2, also by the number of measurements.

AQA Documentation from start to finish

By issuing a password (Spectroquant® NOVA Photometer) or defining hierarchically structured user groups (Spectroquant® Pharo photometers) you yourself can ensure that the AQA intervals of your photometer are observed. You can instruct the instrument to refuse to carry out a measurement in the event that the quality-control measurements and intervals are not adhered to. The method in question is released for further measurements only after it has been successfully subjected to the corresponding quality-assurance checks.

The documentation of the AQA measures in the measurement report is a further enhancement of GLP-compliant operation. Once it has passed the quality-control check, each result is given the suffix "AQA" in the report. Secure proof that the system is tested.

Spectroquant® PipeCheck

Ord. No. 1.14962.0001

In connection with Internal Quality Control measures (IQC) pipettes are required to be tested at regular intervals. This check is usually carried out by weighing the volume of a liquid on a calibrated precision balance. Such a balance is, however, not always readily available. With Spectroquant® PipeCheck you can check your pipettes and document the measurement results accordingly, even if you don't have a balance.

When e.g. a 5.0-ml pipette is due for checking, 5.0 ml of distilled water is injected into the Spectroquant® PipeCheck cell. The measured absorbance must match that measured in the reference cell.

> For further information see website:

Spectroquant® quality assurance

Checking the entire system with Spectroquant® CombiCheck

The multiparameter standard solutions contained in the various Spectroquant® CombiCheck packs are optimally suited for checking the overall system, from the individual test kit and the measurement instrument itself, all the way to your individual working procedures. These standards can also be directly traced back to NIST primary standards. Each CombiCheck pack contains one standard solution and one addition solution.

If the check shows that the specified concentration of the standard solution is reached, the entire analysis system is in order. If, however, deviations from the specified values become apparent, the causes of these deviations must be tracked down. With the aid of the addition solution it is possible to identify measurement errors that are caused by the sample matrix (for example the presence of interfering substances). If the recovery rate is found to be insufficient (beyond the specified tolerances) the reason for the error must be analyzed and eliminated by taking the appropriate countermeasures, such as e.g. pretreating the sample correspondingly.

Ord. No. 1.14676.001 — **Spectroquant® CombiCheck 10 to control quality of photometric methods of**

	Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks
Standard Solution Reagent R-1	Ammonium	4.00	±0.30 mg/l NH_4-N	1.14558.0001	1.0	96
	Chloride	25	±6 mg/l Cl	1.14730.0001	1.0	96
	COD	80	±12 mg/l COD	1.14540.0001	3.0	32
		80	±12 mg/l COD	1.09772.0001	2.0	48
		80	±12 mg/l COD	1.18751.0001	2.0	48
	Nitrate	2.50	±0.25 mg/l NO_3-N	1.14556.0001	2.0	48
		2.50	±0.25 mg/l NO_3-N	1.14773.0001 [2]	1.5	64
	Phosphate [4]	0.80	±0.08 mg/l PO_4-P	1.14543.0001	5.0	18
		0.80	±0.08 mg/l PO_4-P	1.14848.0001 / .0002 [3]	10.0	9
		0.80	±0.08 mg/l PO_4-P	1.73011.0001	10.0	9
	Sulfate	100	±15 mg/l SO_4	1.14548.0001	5.0	19
		100	±15 mg/l SO_4	1.00617.0001	2.0	48
		100	±15 mg/l SO_4	1.14791.0001 [1]	2.5	38
Addition Solution Reagent R-2 (Spike sample)	Ammonium	3.00	±0.25 mg/l NH_4-N	1.14558.0001	0.1	280
	Chloride	25	±6 mg/l Cl	1.14730.0001	0.1	280
	COD	30	±8 mg/l COD	1.14540.0001	0.1	280
		45	±8 mg/l COD	1.09772.0001	0.1	280
		45	±8 mg/l COD	1.18751.0001	0.1	280
	Nitrate	1.50	±0.20 mg/l NO_3-N	1.14556.0001	0.1	280
		2.50	±0.40 mg/l NO_3-N	1.14773.0001 [2]	0.1	280
	Phosphate [4]	0.60	±0.07 mg/l PO_4-P	1.14543.0001	0.1	280
		0.30	±0.05 mg/l PO_4-P	1.14848.0001 /.0002 [3]	0.1	280
	Sulfate	40	±5 mg/l SO_4	1.14548.0001	0.1	280
		100	±15 mg/l SO_4	1.00617.0001	0.1	280
		80	±10 mg/l SO_4	1.14791.0001 [1]	0.1	280

[1] using a 10-mm rectangular cell, Ord. No. 1.14946.0001
[2] using a 20-mm rectangular cell, Ord. No. 1.14947.0001
[3] using a 50-mm rectangular cell, Ord. No. 1.14944.0001
[4] only the determination of ortho-Phosphate can be checked

Spectroquant® CombiCheck 20 to control quality of photometric methods of						Ord. No. 1.14675.001
Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks	
Ammonium	12.0	±1.0 mg/l NH_4-N	1.14544.0001	0.5	192	Standard Solution Reagent R-1
Chloride	60	±10 mg/l Cl	1.14730.0001	1.0	96	
COD	750	±75 mg/l COD	1.14541.0001	3.0	32	
	750	±75 mg/l COD	1.09773.0001	2.0	48	
	750	±75 mg/l COD	1.18752.0001	2.0	48	
Nitrate	9.0	±0.9 mg/l NO_3-N	1.14563.0001	1.0	96	
	9.0	±0.9 mg/l NO_3-N	1.14542.0001	1.5	64	
	9.0	±0.9 mg/l NO_3-N	1.09713.0001/ .0002 [1]	1.5	64	
	9.0	±0.9 mg/l NO_3-N	1.14773.0001 [1]	1.0	96	
	9.0	±0.9 mg/l NO_3-N	1.14942.0001 [1]	0.5	192	
Phosphate [4]	8.0	±0.7 mg/l PO_4-P	1.14729.0001	1.0	96	
Sulfate	500	±75 mg/l SO_4	1.14564.0001	1.0	96	
Ammonium	8.0	±0.8 mg/l NH_4-N	1.14544.0001	0.1	280	Addition Solution Reagent R-2
Chloride	40	±7 mg/l Cl	1.14730.0001	0.1	280	(Spike Sample)
COD	200	±40 mg/l COD	1.14541.0001	0.1	280	
	300	±40 mg/l COD	1.09773.0001	0.1	280	
	300	±40 mg/l COD	1.18752.0001	0.1	280	
Nitrate	7.5	±0.8 mg/l NO_3-N	1.14563.0001	0.1	280	
	5.0	±0.6 mg/l NO_3-N	1.14542.0001	0.1	280	
	15.0	±1.5 mg/l NO_3-N	1.09713.0001/ .0002 [1]	0.1	280	
	5.0	±0.6 mg/l NO_3-N	1.14773.0001 [1]	0.1	280	
	7.5	±0.8 mg/l NO_3-N	1.14942.0001 [1]	0.1	280	
Phosphate [4]	5.0	±0.5 mg/l PO_4-P	1.14729.0001	0.1	280	
Sulfate	150	±30 mg/l SO_4	1.14564.0001	0.1	280	

