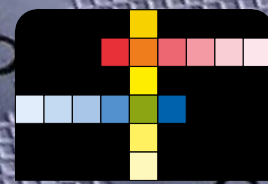


# Reagents



Lovibond®

since 1885

Distributed By:

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**Indicator Systems**  
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**Reagents**  
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# Indicator-Systems



## Green chemistry

For decades, the Tintometer® Group has been known as a producer of reagents for water analysis, which are supplied under the brand name Lovibond®.

The wide range of applications requires different types of reagents.

Also, users tend to have personal preferences as to which dosage system to use.

Our broad product range covers blistered tablet reagents, powder reagents packed in aluminium foil and pre-dosed liquid reagents in dropper bottles.

With all our reagents, we strive to keep the formulations as environmentally friendly as possible. Hazardous substances are – whenever possible – replaced by harmless and functionally identical substitutes.

Where the required chemistry of the detection method makes the use of these substances absolutely necessary, the concentration levels are lowered to the minimum rate, without compromising the accuracy of the analysis results.

For example, our reagents for Pool & Spa water testing are free from boric acid, which is still frequently being used as an additive in the industry. The European Union (EU) has classified boric acid as a dangerous substance.

The Lovibond® DPD No. 1 tablets are not only 100% free from boric acid, they also guarantee compliance with the buffering effect required by the standard.

This characteristic makes the tablet a leader in its field.



## Tablet reagents

The reagent tablet is the most popular indicator system because it has several advantages. Its precise dosability, easy handling and very long shelf life make it a popular choice. Tablets can withstand almost all climatic conditions.

In part only thanks to the aluminium blister packaging, from which they can be released at the press of a finger. Their compact form leaves almost no room for changes in the mixture due to external influences. Individually packaged, some tablets can be stored for up to 10 years. The weight of the tablet is fixed within very narrow limits. This allows a high dosing accuracy to be achieved. These solid tablets are designed for ease of use and to dissolve easily in the sample being tested.

Achieving a tablet substance which has both the solidity and the ease of dissolution needed for ease of use whilst having no undesired effects upon the analytical results requires many years of experience and a deep knowledge of the underlying chemistry.

You can therefore rely on over 130 years of expertise in the production of reagent tablets by Lovibond®.



## Liquid reagents

The use of liquid reagents has one decisive advantage: their speed, because there is no need to dissolve reagents in solid form. However, liquid reagents must be dosed exactly, for example, with a pipette. Warning: Incorrect handling can result in significant dosage errors. In addition, pipettes must be checked continuously to ensure that they remain accurate.

Because of these issues, the counting of droplets for simple dosing has therefore become established.

Here, too, there are external factors that can influence the result. This is because the drop size can change due to temperature, material, diameter of the dosing tip and composition of the reagent.

Liquid reagents have a significantly shorter shelf life than comparable products in solid form. The shelf life also deteriorates after opening. If the storage conditions are observed, Lovibond® DPD and Phenol red solutions have a shelf life of up to two years from the date of manufacture.



## Powder reagents

Simply tear open the aluminium foil pack and add the contents to the water sample: Powder reagents can be used easily and quickly. This makes the Powder Packs a popular means of detection in water analysis in many countries.

Lovibond® Powder Packs are manufactured to the same high quality standards that have been tried and tested in tablet production for decades.



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

Tintometer is appreciated worldwide for this.

The Lovibond® Powder Pack range is a valuable addition to the range of reagent systems. In addition, the range covers all known parameters - from aluminum to chlorine and to the sulfate.

Due to their chemical properties, Lovibond® Powder Packs can also be used in Hach® equipment.



### Tube tests

It couldn't be easier:

The cuvettes already contain the essential indicators and reagents in the exact dosage required. Simply add the sample substance, insert it into the photometric measuring instrument and the result is available.

Anyone can carry out these simple tube tests. This makes highly sensitive and precise water tests exceptionally easy. The sample liquid discolors as soon as the reagent chemicals are added.

The photometer measures this discoloration and allows conclusions to be drawn about the concentration of the parameter being investigated. The process is standardized, save time and everyone is able to perform it, with significant reductions in workload.

The pre-dosed reagents eliminate the need to handle hazardous chemicals. This also increases work safety.

Up to six different measuring ranges are available for individual sample verifications. The round cuvettes are Ø 16 mm made of special optical glass as well as digestion or auxiliary reagents are supplied in a storage and shipping box. It contains 24 or 25 reaction cuvettes and up to 2 zero cuvettes for adjusting the photometer systems.

### Environmental Protection

In many countries used cuvette tests are taken back. This is followed by professional disposal or recycling on the basis of the applicable environmental protection aspects.

### Specifications and Certificate of Analysis

To underline the high quality standard of Lovibond® reagents, a specification is available for each reagent and a certificate of analysis for each lot ([www.lovibond.com](http://www.lovibond.com)).

➔ Detailed information see pages 114 - 119

## Preparing samples for photometric measurements



### Membrane filter set

#### Advantages

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

To prevent the effects of light scatter, it must be ensured that all turbid materials are removed from the sample before photometric measurements are carried out. This can be achieved with the Lovibond® membrane filter set.

Where certain methods are employed (e.g., iron, manganese, CSB, etc.) a membrane filter set must be used to differentiate samples in terms of dissolved and total substances. The filter mesh size of 0.45 µm is in accordance with the official German unitary procedure for water testing.

**Order code** 36 61 50  
(covers 25 x 0.45 µm membrane filters and two 20 ml syringes)





# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	MultiDirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500		
Acid capacity $K_{S4.3}$	M20	0,1 - 4 mmol/l	-	610	610	610	610	-	615	615	615	615	Acid/Indicator <sup>1,2</sup>
ADMI	M2530 M2531	2 - 100 mg/l 10 - 500 mg/l									400 bis 700	400 bis 700	Tristimulus Colorimetry
Alkalinity-m	M30	5 - 200 mg/l	610	610	610	610	610	610	615	615	615	615	Acid/Indicator <sup>1,2,5</sup>
Alkalinity-m HR	M31	5 - 500 mg/l	-	-	610	610	610	610	615	615	615	615	Acid/Indicator <sup>1,2,5</sup>
Alkalinity-p	M35	5 - 300 mg/l	-	-	560	560	-	-	551	551	551	551	Acid/Indicator <sup>1,2,5</sup>
Aluminium VARIO	M50	0,01 - 0,25 mg/l	530	-	530	530	530	-	535	535	535	535	Eriochromcyanin R <sup>2</sup>
Aluminium	M40	0,01 - 0,3 mg/l	530	-	530	530	530	-	535	535	535	535	Eriochrome cyanine R <sup>2</sup>
Ammonia	M60	0,02 - 1 mg/l	610	-	610	610	610	-	676	676	676	676	Indophenole blue <sup>2,3</sup>
Ammonia VARIO	M62	0,01 - 0,8 mg/l	660	-	660	660	-	-	655	655	655	655	Salicylate <sup>2</sup>
Ammonia VARIO LR	M65	0,02 - 2,5 mg/l	-	-	660	660	-	-	655	655	655	655	Salicylate <sup>2</sup>
Ammonia VARIO HR	M66	1 - 50 mg/l	-	-	660	660	-	-	655	655	655	655	Salicylate <sup>2</sup>
Arsenic (III, V)	M68	0,02 - 0,6 mg/l	-	-	-	-	-	-	507	507	507	507	Silver diethyldithiocarbamate <sup>1</sup>
Biguanide (see PHMB)													

MSDS(Material Safety Data Sheets):[www.lovibond.com](http://www.lovibond.com)

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

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

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

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
24 mm ø		ALKA-M-PHOTOMETER	Tablet / 100	51 32 10 BT
50 mm □ 10 mm □		Pt-Co Units	no reagents required	
24 mm ø	CaCO <sub>3</sub>	ALKA-M-PHOTOMETER 	Tablet / 100	51 32 10 BT
24 mm ø	CaCO <sub>3</sub>	ALKA-M-HR-PHOTOMETER	Tablet / 100	51 32 40 BT
24 mm ø	CaCO <sub>3</sub>	ALKA-P-PHOTOMETER	Tablet / 100	51 32 30 BT
24 mm ø	Al	VARIO AluminuMECR/F20 VARIO AluminuMHexamine/F20 VARIO AluminuMECRMasking Reagent	Powder Pack / 100 Powder Pack / 100 Liquid reagent / 25 ml <b>Set</b>	53 50 00
24 mm ø	Al	ALUMINIUMNo. 1 ALUMINIUMNo. 2 Combi pack# ALUMINIUMNo.1 / No.2 Combi pack# ALUMINIUMNo.1 / No.2	Tablet / 100 Tablet / 100 each 100 each 250	51 54 60 BT 51 54 70 BT 51 76 01 BT 51 76 02 BT
24 mm ø	NH <sub>4</sub> - N	AMmONIA No. 1 AMmONIA No. 2 Combi pack# AMmONIA No.1 / No.2 Combi pack# AMmONIA No.1 / No.2 Ammonia conditioning powder (for seawater)	Tablet / 100 Tablet / 100 each 100 each 250 Powder / 15 g / 50 Tests	51 25 80 BT 51 25 90 BT 51 76 11 BT 51 76 12 BT 46 01 70
24 mm ø	NH <sub>4</sub> - N	VARIO Ammonia Salicylate F10 VARIO Ammonia Cyanurate F10	Powder Pack / 200 Powder Pack / 200 <b>Set</b>	53 55 00
16 mm ø	NH <sub>4</sub> - N	VARIO Ammonia Salicylate F5 VARIO Ammonia Cyanurate F5 VARIO AMDiluent Reagent LR VARIO Deionised Water (for Zero)	Powder Pack / 50 Powder Pack / 50 Reaction tube / 50 Bottle, 100 ml <b>Set (Tube test)</b>	53 56 00
16 mm ø	NH <sub>4</sub> - N	VARIO Ammonia Salicylate F5 VARIO Ammonia Cyanurate F5 VARIO AMDiluent Reagent HR VARIO Deionised Water (for Zero)	Powder Pack / 50 Powder Pack / 50 Reaction tube / 50 Bottle, 100 ml <b>Set (Tube test)</b>	53 56 50
20 mm □	As	<b>Arsenic Reaction apparatus Set</b> Erlenmeyer flask glass stopper absorption tube <b>W 100</b> (tube, Optical Glass-OG, 20 mm layer depth)		<b>370500</b> 370501 370502 370503 601050

a) determination of free, combined and total

b) Thermoreactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, -phosphate, -nitrogen, (100 °C)

c) MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

d) Spectroquant® is a Merck KGaA Trademark

e) alternative reagent, used instead of DPD No.1 / DPD No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

f) additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine

g) Reagent recovers most insoluble iron oxides without digestion

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

i) high range by dilution

j) Vacu-vials® is a Chemetrics Trademark

# including stirring rod



# Reagents

Test	No. Methods	Range	Wave lengths / nm									Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	MultiDirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500	
<b>Boron</b>	M85	0,1 - 2 mg/l	-	-	430	430	-	-	450	450	450	Azomethine <sup>3</sup>
<b>Bromine</b>	M80	0,05 - 13 mg/l	530	530	530	530	530	530	-	510	510	DPD <sup>5</sup>
		0,05 - 6,5 mg/l	-	-	-	-	-	-	510	-	-	
	M79	0,05 - 1 mg/l	-	-	-	-	-	-	510	510	510	
	M78	0,1 - 3 mg/l	-	-	-	-	-	-	510	510	510	
<b>Bromine Powder</b>	M81	0,05 - 4,5 mg/l	-	-	530	530	-	-	-	510	510	DPD <sup>1,2</sup>
<b>Cadmium (Cd<sup>2+</sup>)</b>	M87	0,025 - 0,75 mg/l	-	-	-	-	-	-	525	525	525	Cadion
<b>Chlorine<sup>a)</sup></b>	M100	0,01 - 6 mg/l	530	530	530	530	530	530	-	510	510	DPD <sup>1,2</sup>
		0,02 - 3 mg/l	-	-	-	-	-	-	510	-	-	
	M99	0,02 - 0,5 mg/l	-	-	-	-	-	-	510	510	510	
	M98	0,1 - 6 mg/l	-	-	-	-	-	-	510	510	510	
<b>Chlorine HR (DPD)<sup>a)</sup></b>	M103	0,1 - 10 mg/l	530	530	530	530	530	530	-	-	-	DPD <sup>1,2</sup>
	M104	0,1 - 10 mg/l	-	-	-	-	-	-	510	510	510	
<b>Chlorine<sup>a)</sup></b>	M101	0,02 - 4 mg/l	530	530	530	530	530	-	-	-	-	DPD <sup>1,2</sup>
		0,02 - 3 mg/l	-	-	-	-	-	-	510	510	510	
<b>Chlorine Powder MR</b>	M113	0,02 - 3,5 mg/l	530	-	530	530	-	-	510	510	510	DPD <sup>1,2</sup>
<b>Chlorine Powder<sup>a)</sup></b>	M110	0,02 - 2 mg/l	530	-	530	530	530	-	510	510	510	DPD <sup>1,2</sup>
	M111	0,1 - 8 mg/l	530	-	530	-	530	-	-	-	-	

MSDS(Material Safety Data Sheets):[www.lovibond.com](http://www.lovibond.com)

For other reagent quantities please see our current price list.