Spectroquant® CombiCheck 30 to control quality of photometric methods of						Ord. No. 1.14677.001
Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks	
Cadmium	0.500	±0.060 mg/l Cd	1.14834.0001	5.0	19	Standard Solution Reagent R-1
Copper	2.00	±0.20 mg/l Cu	1.14553.0001	5.0	19	
	2.00	±0.20 mg/l Cu	1.14767.0001 [1]	5.0	19	
	2.00	±0.20 mg/l Cu	1.73006.0001	10.0	9	
Iron	1.00	±0.15 mg/l Fe	1.14549.0001	5.0	19	
	1.00	±0.15 mg/l Fe	1.14761.0002 7/ .0002 [1]	5.0	19	
	1.00	±0.15 mg/l Fe	1.14761.0001 [1]	5.0	19	
	1.00	±0.15 mg/l Fe	1.00796.0001 [1]	8.0	12	
	1.00	±0.15 mg/l Fe	1.73007.0001	10.0	9	
Manganese	1.00	±0.15 mg/l Mn	1.00816.0001	7.0	13	
	1.00	±0.15 mg/l Mn	1.14770.0001 / .0002 [3]	10.0	9	
Cadmium	0.300	±0.045 mg/l Cd	1.14834.0001	0.1	280	Addition Solution Reagent R-2
Copper	3.00	±0.30 mg/l Cu	1.14553.0001	0.1	280	(Spike Sample)
	3.00	±0.30 mg/l Cu	1.14767.0001 [1]	0.1	280	
Iron	3.00	±0.30 mg/l Fe	1.14549.0001	0.1	280	
	3.00	±0.30 mg/l Fe	1.14761.0002 [1]	0.1	280	
	3.00	±0.30 mg/l Fe	1.14761.0001/ .0002 [1]	0.1	280	
	1.88	±0.20 mg/l Fe	1.00796.0001 [1]	0.1	280	
Manganese	1.43	±0.15 mg/l Mn	1.00816.0001	0.1	280	
	1.00	±0.15 mg/l Mn	1.14770.0001 / .0002 [3]	0.1	280	

> For further information see website:

Spectroquant® quality assurance

Ord. No. 1.14692.0001	Spectroquant® CombiCheck 40 to control quality of photometric methods of					
	Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks
Standard Solution Reagent R-1	Aluminium	0.75	±0.08 mg/l Al	1.14825.000 [1]	5.0	19
	Lead	2.00	±0.20 mg/l Pb	1.14833.0001	5.0	19
		2.00	±0.20 mg/l Pb	1.09717.000 [1]	8.0	11
	Nickel	2.00	±0.20 mg/l Ni	1.14554.0001	5.0	19
		2.00	±0.20 mg/l Ni	1.14785.0001 [1]	5.0	19
	Zinc	2.00	±0.40 mg/l Zn	1.14566.0001	0.5	192
Addition Solution Reagent R-2 (Spike Sample)	Aluminium	1.00	±0.10 mg/l Al	1.14825.0001 [1]	0.1	280
	Lead	1.00	±0.15 mg/l Pb	1.14833.0001	0.1	280
		0.63	±0.10 mg/l Pb	1.09717.0001 [1]	0.1	280
	Nickel	2.00	±0.20 mg/l Ni	1.14554.0001	0.1	280
		2.00	± 0.20 mg/l Ni	1.14785.0001 [1]	0.1	280
	Zinc	2.00	± 0.40 mg/l Zn	1.14566.0001	0.1	280

Ord. No. 1.14695.0001	Spectroquant® CombiCheck 50 to control quality of photometric methods of					
	Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks
Standard Solution Reagent R-1	Ammonium	1.00	±0.10 mg/l NH_4-N	1.14739.0001	5.0	19
		1.00	±0.10 mg/l NH_4-N	1.14752.0002 [1]	5.0	19
		1.00	±0.10 mg/l NH_4-N	1.14752.0001 [1]	5.0	19
	COD	20.0	±4.0 mg/l COD	1.14560.0001	3.0	32
		20.0	±4.0 mg/l COD	1.18750.0001	2.0	48
	Nitrogen	5.0	±0.7 mg/l N	1.00613.0001	10.0	9
		5.0	±0.7 mg/l N	1.14537.0001	10.0	9
Addition Solution Reagent R-2 (Spike Sample)	Ammonium	1.00	±0.10 mg/l NH_4-N	1.14739.0001	0.1	280
		1.00	±0.10 mg/l NH_4-N	1.14752.0002 [1]	0.1	280
		1.00	±0.10 mg/l NH_4-N	1.14752.0001 [1]	0.1	280
	COD	10.0	±3.0 mg/l COD	1.14560.0001	0.1	280
		15.0	±3.0 mg/l COD	1.18750.0001	0.1	280
	Nitrogen	3.0	±0.5 mg/l N	1.00613.0001	0.1	280
		3.0	±0.5 mg/l N	1.14537.0001	0.1	280

[1] using a 10-mm rectangular cell, Ord. No. 1.14946.0001
[2] using a 20-mm rectangular cell, Ord. No. 1.14947.0001
[3] using a 50-mm rectangular cell, Ord. No. 1.14944.0001
[4] only the determination of ortho-Phosphate can be checked

Spectroquant® CombiCheck 60 to control quality of photometric methods of						Ord. No. 1.14696.001
Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks	
Chloride	125	±13 mg/l Cl	1.14897.0001 [1]	1.0	96	Standard Solution Reagent R-1
	125	±13 mg/l Cl	1.14897.0002 [1]	1.0	96	
COD	250	±25 mg/l COD	1.14690.0001	2.0	48	
	250	±20 mg/l COD	1.14895.0001	2.0	48	
Chloride	50	±7 mg/l Cl	1.14897.0001 [1]	0.1	280	Addition Solution Reagent R-2
	50	±7 mg/l Cl	1.14897.0002 [1]	0.1	280	(Spike Sample)
COD	75	±15 mg/l COD	1.14690.0001	0.1	280	
	75	±10 mg/l COD	1.14895.0001	0.1	280	

Spectroquant® CombiCheck 70 to control quality of photometric methods of						Ord. No. 1.14689.001
Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks	
Ammonium	50.0	±5.0 mg/l NH_4-N	1.14559.0001	0.1	960	Standard Solution Reagent R-1
Ammonium (2.0 - 75.0 mg/l)	50.0	±5.0 mg/l NH_4-N	1.00683.0001 [1]	0.2	480	
Ammonium (5 - 150 mg/l)	50	±5 mg/l NH_4-N	1.00683.0001 [1]	0.1	960	
COD	5000	±400 mg/l COD	1.14555.0001	1.0	96	
	5000	±400 mg/l COD	1.18753.0001	0.2	480	
Nitrogen	50	±7 mg/l N	1.14763.0001	1.0	96	
Ammonium	20.0	±2.0 mg/l NH_4-N	1.14559.0001	0.1	280	Addition Solution Reagent R-2
Ammonium (2.0 - 75.0 mg/l)	10.0	±1.0 mg/l NH_4-N	1.00683.0001 [1]	0.1	280	(Spike Sample)
Ammonium (5 - 150 mg/l)	20	±2 mg/l NH_4-N	1.00683.0001 [1]	0.1	280	
COD	2000	±200 mg/l COD	1.14555.0001	0.1	280	
Nitrogen	20	±6 mg/l N	1.14763.0001	0.1	280	