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

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

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

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
24 mm ø	B	BORON No. 1	Tablet / 100	51 57 90BT
		BORON No. 2	Tablet / 100	51 58 00BT
		Combi pack# BORON No.1 / No.2	each 100	51 76 81BT
		Combi pack# BORON No.1 / No.2	each 200	51 76 82BT
24 mm ø	Br	in absence of Chlorine: DPDNo.1		
24 mm ø		Bromine beside Chlorine: DPDNo.1, Glycine		
50 mm □		dif erentiated bromine determination:		
10 mm □		DPDNo.1, DPDNo.3, DPDNitrite		
		DPDNo. 1 	Tablet / 100	51 10 50 BT
		GLYCINE <sup>h)</sup>	Tablet / 100	51 21 70 BT
		DPDNo. 3 	Tablet / 100	51 10 80 BT
		DPDNitrite	Tablet / 250	50 26 91
		Combi pack# DPD No.1 / GLYCINE	each 100	51 77 31 BT
		Combi pack# DPD No.1 / GLYCINE	each 250	51 77 32 BT
		Combi pack# DPD No.1 / No.3 	each 100	51 77 11 BT
		Combi pack# DPD No.1 / No.3 	each 250	51 77 12 BT
		DPDNo. 1 HIGH CALCIUM <sup>e)</sup> 	Tablet / 100	51 57 40 BT
		DPDNo. 3 HIGH CALCIUM <sup>e)</sup> 	Tablet / 100	51 57 30 BT
	Combi pack# DPD No.1 / No.3 HIGH CALCIUM <sup>e)</sup> 	each 100	51 77 81 BT	
Combi pack# DPD No.1 / No.3 HIGH CALCIUM <sup>e)</sup> 	each 250	51 77 82 BT		
24 mm ø	Br	Chlorine TOTAL-DPD/F10	Powder Pack / 100	53 01 20
16 mm ø	Cd	Spectroquant <sup>®</sup> 1.14834.0001 <sup>d)</sup>	Tube test / 25	42 07 50
24 mm ø	Cl <sub>2</sub>	DPDNo. 1 	Tablet / 100	51 10 50 BT
24 mm ø		DPDNo. 3 	Tablet / 100	51 10 80 BT
50 mm □		Combi pack# DPD No.1 / No.3 	each 100	51 77 11 BT
		Combi pack# DPD No.1 / No.3 	each 250	51 77 12 BT
10 mm □		DPDNo. 1 HIGH CALCIUM <sup>e)</sup> 	Tablet / 100	51 57 40 BT
		DPDNo. 3 HIGH CALCIUM <sup>e)</sup> 	Tablet / 100	51 57 30 BT
		Combi pack# DPD No.1 / No.3 HIGH CALCIUM <sup>e)</sup> 	each 100	51 77 81 BT
Combi pack# DPD No.1 / No.3 HIGH CALCIUM <sup>e)</sup> 	each 250	51 77 82 BT		
24 mm ø	Cl <sub>2</sub>	DPDNo. 1 HR 	Tablet / 100	51 15 00 BT
10 mm □		DPDNo. 3 HR 	Tablet / 100	51 15 90 BT
24 mm ø	Cl <sub>2</sub>	DPD1 Buffer solution	Liquid reagent / 15 ml	47 10 10
24 mm ø		DPD1 Reagent solution	Liquid reagent / 15 ml	47 10 20
		DPD3 Solution	Liquid reagent / 15 ml	47 10 30
		<b>Set</b>		47 10 56
24 mm ø	Cl <sub>2</sub>	VARIO Chlorine FREE-DPD/F10 	Powder Pack / 100	53 01 80
		VARIO Chlorine TOTAL-DPD/F10 	Powder Pack / 100	53 01 90
24 mm ø	Cl <sub>2</sub>	Chlorine FREE-DPD/F10 	Powder Pack / 100	53 01 00
10 mm □		Chlorine TOTAL-DPD/F10 	Powder Pack / 100	53 01 20
Multivial				

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

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

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

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

<sup>e)</sup> alternative reagent, used instead of DPDNo.1 / DPDNo.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

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

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

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

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

<sup>j)</sup> Vacu-vials<sup>®</sup> is a Chemetrics Trademark

# including stirring rod





# Reagents

Test	No. Methods	Range		Wave lengths / nm									Method
				MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	MultiDirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500	
Chlorine HR (KI)	M105	5 - 200 mg/l	530	-	530	530	-	-	470	470	470	KI / Acid <sup>5</sup>	
Chlorine dioxide	M120	0,02 - 11 mg/l	530	530	530	530	530	-	-	510	510	DPD/Glycine <sup>1,2</sup>	
	M119	0,05 - 2,5 mg/l 0,05 - 1 mg/l	-	-	-	-	-	-	510 510	- 510	- 510		
Chlorine dioxide Powder	M122	0,04 - 3,8 mg/l	530	-	530	530	-	-	-	510	510	DPD <sup>1,2</sup>	
Chloride	M90	0,5 - 25 mg/l	530	-	530	530	-	-	450	450	450	Silvernitrate/turbidity	
	M93	5 - 250 mg/l <sup>1)</sup>	530	-	-	-	-	-	-	-	-		
Chloride	M91	5 - 60 mg/l	-	-	-	-	-	-	455	455	455	Iron (III)-thiocyanate <sup>4</sup>	
Chloride	M92	0,5 - 20 mg/l	430	-	430	-	-	-	-	430	430	Mercury thiocyanate / Iron nitrate	
Chrome (III, VI) <sup>b)</sup>	M124	0,005 - 0,5 mg/l	-	-	-	-	-	-	542	542	542	1,5-Diphenylcarbozide <sup>1,2</sup>	
	M125	0,02 - 2 mg/l	-	-	530	530	-	-	542	542	542		
COD LR (ISO15705:2002) <sup>b)</sup>	M130	3 - 150 mg/l	430	430	430	430	-	-	443	443	443	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	
<b>new!</b> COD LMR (ISO15705:2002) <sup>b)</sup>	M133	15 - 300 mg/l	430	430	430	430	-	-	445	445	445	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	
COD MR (ISO15705:2002) <sup>b)</sup>	M131	20 - 1500 mg/l	610	610	610	610	-	-	596	596	596	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	
COD HR <sup>b)</sup>	M132	200 - 15000 mg/l	610	610	610	610	-	-	602	602	602	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	

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

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
16 mm ø	Cl <sub>2</sub>	ACIDIFYING GP	Tablet / 100	51 54 80 BT
		CHLORINE HR (KI)	Tablet / 100	51 30 00 BT
		Combi pack# CHLORINEHR (KI)/ACIDIFYING GP	each 100	51 77 21 BT
		Combi pack# CHLORINEHR (KI)/ACIDIFYING GP	each 250	51 77 22 BT
24 mm ø 24 mm ø 50 mm □	ClO <sub>2</sub>	in absence of chlorine: DPDNo.1		
		Chlorine dioxide beside Chlorine:		
		DPDNo.1, Glycine, DPDNo.3		
		DPDNo. 1 	Tablet / 100	51 10 50 BT
		GLYCINE <sup>h)</sup>	Tablet / 100	51 21 70 BT
		DPDNo. 3 	Tablet / 100	51 10 80 BT
		Combi pack# DPD No.1 / GLYCINE	each 100	51 77 31 BT
		Combi pack# DPD No.1 / GLYCINE	each 250	51 77 32 BT
		Combi pack# DPD No.1 / No.3 	each 100	51 77 11 BT
		Combi pack# DPD No.1 / No.3 	each 250	51 77 12 BT
		DPDNo. 1 HIGH CALCIUM <sup>e)</sup> 	Tablet / 100	51 57 40 BT
		DPDNo. 3 HIGH CALCIUM <sup>e)</sup> 	Tablet / 100	51 57 30 BT
Combi pack# DPD No.1 / No.3 HIGH CALCIUM <sup>e)</sup> 	each 100	51 77 81 BT		
Combi pack# DPD No.1 / No.3 HIGH CALCIUM <sup>e)</sup> 	each 250	51 77 82 BT		
	ClO <sub>2</sub>	Chlorine FREE-DPD/F10 	Powder Pack / 100	53 01 00
		GLYCINE <sup>h)</sup>	Tablet / 100	51 21 70 BT
24 mm ø	Cl <sup>-</sup>	CHLORIDE T1	Tablet / 100	51 59 10 BT
		CHLORIDE T2	Tablet / 100	51 59 20 BT
		Combi pack# CHLORIDET1 / T2	each 100	51 77 41 BT
		Combi pack# CHLORIDET1 / T2	each 250	51 77 42 BT
24 mm ø	Cl <sup>-</sup>	Chloride-51 / Chloride-52	Reagent test (Liquid reagent) approx. 50-75 Tests	2 41 90 31
24 mm ø	Cl <sup>-</sup>	KS251 (Chloride Reagent A)	Liquid reagent / 65 ml	56L025165
		KS253 (Chloride Reagent B)	Liquid reagent / 65 ml	56L025365
		<b>Set</b>		56R018490
50 mm □ 16 mm ø	Cr	PERSULF. RTG FOR CR	Powder Pack / 100	53 73 00
		Chromium Hexavalent	Powder Pack / 100	53 73 10
16 mm ø	O <sub>2</sub>	Reaction tube 0-150 mg/l	Tube test / 25	2 42 07 20 with Barcode
		Reaction tube 0-150 mg/l, mercury free* *without chloride removal	Tube test / 25	2 42 07 10 with Barcode
16 mm ø	O <sub>2</sub>	Reaction tube 15-300 mg/l	Tube test / 25	2 42 31 20 with Barcode
16 mm ø	O <sub>2</sub>	Reaction tube 0-1500 mg/l	Tube test / 25	2 42 07 21 with Barcode
		Reaction tube 0-1500 mg/l, mercury free* *without chloride removal	Tube test / 25	2 42 07 11 with Barcode
16 mm ø	O <sub>2</sub>	Reaction tube 0-15000 mg/l	Tube test / 25	2 42 07 22 with Barcode
		Reaction tube 0-15000 mg/l, mercury free* *without chloride removal	Tube test / 25	2 42 07 12 with Barcode

a) determination of free, combined and total

b) Thermoreactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C)

c) MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

d) Spectroquant® is a Merck KGaA Trademark

e) alternative reagent, used instead of DPDNo.1 / DPDNo.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

f) additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine

g) Reagent recovers most insoluble iron oxides without digestion

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

i) high range by dilution

j) Vacu-vials® is a Chemetrics Trademark

# including stirring rod



# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500		
Copper <sup>a)</sup>	M150	0,05 - 5 mg/l	560	560	560	560	560	560	559	559	559	Biquinoline <sup>4</sup>	
	M149	0,5 - 5 mg/l 0,05 - 1 mg/l	530	-	-	-	-	-	-	-	-		
Copper <sup>a)</sup>	M151	0,05 - 4 mg/l	-	-	560	-	-	-	-	560	560	Bicinchoninate	
Copper, free VARIO	M153	0,05 - 5 mg/l	560	-	560	560	560	-	560	560	560	Bicinchoninate	
Cyanide	M157	0,01 - 0,5 mg/l	-	-	580	580	-	-	585	585	585	Pyridine-barbituric acid <sup>1</sup>	
	M156	0,005 - 0,2 mg/l	-	-	-	-	-	-	585	585	585		
Cyanuric acid	M160	10 - 160 mg/l	530	530	530	530	530	530	530	530	530	Melamine	
Cyanuric acid HR	M161	20 - 200 mg/l	-	-	530	530	530	530	530	530	530	Melamine	
DEHA	M165	20 - 500 µg/l	-	-	560	560	-	-	562	562	562	PPST <sup>3</sup>	
DEHA VARIO	M167	20 - 500 µg/l	560	-	560	560	-	-	562	562	562	PPST <sup>3</sup>	
Fluoresceine (only MD 640)	M510	10 - 400 ppb	-	-	> 395	-	-	-	-	-	-	Fluorescence	
Fluoride	M170	0,05 - 2 mg/l	580	-	580	580	-	-	580	580	580	SPADNS <sup>2</sup>	
Formaldehyde	M175	1 - 5 mg/l	-	-	-	-	-	-	585	585	585	H <sub>2</sub> SO <sub>4</sub> /Chromotropic acid	
	M176	0,02 - 1 mg/l	-	-	-	-	-	-	585	585	585		
Formaldehyde	M177	0,1 - 5 mg/l	-	-	-	-	-	-	575	575	575	H <sub>2</sub> SO <sub>4</sub> /Chromotropic acid	
Hardness, calcium	M191	20 - 500 mg/l	560	560	560	560	560	560	-	560	560	Murexide <sup>4</sup>	
Hardness, total	M200	2 - 50 mg/l	560	-	560	560	560	-	571	571	571	Metallphthalein <sup>3</sup>	
	M201	20 - 500 mg/l <sup>1)</sup>	560	-	560	560	560	-	571	571	571		
Hazen (Pt-Co-Units ; APHA)	M204	10 - 500 mg/l	430	-	430	430	-	-	-	455	455	Direct reading <sup>1,2</sup>	
	M203	10 - 500 mg/l	-	-	-	-	-	-	455	455	455		
Hydrazine	M205	0,05 - 0,5 mg/l	430	-	430	430	-	-	455	455	455	Dimethylamino-benzaldehyd <sup>3</sup>	

available in Q4!