Spectroquant® CombiCheck 80 to control quality of photometric methods of						Ord. No. 1.14738.001
Parameter	Concentration and confidence interval		can be used for test kits Ord. No.	Standard solution (ml)	No. of quality checks	
COD	1500	±150 mg/l COD	1.14691.0001	2.0	48	Standard Solution Reagent R-1
Nitrate	25.0	±2.5 mg/l NO_3	1.14764.0001	0.5	192	
Phosphate [4]	15.0	±1.0 mg/l PO_4-P	1.14729.0001	1.0	96	
COD	1000	±100 mg/l COD	1.14691.0001	0.1	280	Addition Solution Reagent R-2
Nitrate	10.0	±1.5 mg/l NO_3	1.14764.0001	0.1	280	(Spike Sample)
Phosphate [4]	5.0	±0.5 mg/l PO_4-P	1.14729.0001	0.1	280	

[1] using a 10-mm rectangular cell, Ord. No. 1.14946.0001
[2] using a 20-mm rectangular cell, Ord. No. 1.14947.0001
[3] using a 50-mm rectangular cell, Ord. No. 1.14944.0001
[4] only the determination of ortho-Phosphate can be checked

> For further information see website:

Spectroquant® quality assurance

Analytical quality control – CertiPUR® standard solutions

Our comprehensive range of ready-to-use standard solutions is naturally also at your disposal. You can prepare standards for almost every parameter in any concentration you wish simply by making the approriate dilution.

Ready to use standard solutions (*traceable to NIST)

	Parameter	Concentration in mg/l	Volume in mg/l	for Ord. No.
A	Aluminium *	1000	100	1.19770.0100
	Ammonium *	1000	500	1.19812.0500
	Antimony *	1000	100	1.70204.0100
	Arsenic *	1000	100	1.19773.0100
B	Boron *	1000	100	1.19500.0100
C	Cadmium *	1000	100	1.19777.0100
	Calcium *	1000	100	1.19778.0100
	Chloride *	1000	500	1.19897.0500
	Chromate *	1000	500	1.19780.0500
	Chromium *	1000	100	1.19779.0100
	Cobalt *	1000	100	1.19785.0100
	COD reference solution	200	100	1.11769.0100
	Copper *	1000	100	1.19786.0100
	Cyanide*	1000	500	1.19533.0500
F	Fluoride	1000	500	1.19814.0500
G	Gold *	1000	100	1.70216.0100
I	Iron *	1000	100	1.19781.0100
L	Lead *	1000	100	1.19776.0100
M	Magnesium *	1000	100	1.19788.0100
	Manganese *	1000	100	1.19789.0100
	Mercury *	1000	100	1.70226.0100
	Molybdenum *	1000	100	1.70227.0001
N	Nickel *	1000	100	1.09989.0001
	Nitrate *	1000	500	1.19811.0500
	Nitrite *	1000	500	1.19899.0500
P	Palladium *	1000	100	1.14282.0100
	Phosphate *	1000	500	1.19898.0500
	Platinum*	1000	100	1.70201.0100
	Potassium *	1000	100	1.70230.0100
S	Silver *	1000	100	1.19797.0100
	Silicon *	1000	100	1.70236.0100
	Sulfate *	1000	500	1.19813.0500
T	Tin *	1000	100	1.70242.0100
	TOC *	1000	100	1.09017.0100
V	Vanadium *	1000	100	1.70245.0100
Z	Zinc *	1000	100	1.19806.0100

With the above standard solutions, you can make standards of different concentrations to meet your needs by dilution. You can also use the above for checking matrix effects by substituting them for additional solution. The stability of the unopened standards are guaranteed for two years, which will provide an economic and easy to handle product for quality control.

Analytical quality

Analytical quality assurance is an essential part of the procedure of ensuring that users obtain correct analytical results. The following tables shows you at a glance which quality-assurance product – such as e.g. Spectroquant® CombiCheck or standard solutions – can be used in conjunction with which test kit.

In cases where a parameter is not stable – for instance chlorine – then we naturally provide assistance to the users of our products and offer an application by which such a standard can be prepared. These applications can be found in the preface to our photometer and colorimeter manuals and also in the internet at **http://photometry.merck.de**. This ensures that every user is given the optimum support to achieve good results.

Overview A-C

	Test kit	Ord. No. Test kit	CombiCheck	Ord. No. CombiCheck	Standard solution ready-to-use	Ord. No. Standard
A	Acid Capacity Cell Test to pH 4.3 (total alkalinity)	1.01762.0001 1.01762.0002			Sodium hydroxide solution [2]	1.09141.1000
	Aluminium Cell Test	1.00594.0001			[1]	1.19770.0100
	Aluminium Test	1.14825.0001	CombiCheck 40	1.14692.0001	[1]	1.19770.0100
	Aluminium Reagent Set [3]	1.73001.0001			[1]	1.19770.0100
	Ammonium Cell Test	1.14739.0001	CombiCheck 50	1.14695.0001	[1]	1.19812.0500
	Ammonium Cell Test	1.14558.0001	CombiCheck 10	1.14676.0001	[1]	1.19812.0500
	Ammonium Cell Test	1.14544.0001	CombiCheck 20	1.14675.0001	[1]	1.19812.0500
	Ammonium Celll Test	1.14559.0001	CombiCheck 70	1.14689.0001	[1]	1.19812.0500
	Ammonium Test	1.14752.0001	CombiCheck 50	1.14695.0001	[1]	1.19812.0500
	Ammonium Test	1.00683.0001	CombiCheck 70	1.14689.0001	[1]	1.19812.0500
	AOX Cell Test	1.00675.0001			0.2 - 2.0 mg/l AOX	1.00680.0001
	Arsenic Test	1.01747.0001			[1]	1.19773.0100
B	Boron Cell Test	1.00826.0001			[1]	1.19500.0100
	Boron Test	1.14839.0001			[1]	1.19500.0100
	Bromate				[2]	1.04912.0100
	Bromine Test	1.00605.0001			DIN EN ISO 7393 [2]	
	BOD Cell Test	1.00687.0001			EN 1899, 210 mg/l	1.00718.0001
C	Cadmium Cell Test	1.14834.0001	CombiCheck 30	1.14677.0001	[1]	1.19777.0100
	Cadmium Test	1.01745.0001				1.19777.0100
	Calcium Cell Test	1.00858.0001			[1]	1.19778.0100
	Calcium Test	1.14815.0001			[1]	1.19778.0100

[1] Standard solution, ready-to-use, 1000 mg/l analyt. Traceable to SRM of NIST
[2] Own standards. Worksheets how to prepare these standards can be downloaded from our website **http://photometry.merck.de**
[3] for non-Merck photometers

> For further information see website:

Spectroquant® quality assurance

Overview C-F

	Test kit	Ord. No. Test kit	CombiCheck	Ord. No. CombiCheck	Standard solution ready-to-use	Ord. No. Standard
C	Chloride Cell Test	1.14730.0001	CombiCheck 10 CombiCheck 20	1.14676.0001 1.14675.0001	1)	1.19897.0500
	Chloride Test	1.14897.0001	CombiCheck 60	1.14696.0001	1)	1.19897.0500
	Chlorine Cell test (free)	1.00595.0001			DIN EN ISO 7393 2)	
	Chlorine Test (free)	1.00598.0002 1.00598.0001			DIN EN ISO 7393 2)	
	Chlorine Test (total)	1.00602.0001 1.00602.0002			DIN EN ISO 7393 2)	
	Chlorine Cell Test (free and total)	1.00597.0001			DIN EN ISO 7393 2)	
	Chlorine Test (free and total)	1.00599.0001			DIN EN ISO 7393 2)	
	Chlorine Powder Packs 3) (free)	1.73002.0001 1.73003.0001			DIN EN ISO 7393 2)	
	Chlorine Powder Packs 3) (total)	1.73004.0001 1.73005.0001			DIN EN ISO 7393 2)	
	Chlorine dioxide Test	1.00608.0001			DIN EN ISO 7393 2)	
	Chromate Cell Test	1.14552.0001			1)	1.19780.0500
	Chromate Test	1.14758.0001			1)	1.19780.0500
	COD Cell Test	1.14560.0001	CombiCheck 50	1.14695.0001	2)	
	COD Cell Test	1.14540.0001	CombiCheck 10	1.14676.0001	2)	
	COD Cell Test	1.14895.0001	CombiCheck 60	1.14696.0001	2)	
	COD Cell Test	1.14690.0001	CombiCheck 60	1.14696.0001	2)	
	COD Cell Test	1.14541.0001	CombiCheck 20	1.14675.0001	2)	
	COD Cell Test	1.14691.0001	CombiCheck 80	1.14738.0001	2)	
	COD Cell Test	1.14555.0001	CombiCheck 70	1.14689.0001	2)	
	COD Cell Test (Hg-free)	1.09772.0001	CombiCheck 10	1.14676.0001	2)	
	COD Cell Test (Hg-free)	1.09773.0001	CombiCheck 20	1.14675.0001	2)	
	COD Cell Test 3)	1.18750.0001	CombiCheck 50	1.14695.0001	2)	
	COD Cell Test 3)	1.18751.0001	CombiCheck 10	1.14676.0001	2)	
	COD Cell Test 3)	1.18752.0001	CombiCheck 20	1.14675.0001	2)	
	COD Cell Test 3)	1.18753.0001	CombiCheck 70	1.14689.0001	2)	
	Copper Cell Test	1.14553.0001	CombiCheck 30	1.14677.0001	1)	1.19786.0100
	Copper Test	1.14767.0001	CombiCheck 30	1.14677.0001		1.19786.0100
	Copper Powder Packs 3)	1.73006.0001	CombiCheck 30	1.14677.0001	1)	1.19786.0100
	Cyanide Cell Test	1.14561.0001			1)	1.19533.0500
	Cyanide Test	1.09701.0001			1)	1.19533.0500
F	Fluoride Cell Test	1.14557.0001			1)	1.19814.0500
	Fluoride Test	1.14598.0001			1)	1.19814.0500
	Formaldehyde Cell Test	1.14500.0001			1)	
	Formaldehyde Test	1.14678.0001			1)	

1) Standard solution, ready-to-use, 1000 mg/l analyt. Traceable to SRM of NIST
2) Own standards. Worksheets how to prepare these standards can be downloaded from our website http://photometry.merck.de
3) for non-Merck photometers

Overview G-N

	Test kit	Ord. No. Test kit	CombiCheck	Ord. No. CombiCheck	Standard solution ready-to-use	Ord. No. Standard
G	Gold Test	1.14821.0001			1)	
H	Hydrazine Test	1.09711.0001			2)	
	Hydrogen peroxide Cell Test	1.14731.0001			2)	
	Hydrogen peroxide Test	1.18789.0001			2)	
I	Iodine Test	1.00606.0001			DIN EN ISO 7393 2)	
	Iron Cell Test	1.14549.0001	CombiCheck 30	1.14677.0001	1)	1.19781.0100
	Iron Cell Test	1.14896.0001			1)	1.19781.0100
	Iron Test	1.14761.0002 1.14761.0001	CombiCheck 30	1.14677.0001	1)	1.19781.0100
	Iron Test	1.00796.0001	CombiCheck 30	1.14677.0001	1)	1.19781.0100
	Iron Powder Packs 3)	1.73007.0001	CombiCheck 30	1.14677.0001	1)	1.19781.0100
L	Lead Cell Test	1.14833.0001	CombiCheck 40	1.14692.0001	1)	1.19776.0100
	Lead Test	1.09717.0001	CombiCheck 40	1.14692.0001	1)	1.19776.0100
M	Magnesium Cell Test	1.00815.0001			1)	1.19788.0100
	Manganese Cell Test	1.00816.0001	CombiCheck 30	1.14677.0001	1)	1.19789.0100
	Manganese Test	1.01739.0001			1)	1.19789.0100
	Manganese Test	1.14770.0001	CombiCheck 30	1.14677.0001	1)	1.19789.0100
	Manganese Reagent Test 3)	1.73008.0001			1)	1.19789.0100
	Molybdenum Cell Test	1.00860.0001			1)	1.70227.0100
	Monochloramine Test	1.01632.0001			2)	1.19811.0500
N	Nickel Cell Test	1.14554.0001	CombiCheck 40	1.14692.0001	1)	1.09989.0001
	Nickel Test	1.14785.0001	CombiCheck 40	1.14692.0001	1)	1.09989.0001
	Nitrate Cell Test	1.14542.0001	CombiCheck 20	1.14675.0001	1)	1.19811.0500
	Nitrate Cell Test	1.14563.0001	CombiCheck 20	1.14675.0001	1)	1.19811.0500
	Nitrate Cell Test	1.14764.0001	CombiCheck 80	1.14738.0001	1)	1.19811.0500
	Nitrate Cell Test	1.00614.0001			1)	1.19811.0500
	Nitrate Test	1.14773.0001	CombiCheck 10 CombiCheck 20	1.14676.0001 1.14675.0001	1)	1.19811.0500
	Nitrate Test	1.09713.0001	CombiCheck 20	1.14675.0001	1)	1.19811.0500
	Nitrate Cell Test in seawater	1.14556.0001	CombiCheck 10	1.14676.0001	1)	1.19811.0500
	Nitrate Test in seawater	1.14942.0001	CombiCheck 20	1.14675.0001	1)	1.19811.0500
	Nitrite Cell Test	1.14547.0001			1)	1.19899.0500
	Nitrite Test	1.14776.0002 1.14776.0001			1)	1.19899.0500
	Nitrite Cell Test	1.00609.0001			1)	1.19899.0500
	Nitrite Powder Packs 3)	1.73009.0001 1.73010.0001			1)	1.19899.0500