MSDS(Material Safety Data Sheets):[www.lovibond.com](http://www.lovibond.com)

For other reagent quantities please see our current price list.





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

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

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
24 mm ø	Cu	COPPERNo. 1 	Tablet / 100	51 35 50 BT
24 mm ø		COPPERNo. 2	Tablet / 100	51 35 60 BT
50 mm ø		Combi pack# COPPERNo.1 / No.2	each 100	51 76 91 BT
		Combi pack# COPPERNo.1 / No.2	each 250	51 76 92 BT
24 mm ø	Cu	KS240 (Coppercol Reagent 1)	Liquid reagent / 30 ml	56L024030
		KS241 (Coppercol Reagent 2)	Liquid reagent / 30 ml	56L024130
		KS242 (Coppercol Reagent 3)	Powder / 10 g	56L024210
		COPPERNo.2 (Cu total)	Tablet / 100	51 35 60 BT
			<b>Set</b>	56R023355
24 mm ø	Cu	Vario Cu 1 F10	Powder Pack / 100	53 03 00
24 mm ø	CN	Cyanide-11 / Cyanide-12 / Cyanide-13	Reagent test (Powder, Liquid reagent) / 200 Tests	2 41 88 75
50 mm □				
24 mm ø	Cys	CyA-TEST 	Tablet / 100	51 13 70 BT
24 mm ø	Cys	CyA HR-TEST 	Tablet / 100	51 14 30 BT
24 mm ø	DEHA	DEHA-Liquid	Liquid reagent / 100 ml	46 11 81
		DEHA	Tablet / 100	51 32 20 BT
24 mm ø	DEHA	VARIO OXYSCAV 1 RGT	Powder Pack / 200	53 60 00
		VARIO DEHA 2 RGT	Solution / 100 ml	
			<b>Set</b>	
24 mm ø	Fluoresceine	no reagents required		
24 mm ø	F	SPADNS-Reagent	Liquid reagent / 250 ml	46 74 81
		Fluoride Standard	Liquid reagent / 500 ml	46 74 82
		Reagent solution and standard required	Solution / 30 ml	20 56 30
10 mm □	HCHO	Spectroquant® 1.14678.0001 <sup>d)</sup>	Reagent test / ca. 50-75 Tests	42 07 51
50 mm □				
16 mm ø	HCHO	Spectroquant® 1.14500.0001 <sup>d)</sup>	Tube test / 25	42 07 52
24 mm ø	CaCO <sub>3</sub>	Combi pack# CALClOH No.1 / No.2 	each 100	51 77 61 BT
		Combi pack# CALClOH No.1 / No.2 	each 250	51 77 62 BT
24 mm ø	CaCO <sub>3</sub>	HARDCHECK P	Tablet / 100	51 56 60 BT
			Tablet / 250	51 56 61 BT
24 mm ø	Pt-Co-Units	no reagents required	-	-
50 mm □				
24 mm ø	N <sub>2</sub> H <sub>4</sub>	Hydrazine Test Powder measuring spoon	Powder / 30 g	46 29 10 38 49 30

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

<sup>b)</sup> Thermoreactor isnecessaryfor COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C)

<sup>c)</sup> MultiDirect: Adapter isnecessary for Vacu-vials® (Order code 19 20 75)

<sup>d)</sup> Spectroquant® isa Merck KGaA Trademark

<sup>e)</sup> alternative reagent, used instead of DPDNo.1 / DPDNo.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

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

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

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

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

<sup>j)</sup> Vacu-vials® is a Chemetrics Trademark

# including stirring rod



# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method		
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500				
<b>Hydrazine</b>	M206	0,01 - 0,6 mg/l 5 - 600 µg/l	-	-	430	430	-	-	-	-	-	-	-	Dimethylamino-benzaldehyd <sup>3</sup>	
<b>Hydrazine</b> <sup>c)</sup>	M207	0,01 - 0,7 mg/l	-	-	430	430	-	-	-	-	430	430	-	PDMAB	
<b>Hydrogen peroxide</b>	M210	0,03 - 3 mg/l	-	-	530	530	530	-	-	-	510	510	-	DPD/Catalysator <sup>5</sup>	
	M209	0,03 - 1,5 mg/l 0,01 - 0,5 mg/l	-	-	-	-	-	-	-	510	-	-	-		-
<b>Hydrogen peroxide</b>	M213	1 - 50 mg/l	-	430	430	430	-	-	-	-	430	430	-	Peroxititanium acid	
	M214	40 - 500 mg/l <sup>1)</sup>	-	530	530	530	530	-	-	-	530	530	-		-
<b>Iodine</b>	M215	0,05 - 3,6 mg/l	-	-	530	530	530	-	-	510	510	510	-	DPD <sup>5</sup>	
<b>Iron (II, III) soluble</b>	M220	0,02 - 1 mg/l	560	560	560	560	560	560	-	-	562	562	562	PPST <sup>3</sup>	
	M219	0,01 - 0,5 mg/l	-	-	-	-	-	-	-	562	562	562	-		-
	M218	0,05 - 1 mg/l	-	-	-	-	-	-	-	562	562	562	-		-
<b>Iron VARIO (II, III) soluble</b>	M222	0,02 - 3 mg/l	530	-	530	530	-	-	-	-	510	510	510	1,10-Phenanthrolin <sup>2</sup>	
		0,01 - 1,5 mg/l	-	-	-	-	-	-	-	510	510	510	-		-
<b>Iron VARIO, gesamt</b> <sup>g)</sup>	M223	0,02 - 1,8 mg/l	580	-	580	580	-	-	-	-	590	590	590	TPTZ <sup>g)</sup>	
		0,1 - 1,8 mg/l	-	-	-	-	-	-	-	590	-	-	-		-
<b>Iron LR (Fe<sup>2+/3+</sup>)</b>	M225	0,03 - 2,0 mg/l	560	-	560	-	-	-	-	-	560	560	-	Ferrozine/ Thioglycolate	
<b>Iron LR2 (Fe<sup>2+</sup> und Fe<sup>3+</sup>)</b>	M226	0,03 - 2,0 mg/l	-	-	560	-	-	-	-	-	560	560	-	Ferrozine/ Thioglycolate	
<b>Iron HR</b>	M227	0,1 - 10 mg/l	-	-	530	-	-	-	-	-	530	530	-	Thioglycolate	
<b>Iron, total, Fe in Mo</b>	M224	0,01 - 1,8 mg/l	580	-	580	-	-	-	-	-	580	580	-	Fein Mo	

MSDS(Material Safety Data Sheets):[www.lovibond.com](http://www.lovibond.com)

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
24 mm ø	N <sub>2</sub> H <sub>4</sub>	VARIO Hydra 2 Reagent	Solution / 100 ml	53 12 00
24 mm ø	N <sub>2</sub> H <sub>4</sub>	Vacu-vial® <sup>Ⓜ</sup> )	TestKit / 30 Adapter for Vacu-vials® <sup>Ⓜ</sup> )	38 04 70 19 20 75
24 mm ø 24 mm ø 50 mm □	H <sub>2</sub> O <sub>2</sub>	HYDROGENPEROXIDE LR	Tablet / 100	51 23 80 BT
24 mm ø	H <sub>2</sub> O <sub>2</sub>	H <sub>2</sub> O <sub>2</sub> Reagent solution	Liquid reagent / 15 ml	42 49 91
24 mm ø	I	DPDNo. 1 	Tablet / 100	51 10 50 BT
24 mm ø 50 mm □ 10 mm □	Fe	IRON LR(Fe <sup>2+</sup> und Fe <sup>3+</sup> ) IRON (II) LR(Fe <sup>2+</sup> )	Tablet / 100 Tablet / 100	51 53 70 BT 51 54 20 BT
24 mm ø	Fe	VARIO Ferro F10	Powder Pack / 100	53 05 60
24 mm ø	Fe	VARIO IRON TPTZF10	Powder Pack / 100	53 05 50
24 mm ø	Fe	KS61 (Ferrozine / Thioglycolate, FE5) KS63 (Thioglycolate Reagenz, FE6) digestion: KP962 (Ammonium Persulphate Powder) KS135 (Phenolphthalein / Indicator) KS144 (Calcium HardnessBuf er)	Liquid reagent / 65 ml Liquid reagent / 65 ml  Powder Liquid reagent / 65 ml Liquid reagent / 65 ml	56L006165 56L006365  56P096240 56L013565 56L014465
24 mm ø	Fe	KS60 FE1(Acetate Buf er) KS63 FE6(Thioglycolate Reagent) KS65 FE7(Ferrozine Reagent) digestion: KP962 (Ammonium Persulphate Powder) KS135 (Phenolphthalein / Indicator) KS144 (Calcium HardnessBuf er)	Liquid reagent / 65 ml Liquid reagent / 65 ml Liquid reagent / 65 ml <b>Set</b> Powder Liquid reagent / 65 ml Liquid reagent / 65 ml	56L006065 56L006365 56L006565 56R023490 56P096240 56L013565 56L014465
24 mm ø	Fe	KS160 TH2 FE8(Total Hardness Buf er) KS63 FE6(Thioglycolate Reagent) digestion: KP962 (Ammonium Persulphate Powder) KS135 (Phenolphthalein / Indicator) KS144 (Calcium HardnessBuf er)	Liquid reagent / 65 ml Liquid reagent / 65 ml <b>Set</b> Powder Liquid reagent / 65 ml Liquid reagent / 65 ml	56L016065 56L006365 56R023590 56P096240 56L013565 56L014465
24 mm ø	Fe	VARIO (Fein Mo) Rgt 1 VARIO (Fein Mo) Rgt 2	Powder Pack / 100 Powder Pack / 100 <b>Set</b>	53 03 10 53 03 20 53 60 10

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

<sup>b)</sup> Thermoreactor isnecessaryfor COD (150 °C), TOC(120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C)

<sup>c)</sup> MultiDirect: Adapter isnecessary for Vacu-vials® (Order code 19 20 75)

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<sup>e)</sup> alternative reagent, usedinstead of DPDNo.1 / DPDNo.3 in case of turbidity in the water sample causedby high concentration of calcium and/or high conductivity

<sup>f)</sup> additionally required for determination of bromine, chlorine dioxide and ozone in the presenceof chlorine

<sup>g)</sup> Reagentrecoversmost insoluble iron oxideswithout digestion

<sup>h)</sup> additionally required for sampleswith hardnessvaluesabove 300 mg/l CaCO<sub>3</sub>

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

<sup>Ⓜ</sup>) Vacu-vials® isa Chemetrics Trademark

# including stirring rod



# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500		
Lead (Pb <sup>2+</sup> )	M232	0,1 - 5 mg/l	-	-	-	-	-	-	-	520	520	520	4-(2-Pyridylazo)-resorcine
Lead (Pb <sup>2+</sup> )	M234/ M235	0,1 - 5 mg/l	-	-	-	-	-	-	-	515	515	515	4-(2-Pyridylazo)-resorcine
Manganese	M240	0,2 - 4 mg/l	530	-	530	530	-	-	-	450	450	450	Formaldehyde
Manganese VARIO LR	M242	0,01 - 0,7 mg/l	560	-	560	560	-	-	-	558	558	558	PAN
Manganese VARIO HR	M243	0,1 - 18 mg/l	530	-	530	530	-	-	-	525	525	525	Periodate oxidation <sup>2</sup>
Manganese	M245	0,05 - 5 mg/l	-	-	430	-	-	-	-	-	450	450	Formaldehyde
Molybdate / Molybdenum	M250	1 - 50 mg/l 1 - 30 mg/l 0,6 - 30 mg/l	- - 430	- - -	430 - -	430 - -	- - -	- - -	- 366 -	366 -	366 -	366 -	Thioglycolate <sup>4</sup>
Molybdate / Molybdenum VARIO LR	M251	0,05 - 5 mg/l 0,03 - 3 mg/l	- 610	- -	610 610	610 610	- -	- -	610 610	610 610	610 610	610 610	Mercaptoacetic acid
Molybdate / Molybdenum VARIO HR	M252	0,5 - 66 mg/l 0,3 - 40 mg/l	- 430	- -	430 430	430 430	- -	- -	420 420	420 420	420 420	420 420	Mercaptoacetic acid
Molybdate / Molybdenum HR	M254	1 - 100 mg/l 0,6 - 60 mg/l	- 430	- -	430 430	- -	- -	- -	- -	430 430	430 430	430 430	Thioglycolate <sup>4</sup>
Nickel	M255 M256	0,02 - 1 mg/l 0,2 - 7 mg/l	- -	- -	- 430	- 430	- -	- -	- 443	443 443	443 443	443 443	Dimethylglyoxime <sup>2,3</sup>
Nitrate	M260	0,08 - 1 mg/l 0,35 - 4,4 mg/l	- -	- -	530 530	- -	- -	- -	- -	530 530	530 530	530 530	Zinc reduction / NED