> For further information see website:

Spectroquant® quality assurance

Overview O-S

	Test kit	Ord. No. Test kit	CombiCheck	Ord. No. CombiCheck	Standard solution ready-to-use	Ord. No. Standard
O	Oxygen, dissolved Cell Test	1.14694.0001			DIN EN 25814 G22	
	Ozone-Test	1.00607.0001 1.00607.0002			DIN EN ISO 7393 [2]	
P	pH Cell Test	1.01744.0001			Buffer solution pH 7 [2]	1.09439.1000
	Phenol Cell Test	1.14551.0001			[2]	
	Phenol Test	1.00856.0001			[2]	
	Phosphate Cell Test	1.14543.0001	CombiCheck 10	1.14676.0001	[1]	1.19898.0500
	Phosphate Cell Test	1.14729.0001	CombiCheck 20 CombiCheck 80	1.14675.0001 1.14738.0001	[1]	1.19898.0500
	Phosphate Cell Test	1.00616.0001			[1]	1.19898.0500
	Phosphate Test	1.14848.0001	CombiCheck 10	1.14676.0001	[1]	1.19898.0500
	Phosphate Test	1.00798.0001			[1]	1.19898.0500
	Phosphate Cell Test	1.14546.0001			[1]	1.19898.0500
	Phosphate Test	1.14842.0001			[1]	1.19898.0500
	Phosphate Powder Packs [3]	1.73011.0001	CombiCheck 10	1.14676.0001	[1]	1.19898.0500
	Potassium Cell Test	1.14562.0001			[1]	1.70230.0100
	Potassium Cell Test	1.00615.0001			[1]	1.70230.0100
R	Residual Hardness Cell Test	1.14683.0001			[1]	1.19778.0100
S	Silicate (silicic acid) Test	1.14794.0001			[1] [2]	1.70236.0100
	Silicate (silicic acid) Test	1.00857.0001			[1] [2]	1.70236.0100
	Silicate Reagent Sets [3]	1.73012.0001 1.73013.0001			[1] [2]	1.70236.0100
	Silver Test	1.14831.0001			[1]	1.19797.0100
	Sodium Cell Test	1.00885.0001			[2]	1.19811.0500
	Sulfate Cell Test	1.14548.0001	CombiCheck 10	1.14676.0001	[1]	1.19813.0500
	Sulfate Cell Test	1.00617.0001	CombiCheck 10	1.14676.0001	[1]	1.19813.0500
	Sulfate Cell Test	1.14564.0001	CombiCheck 20	1.14675.0001	[1]	1.19813.0500
	Sulfate Test	1.14791.0001	CombiCheck 10	1.14676.0001	[1]	1.19813.0500
	Sulfate Powder Packs [3]	1.73014.0001 1.73015.0001			[1]	1.19813.0500
	Sulfide Test	1.14779.0001			[2]	
	Sulfite Cell Test	1.14394.0001			[2]	
	Sulfite Test	1.01746.0001			[2]	
	Surfactants (anionic) Cell Test	1.14697.0001			[2]	
	Surfactants (kationic) Cell Test	1.01764.0001			[2]	
	Surfactants (nonionic) Cell Test	1.01787.0001			[2]	

[1] Standard solution, ready-to-use, 1000 mg/l analyt. Traceable to SRM of NIST

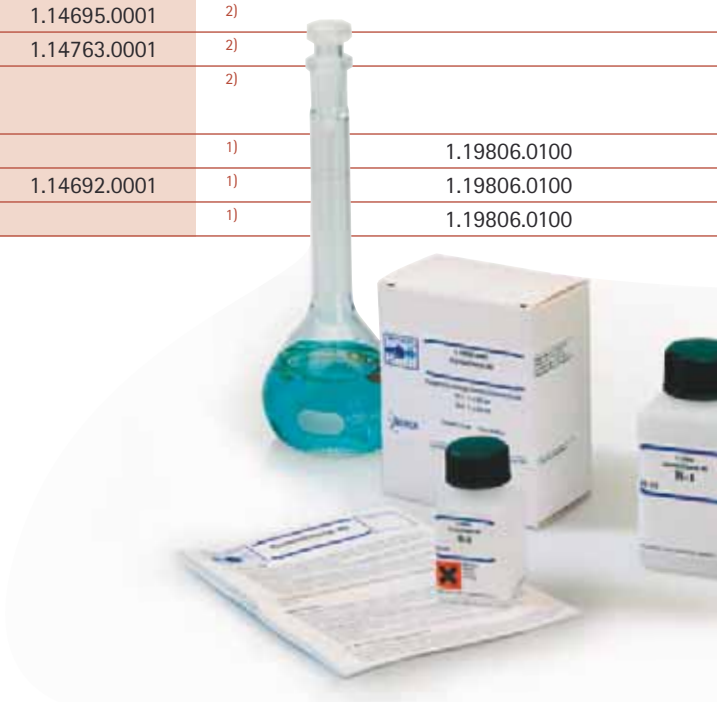
[2] Own standards. Worksheets how to prepare these standards can be downloaded from our website http://photometry.merck.de

[3] for non-Merck photometers

Overview T-Z

	Test kit	Ord. No. Test kit	CombiCheck	Ord. No. CombiCheck	Standard solution ready-to-use	Ord. No. Standard
T	Tin Cell Test	1.14622.0001			1)	1.70242.0100
	TOC Cell Test	1.14878.0001			1)	1.09017.0100
	TOC Cell Test	1.14879.0001			1)	1.09017.0100
	Total Hardness Cell Test	1.00961.0001			1)	1.19778.0100
	Total Nitrogen Cell Test	1.00613.0001	CombiCheck 50	1.14695.0001	2)	
	Total Nitrogen Cell Test	1.14537.0001	CombiCheck 50	1.14695.0001	2)	
	Total Nitrogen Cell Test	1.14763.0001	CombiCheck 70	1.14763.0001	2)	
V	Volatile Organic Acid Cell Test	1.01763.0001			2)	
Z	Zinc Cell Test	1.00861.0001			1)	1.19806.0100
	Zinc Cell Test	1.14566.0001	CombiCheck 40	1.14692.0001	1)	1.19806.0100
	Zinc Test	1.14832.0001			1)	1.19806.0100

1) Standard solution, ready-to-use, 1,000 mg/l analyt. Traceable to SRM of NIST
2) Own standards. Worksheets how to prepare these standards can be downloaded from our website http://photometry.merck.de



Cleaning agents for cells and glass vessels

The cleanliness of the working environment and accessories is an unconditional prerequisite for the accuracy of the measurements. All instruments used must be clean and dry. After the analysis has been completed, the volumetric flasks, pipettes, reagent vessels, and cells used must be thoroughly washed with water immediately and subsequently rinsed with distilled water. The cell surfaces must be absolutely clean, dry, and clear. Any stains or marks adhering to surfaces can be wiped off using a dry cloth. Greasy marks can be removed by immersing the vessel in question in 2 - 5 % Extran and subsequently rinsing with distilled water.