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
10 mm □	Pb	Spectroquant® 1.09717.0001 <sup>d)</sup>	Reagent test / 50 Tests	42 07 53
16 mm ø	Pb	Spectroquant® 1.14833.0001 <sup>d)</sup>	Tube test / 25	42 07 54
24 mm ø	Mn	MANGANESE LR1 MANGANESE LR2 Combi pack# MANGANESE LR1 / LR2 Combi pack# MANGANESE LR1 / LR2	Tablet / 100 Tablet / 100 each 100 each 250	51 60 80 BT 51 60 90 BT 51 76 21 BT 51 76 22 BT
24 mm ø	Mn	VARIO Ascorbic Acid VARIO Alkaline-Cyanide VARIO PAN Indicator VARIO Rochelle Salt Solution <sup>h)</sup>	Powder Pack / 100 Liquid reagent / 60 ml Liquid reagent / 60 ml <b>Set</b> 30 ml	53 50 90   53 06 40
24 mm ø	Mn	VARIO Manganese Citrate Buffer F10 VARIO Sodium periodate F10	Powder Pack / 100 Powder Pack / 100 <b>Set</b>	53 51 00
24 mm ø	Mn	KS265 Manganese Reagent A KS266 Manganese Reagent B KS267 Manganese Reagent C	Liquid reagent / 30 ml Liquid reagent / 30 ml Liquid reagent / 30 ml <b>Set</b>	56L026530 56L026630 56L030430 56R024055
24 mm ø	MoO <sub>4</sub> MoO <sub>4</sub> Mo	MOLYBDATE No.1 HR MOLYBDATE No.2 HR Combi pack# MOLYBDATE No.1 HR/ No.2 HR Combi pack# MOLYBDATE No.1 HR/ No.2 HR	Tablet / 100 Tablet / 100 each 100 each 250	51 30 60 BT 51 30 70 BT 51 76 31 BT 51 76 32 BT
24 mm ø	MoO <sub>4</sub> Mo	VARIO MolybdenuM1 LRF20 VARIO MolybdenuM2 LR required accessory: mixing cylinder (not included)	Powder Pack / 100 Liquid reagent / 50 ml <b>Set</b>	53 54 50
24 mm ø	MoO <sub>4</sub> Mo	VARIO MolybdenuMHR1 F10 VARIO MolybdenuMHR2 F10 VARIO MolybdenuMHR3 F10	Powder Pack / 100 Powder Pack / 100 Powder Pack / 100 <b>Set</b>	53 53 00
24 mm ø	MoO <sub>4</sub> Mo	KS63 (Thioglycolate Reagent)	Liquid reagent / 65 ml	56L006365
50 mm □ 24 mm ø	Ni	Nickel-51, Nickel-52	Reagent test (Powder, Liquid reagent) / 50 Tests	2 41 90 33
24 mm ø	NO <sub>3</sub> -N NO <sub>3</sub>	NITRATE TEST Powder NITRATE TEST Tablet NITRITE LR Nitrate test tube	Powder / 15 g Tablet / 100 Tablet / 100	46 52 30 50 28 10 51 23 10 BT 36 62 20

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

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

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

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

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

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

<sup>j)</sup> Vacu-vials® is a Chemetrics Trademark

# including stirring rod





# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500		
Nitrate VARIO	M265	1 - 30 mg/l	-	-	430	430	-	-	410	410	410	Chromotropic acid	
		4,4 - 132 mg/l	-	-	430	430	-	-	410	410	410		
Nitrate DMP LR	M267	0,5 - 14 mg/l	-	-	-	-	-	-	340	340	340	2,6-Dimethylphenole <sup>3</sup>	
		2,2 - 62 mg/l	-	-	-	-	-	-	340	340	340		
Nitrate DMP HR <b>available in Q4!</b>	M268	1,2 - 35 mg/l	-	-	-	-	-	-	340	340	340	2,6-Dimethylphenole <sup>3</sup>	
		5,3 - 154 mg/l	-	-	-	-	-	-	340	340	340		
Nitrite	M270	0,01 - 0,5 mg/l	-	-	560	560	-	-	545	540	540	N-(1-Naphthyl)-ethylenediamine <sup>2,3</sup>	
		0,03 - 0,16 mg/l	-	-	560	560	-	-	545	540	540		
Nitrite LR	M275	0,03 - 0,6 mg/l	-	-	-	-	-	-	545	545	545	Sulfanil/Naphthylamine <sup>1</sup>	
		0,1 - 2 mg/l	-	-	-	-	-	-	545	545	545		
Nitrite HR	M276	0,3 - 3 mg/l	-	-	-	-	-	-	545	545	545	Sulfanil/Naphthylamine <sup>1</sup>	
		1 - 10 mg/l	-	-	-	-	-	-	545	545	545		
Nitrite LRVARIO	M272	0,01 - 0,3 mg/l	-	-	530	530	-	-	507	507	507	Diazotation	
		0,03 - 1 mg/l	-	-	530	530	-	-	507	507	507		
Nitrogen-total <sup>b)</sup> LR DMP	M283	0,5 - 14 mg/l	-	-	-	-	-	-	340	340	340	2,6-Dimethylphenole <sup>2,3</sup>	
	M284	5 - 140 mg/l <sup>1)</sup>	-	-	-	-	-	-	340	340	340		
Nitrogen-total DMP LR	M283	0,5 - 14 mg/l	-	-	-	-	-	-	340	340	340	2,6-Dimethylphenole <sup>2,3</sup>	
Nitrogen-total DMP HR	M284	5 - 140 mg/l	-	-	-	-	-	-	340	340	340	2,6-Dimethylphenole <sup>2,3</sup>	
Nitrogen VARIO total LR <sup>b)</sup>	M280	0,5 - 25 mg/l	-	-	430	430	-	-	410	410	410	Persulphate-digestion method	
Nitrogen VARIO, total HR <sup>b)</sup>	M281	5 - 150 mg/l	-	-	430	430	-	-	410	410	410	Persulphate-digestion method	
Oxygen, active	M290	0,1 - 10 mg/l	-	-	530	530	530	-	-	510	510	DPD	
Oxygen, dissolved	M292	10 - 800 µg/l	530	-	530	530	-	-	-	-	-	Rodazin D <sup>TM</sup>	
		10 - 1100 µg/l	-	-	-	-	-	-	-	547	547		

MSDS(Material Safety Data Sheets):[www.lovibond.com](http://www.lovibond.com)

For other reagent quantities please see our current price list.