Extran MA 02 neutral is adequate for normal stains and marks (Caution! Do not use in connection with the determination of phosphorus, since Extran MA 02 neutral contains phosphates). The pH of a 2 - 5 % solution is approx. 7.2 - 7.5. In the case of stubborn stains it is advisable to use Extran MA 03 phosphate-free. The pH of a 2 - 5 % solution is approx. 11.6 - 12.0.

	Ord. No.
Extran detergent, MA 02 neutral (1 pack = 2.5 l)	1.07553.2500
Extran detergent, MA 03 phosphate-free (1 pack = 2.5 l)	1.07550.2500

> For further information see website:

Spectroquant® service

Simply competent

We offer our customers over the world a comprehensive range of services, from professional training courses via practical application advice all the way to issues concerning environmentally compatible disposal. The aspect of safety in connection with the use of the Spectroquant® analysis system is a major component of the AQA concept.

On-the-spot consultancy

In addition to giving advice in matters of analysis and technical instruction by or local specialists, we have also installed competent and practically oriented hotlines in almost all countries throughout the world. Inquiries are answered immediately or else forwarded to our specialists from the development sector.

Training courses and seminars

Regular training courses are run to give users tips and hints of use in analysis and that help them to avoid making errors in their day-to-day operations. These training courses and seminars are always held with a small number of participants to ensure an intensive and lively exchange of ideas, providing the opportunity to deal with the questions raised by the participants individually and in detail.

Internet

You can visit us in the internet to take a closer look at our products, applications, and services. Go to our internet page http://photometry.merck.de to download the latest method data and operating instructions for the photometers free of charge. Quality certificates, batch certificates, and special applications are also available there. The chart titled "Photometric test kist from A–Z" will tell you all you want to know about our products.

Reference laboratory

If you wish to compare your results with those yielded by reference methods gained in accredited laboratories, together with our independent external partners in the field we can offer you this service, too.

Safety information

We have a comprehensive library of literature on the widest conceivable range of analytical matters for our customers. Merck offers the globally most extensive product range and is internationally acknowledged as having the greatest competence in the field of analytical chemistry. Why not make the best use of our expertise? Various publications will give you a swift and up-to-date overview of what's going on in the field of environmental analysis. Detailed safety data sheets covering all aspects of safety are available on request, also on electronic media.

Applications

Our Spectroquant® system can be used directly for the analysis of drinking water and for »normal« wastewater investigation. There are, however, some areas of application – for example the determination of calcium in milk, of chloride in concrete, or of phosphorus in waste-dump percolating water – that require special sample-pretreatment measures. To enable you to conduct such analyses without too great an effort, we keep a stock of more than 300 applications ready for you to assist you in your work. New applications are added on a regular basis.

Disposal

The principle of environmental protection starts with the foresighted development of new products employing safe and environmentally compatible methods. The recycling of used test kits is already a constituent part of the development of our products. Taking these principles into due consideration, Merck has implemented an extensive and customer-friendly concept for the entire range of Spectroquant® products. In this concept not only the used packaging materials, but also used chemicals and reagents are recycled using environmentally compatible methods.

> For further information see website:

Turbiquant® turbidimetry

pH test strips and papers from page 14

Merckoquant® Products from page 18

Aquamerck® Microquant® Aquaquant® from page 26

Reflectoquant® Products from page 44

Spectroquant® Products from page 52

Fast, simple, exact

Measure turbidities with the Turbiquant® instruments from Merck.
Here you'll find the right solutions for:

- Drinking water
- Wastewater
- Surface water
- Industrial process water

Our instruments are suited for both investigations in the laboratory as well as on-the-spot analyses. We have developed the various models of the Turbiquant® turbidimetry instruments with a focus on routine measurements. A feature they all have in common is their ease of use and high sample throughput that they make possible.

The Turbiquant® system:
Even more precise instruments and further standards are now available!

The advantages of the Turbiquant® system

- Easy to operate and calibrate
- Reliable and reproducible results
- Measurements according to EN ISO 7027 resp. USEPA 180.1
- GLP functions, data transfer
- Broad range of standards for immediate use
- Comprehensive range of accessories, also for continuous-flow measurements

Deionized water
0.02 NTU

Drinking water
0.02 to 0.5 NTU

Spring water
0.05 to 10 NTU

Wastewater (untreated)
70 to 2,000 NTU

Sift water (paper industry)
60 to 800 NTU

Turbidity – an expressive parameter in drinking- and wastewater treatment, the beverages industry, and in the chemical sector. Here a few typical turbidity values

> For further information see website:

Turbiquant® 1100 IR and 1100 T

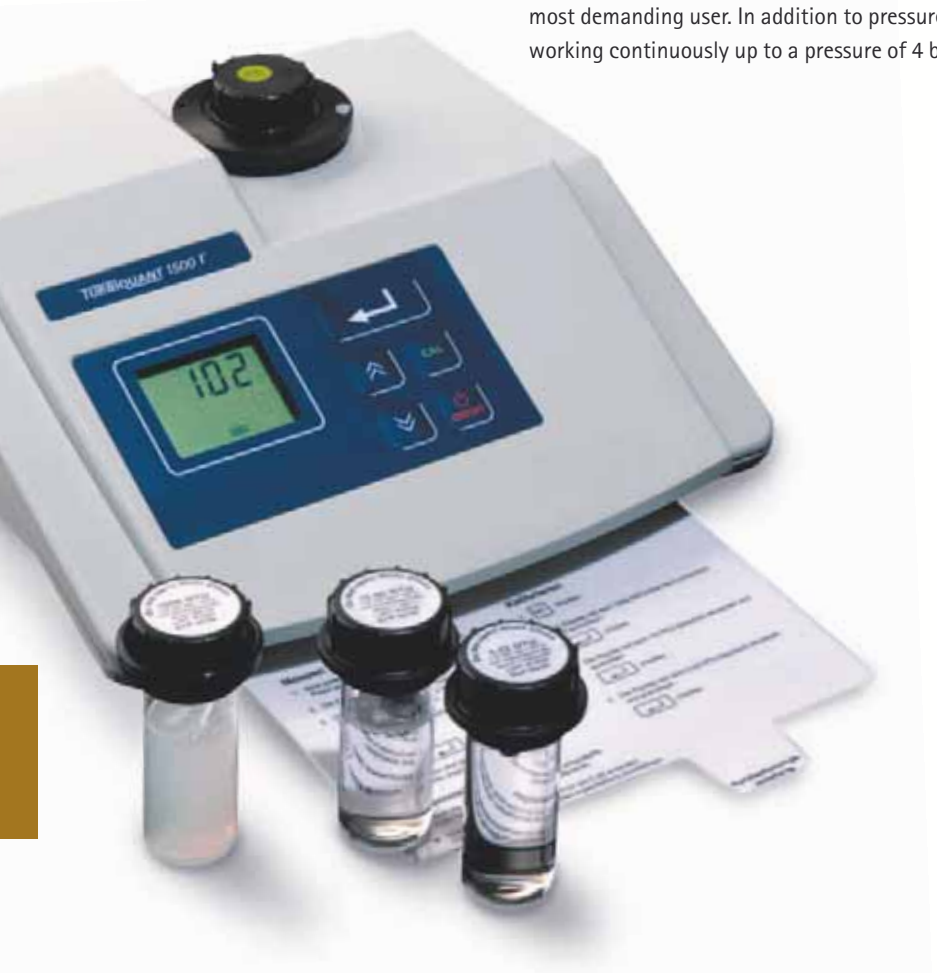
These instruments are particularly suited for on-the-spot measurements. A robust carry-case and the waterproof casing offer additional protection.

Turbiquant® 1500 IR and 1500 T

The instrument automatically selects the correct measuring range. A monitoring feature for the calibration interval makes its operation even easier. The special adapter makes it possible to run pressureless continuous-flow measurements.

Turbiquant® 3000 IR and 3000 T

With its high-precision operation in the measuring range from 0.0001 to 10,000 NTU, this instrument is suited for the analysis of extra-pure water and quality-assurance operations in the beverages industry all the way to the investigation of wastewaters. Comprehensive AQA functions, the display of results in NTU, EBC, FNU, FAU, and nephelos, and the ratio-measurement option satisfies even the most demanding user. In addition to pressureless continuous-flow measurements it is also capable of working continuously up to a pressure of 4 bar.



IR or T – where's the difference?

For standard-compliant measurements according to EN ISO 7027 an IR-LED (infrared) light source with a wavelength of 860 nm is prescribed (IR-models).

The USEPA Method 180.1 and also APHA - AWWA - WPCF require the use of a tungsten lamp emitting white light (T-models).

IR measurements show no interference when coloured solutions are used. Tungsten lamps are more sensitive in cases in which the most minute particles are to be measured.

The Turbiquant® system at a glance

Turbiquant® 1100 – for on-the-spot measurements

Instrument	Light source	Measuring range	Applications	Special features
Turbiquant® 1100 IR	IR LED	0.01 – 1,100 NTU/ FNU	Portable instrument for on-the-spot analysis	Portable, battery-operated instrument
Turbiquant® 1100 T	Tungsten lamp	0,01 - 1,100 NTU/ FNU	Portable instrument for on-the-spot analysis	Portable, battery-operated instrument

Turbiquant® 1500 – instrument for routine measurements in the laboratory

Instrument	Light source	Measuring range	Applications	Special features
Turbiquant® 1500 IR	IR LED	0 - 1,000 NTU/FNU	Standard instrument for all applications in the laboratory drinking water	Continuous-flow measure-ments (pressureless), AQA functions
Turbiquant® 1500 T	Tungsten lamp	0 - 1,000 NTU/FNU	Standard instrument for all applications in the laboratory drinking water	Continuous-flow measure-ments (pressureless), AQA functions

Turbiquant® 3000 – the precision instrument for turbidimetry

Instrument	Light source	Measuring range	Applications	Special features
Turbiquant® 3000 IR	IR LED	0-10,000 NTU/ FNU/FAU, 0-2,450 EBC	Precision instrument also for demanding turbidimetric applications	Continuous-flow measurements (pressureless or up to 4 bar), AQA functions, passwort protection, ratio measurements, transmission (IR only)
Turbiquant® 3000 T	Tungsten lamp	0-10,000 NTU, 0-2,450 EBC, 0-67,000 NEPHELO	Precision instrument also for demanding turbidimetric applications	Continuous-flow measurements (pressureless or up to 4 bar), AQA functions, passwort protection, ratio measurements

The measurement method of the Turbiquant® 1100/1500/3000 IR instruments conforms with EN ISO 7027, that in the Turbiquant® 1100/1500/3000 instruments is analogous to the guidelines of the USEPA.

> For further information see website:

Turbiquant® instruments

Turbidimetry with Turbiquant®

The **Turbiquant® 1100 IR and 1100 T** instruments are portable, battery-operated turbidimeters. The four standard batteries provide power for more than 5,000 measurements. The easy operation, the practical carrying case, and the waterproof casing that ensures that the electronic components are adequately protected make the new Turbiquant® 1100 IR and 1100 T the ideal instrument for on-the-spot analysis.

Technical specifications of the Turbiquant® 1100 turbidimeter:

Ord. No. 1.18324.0001 — **Turbiquant® 1100 IR turbidimeter**

Portable, battery-operated instrument for on-the-spot analysis	
Scope of delivery	2 empty cells, manual, handy hints, carrying case, 4 batteries
Measuring principle	nephelometric – 90° scattered light, conform with EN ISO 7027
Light source	IR LED
Indication of units	NTU / FNU
Measuring range	0.01 -1,100 NTU
Resolution	0.01 within the range 0.01 < x < 99.99 NTU 0.1 within the range 100.0 < x < 999.9 NTU 1 within the range 1,000 < x < 1,100 NTU
Accuracy	±2 % of reading or ±0.1 NTU for range 0 - 500 NTU ±3 % of reading for range 500 - 1,100 NTU
Calibration	automatic 1 to 3 points
Response time	14 s
Cuvettes	25 x 45 mm
Sample volume	15 ml
Protection type	designed to meet IP 67
GLP function	control of calibration intervals, self test
Power requirements	4 alkali manganese batteries, AAA / Micro
Registration	CE
Warranty	2 years

Also required: Turbiquant® Calibration Standard Set **Ord. No. 1.18335.0001**

Ord. No. 1.18325.0001 — **Turbiquant® 1100 T turbidimeter**

Portable, battery-operated instrument for on-the-spot analysis	
Scope of delivery	2 empty cells, manual, handy hints, carrying case, 4 batteries
Specifications	same as Turbiquant® 1100 IR, but tungsten-halogen lamp
Measurement principle	nephelometric – 90° scattered light, follows USEPA recommendations
Light source	tungsten-halogen lamp
Measurement units	NTU / FNU
Warranty	2 years

Also required: Turbiquant® Calibration Standard Set **Ord. No. 1.18335.0001**

Turbiquant® 1500 IR and 1500 T These instruments have large and easy-to-read displays and can be simply operated with just a few buttons. It goes without saying that the user is guided through the operation procedure via the display. A continuous-flow cell enables a high sample throughput to be achieved.

Turbiquant® 1500 IR turbidimeter		Ord. No. 1.18330.0001
For routine measurements in the laboratory		
Scope of delivery	universal power supply / plug 3 empty cells, manual, handy hints	
Measurement modes	nephelometric (non ratio), conform with EN ISO 7027	
Light source	IR LED	
Indication of units	NTU	
Measuring range	0 - 1,000 NTU	
Resolution	max. 0.01 within the range 0 < x <10 NTU max. 0.1 within the range 10 < x < 100 NTU max. 1 within the range 100 < x < 1,000 NTU	
Accuracy	± 2 % of reading or ± 0.01 NTU for range 0.00 - 1,000 NTU	
Repeatability	< ± 1 % of reading or ± 0.01 NTU	
Calibration	automatic 1 to 3 points	
Response time	< 3 s	
Cuvettes	28 x 70 mm	
Sample volume	25 ml	
Serial input / output	RS 232, uni-directional	
Real time clock	integrated	
GLP function	control of calibration intervals, self test	
Power requirements	universal power supply / plug	
Registration	CE, UL, CSA, TÜV-GS	
Warranty	2 years	

Also required: Turbiquant® Calibration Standard Set Ord. No. 1.18328.0001

Turbiquant® 1500 T turbidimeter		Ord. No. 1.18331.0001
For routine measurements in the laboratory		
Scope of delivery	universal power supply / plug 3 empty cells, manual, handy hints	
Specifications	same as Turbiquant® 1500 IR, but tungsten-halogen lamp	
Measurement principle	nephelometric (non-ratio), follows USEPA recommendations	
Light source	tungsten-halogen lamp	
Warranty	2 years	

Also required: Turbiquant® Calibration Standard Set Ord. No. 1.18328.0001

> For further information see website:

Turbiquant® instruments

Turbiquant® 3000 IR oder 3000 T In addition to the specifications of the TURBIQUANT® 1500 IR and 1500 T the user can select different measurement methods and result terms. The TURBIQUANT® 3000 IR, for example can display the following units:

- NTU (nephelometric turbidity units, 90° diffused-light measurement)
- EBC (guidelines of the European Brewery Convention)
- FNU (formazine nephelometric units, (calibration with formazine))
- FAU (formazine attenuation units, (DIN measurement beyond 40 FNU))

The methods available are those of nephelometry, densitometry and ratio measurement. It is also possible to make continuous-flow measurements with a low-pressure continuous-flow cell using a purging gas.

Ord. No. 1.18332.0001 **Turbiquant® 3000 IR turbidimeter**

The precision instrument	
Scope of delivery	power supply / plug, 3 empty cells, manual, handy hints
Measurement modes	nephelometric (non-ratio / ratio, selectable), conform with EN ISO 7027
Light source	IR LED
Indication of units	NTU, FNU, FAU, EBC
Measuring range	0 - 10,000 NTU, 0 - 10,000 FNU, 0 - 10,000 FAU, 0 - 2,450 EBC
Resolution	selectable 0.1 - 0.0001 NTU max. 0.0001 within the range 0 < x < 10 NTU max. 0.001 within the range 10 < x < 100 NTU max. 0.01 within the range 100 < x < 1,000 NTU max. 0.1 within the range 1,000 < x < 10,000 NTU
Accuracy	±2 % of reading or ±0.01 NTU for range 0.00 - 1,000 NTU ±5 % of reading for range 1,000 - 4,000 NTU ±10 % of reading for range 4,000 - 10,000 NTU
Repeatability	< ±1 % of reading or ±0.01 NTU
Calibration	automatic 1 to 4 points (to 1,750 NTU) 10,000 NTU selectable
Response time	< 6 s
Cuvettes	28 x 70 mm
Sample volume	25 ml
Serial input / output	RS 232, bi-directional
Real time clock	integrated
GLP function	control of calibration intervals, self test, calibration and instrument configuration are access code protected
Power requirements	universal power supply / plug
Registration	CE, UL, CSA, TÜV-GS
Warranty	2 years

Also required: Turbiquant® Calibration Standard Set **Ord. No. 1.18329.0001**

Turbiquant® 3000 T turbidimeter		Ord. No. 1.18333.0001
The precision instrument		
Scope of delivery	universal power supply / plug 3 empty cells, manual, handy hints	
Specification	same as Turbiquant® 3000 IR, but tungsten halogen lamp	
Measuring mode	nephelometric (non-ratio/ratio, selectable), follows USEPA recommendations	
Light source	tungsten-halogen lamp	
Indication of units	NTU, EBC, nephelos	
Measuring	0 - 10,000 NTU, 0 - 2,450 EBC, 0 - 67,000 nephelos	
Warranty	2 years	

Also required: Turbiquant® Calibration Standard Set Ord. No. 1.18349.0001

Turbiquant® accessories

Empty cells	Ord. No.
Turbiquant® 1000/1100 cells (1 pack = 3 pcs)	1.18320.0001
Turbiquant® 1500/3000 cells (1 pack = 3 pcs)	1.18336.0001

Lamps	Ord. No.
Turbiquant® 1500 IR lamp module	1.18344.0001
Turbiquant® 3000 IR lamp module	1.18382.0001
Turbiquant® 1500/3000 tungsten lamp module	1.18338.0001

Other accessories and cables	Ord. No.
Turbiquant® 1500/3000 cell rack	1.18339.0001
Turbiquant® 1500/3000 continuous-flow cell	1.18340.0001
Turbiquant® 3000 continuous-flow cell (low-pressure)	1.18341.0001
Printer cabel for Turbiquant® 1500/3000 (for serial interface)	1.09759.0001
PC cable for Turbiquant® 1500/3000 (for serial interface)	1.14667.0001

> For further information see website:

Turbiquant® calibration standards

Primary calibration standards

AMCO-AEPA-1® Microspheres are primary calibration standards that conform with USEPA Method 180.1. (see also Standard Methods for Examination of Water and Wastewater 21st Edition (2005), Section 2130, Turbidity).

In compliance with EN ISO standard 7027: 1999 Water Quality – Turbidimetry – these standards count as alternative secondary standards to freshly prepared formazine suspensions.

The advantages of the new Turbiquant® calibration standards:

1. The new primary standards have official approval that the secondary standards do not.
2. Instruments used in the analysis of drinking water must no longer be certified with a separate primary standard.
3. The easy-to-survey final test protocol is enclosed with every set.
4. The new standards possess an incomparable precision. As a consequence the tolerances for the Turbiquant® standards have been altered:

10	NTU	±1 %
100	NTU	±1 %
1,000	NTU	±1 %
1,750	NTU	±2 %
10,000	NTU	±2 %

5. The standards are supplied ready for use.
6. They are nontoxic.
7. They can be stored and transported without problem.

Turbiquant® Calibration Standard Sets

Turbiquant® 1000 Calibration Standard	Ord. No.
Turbiquant® 1000 IR Calibration Standard Set 4 standards 0.02 - 10.0 – 100.0- 1,000 NTU	1.18327.0001

Turbiquant® 1100 Calibration Standard	Ord. No.
Turbiquant® 1100 IR / 1100 T Calibration Standard Set 3 standards 0.02 - 10.0 - 1,000 NTU	1.18335.0001

Turbiquant® 1500 Calibration Standard	Ord. No.
Turbiquant® 1500 IR / 1500 T Calibration Standard Set 3 standards 0.02 - 10.0 - 1,000 NTU	1.18328.0001

Turbiquant® 3000 Calibration Standard	Ord. No.
Turbiquant® 3000 IR Calibration Standard Set 4 standards 0.02 - 10.00 - 100.0 - 1,750 NTU	1.18329.0001
Turbiquant® 3000 T Calibration Standard Set 4 standards 0.02 - 10.00 - 100.0 - 1,750 NTU	1.18349.0001
Turbiquant® 3000 IR Calibration Standard 10,000 NTU	1.18342.0001
Turbiquant® 3000 T Calibration Standard 10,000 NTU	1.18343.0001

Turbiquant® *Don't forget to add the Turbiquant® Calibration Standard Set to your order of the instrument!*

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