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

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

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

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
16 mm ø	NO <sub>3</sub> - N NO <sub>3</sub>	VARIONitrate Chromotropic VARIONitra X Reagent tube VARIODeionised Water (for Zero)	Powder Pack / 50 Reaction tube / 50 Bottle, 100 ml <b>Set (Tube test )</b>	53 55 80
16 mm ø	NO <sub>3</sub> - N NO <sub>3</sub>	Reactiontube, Nitrate-111	Tube test / 24	2 42 07 02 without Barcode 2 42 33 40 with Barcode
16 mm ø	NO <sub>3</sub> - N NO <sub>3</sub>	Reactiontube, Nitrate-111	Tube test / 24	2 42 33 70 with Barcode
24 mm ø	NO <sub>2</sub> - N NO <sub>2</sub>	NITRITE LR	Tablet / 100	51 23 10 BT
16 mm ø	NO <sub>2</sub> - N NO <sub>2</sub>	Reactiontube, Nitrite-101	Tube test / 24	2 41 90 18 without Barcode 2 42 34 20 with Barcode
16 mm ø	NO <sub>2</sub> - N NO <sub>2</sub>	Reactiontube, Nitrite HR	Tube test / 24	2 42 34 70 with Barcode
24 mm ø	NO <sub>2</sub> - N NO <sub>2</sub>	VARIONitri 3	Powder Pack / 100	53 09 80
16 mm ø	N	Digestion reagent, Compensation reagent, Nitrate-111	Tube test / 24	2 42 07 03 without Barcode
16 mm ø	N	Digestion reagent, Compensation reagent, Nitrate-111	Tube test / 24	2 42 35 40 with Barcode
16 mm ø	N	Digestion reagent, Compensation reagent, Nitrate-111	Tube test / 24	2 42 35 70 with Barcode
16 mm ø	N	VARIO TN HYDROX. LR Tubes VARIO PERSULFATE Reagent VARIO TN Reagent A VARIO TN Reagent B VARIO TN ACID LR/HR Tubes VARIO Deionised Water (for Zero)	Digestion tubes / 50 Powder Pack / 50 Powder Pack / 50 Powder Pack / 50 Reaction tubes / 50 Bottle, 100 ml <b>Set (Tube test )</b>	53 55 50
16 mm ø	N	VARIO TN HYDROX. HR Tubes VARIO PERSULFATE Reagent VARIO TN Reagent A VARIO TN Reagent B VARIO TN ACID LR/HR Tubes VARIO Deionised Water (for Zero)	Digestion tubes / 50 Powder Pack / 50 Powder Pack / 50 Powder Pack / 50 Reaction tubes / 50 Bottle, 100 ml <b>Set (Tube test )</b>	53 55 60
	O <sub>2</sub>	DPD No. 4 	Tablet / 100	51 12 20 BT
13 mm ø	O <sub>2</sub>	Vacu-vial® <sup>ij</sup>	Liquid reagent / 30 Adapter for Vacu-vials® <sup>ij</sup>	38 04 50 19 20 75

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

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

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

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

<sup>e)</sup> alternative reagent, used instead of DPD No.1 / DPD No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

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

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

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

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

<sup>j)</sup> Vacu-vials® is a Chemetrics Trademark

# including stirring rod



# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500		
Ozone	M300	0,02 - 1 mg/l	-	-	-	-	-	-	-	510	-	-	DPD/Glycine <sup>5</sup>
		0,02 - 2 mg/l	530	530	530	530	530	530	-	510	510		
	M299	0,02 - 0,5 mg/l	-	-	-	-	-	-	-	510	510	510	
Ozone Powder	M301	0,015 - 2 mg/l	-	-	530	530	-	-	510	510	510	DPD/Glycine <sup>5</sup>	
Phenoles	M315	0,1 - 5 mg/l	-	-	-	-	-	-	507	507	507	4-Aminoantipyrine <sup>1</sup>	
PHMB (Biguanides)	M70	2 - 60 mg/l	-	-	560	560	560	-	-	560	560	Buf er/Indicator	
Phosphate-total LR <sup>b)</sup>	M317	0,07 - 3 mg/l	-	-	-	-	-	-	690	690	690	Phosphomolybdenum blue / Ascorbic acid <sup>2</sup>	
		0,2 - 10 mg/l	-	-	-	-	-	-	690	690	690		
Phosphate-total HR <sup>b)</sup>	M318	1,5 - 20 mg/l	-	-	-	-	-	-	690	690	690	Phosphomolybdenum blue / Ascorbic acid <sup>2</sup>	
		5 - 60 mg/l	-	-	-	-	-	-	690	690	690		
Phosphate LR, ortho	M320	0,016 - 1,3 mg/l	660	-	660	660	610	610	710	710	710	Phosphomolybdenum blue / Ascorbic acid <sup>2</sup>	
		0,05 - 4 mg/l	660	-	660	660	610	610	710	710	710		
Phosphate HR, ortho	M321	0,33 - 26 mg/l	-	-	430	430	-	-	470	470	470	Vanadomolybdate <sup>2</sup>	
		1 - 80 mg/l	-	-	430	430	-	-	470	470	470		
Phosphate VARIO ortho	M323	0,02 - 0,82 mg/l	660	-	660	660	-	-	890	890	890	Phosphomolybdenum blue / Ascorbic acid <sup>2</sup>	
		0,06 - 2,5 mg/l	660	-	660	660	-	-	890	890	890		
Phosphate VARIO ortho	M324	0,02 - 1,6 mg/l	-	-	660	660	-	-	890	890	890	Phosphomolybdenum blue / Ascorbic acid <sup>2</sup>	
		0,06 - 5 mg/l	-	-	660	660	-	-	890	890	890		
Phosphate-ortho	M322	1 - 20 mg/l	-	-	-	-	-	-	438	438	438	Vanadomolybdate <sup>2</sup>	
		3 - 60 mg/l	-	-	-	-	-	-	438	438	438		
Phosphate VARIO <sup>b)</sup> acid hydrolyzable and total	M325	acid hydrolyzable: 0,02 - 1,6 mg/l	-	-	660	660	-	-	890	890	890	Acid digestion Phosphomolybdenum blue/ Ascorbic acid <sup>2</sup> Acid/ Persulphate digestion Phosphomolybdenum blue/ Ascorbic acid <sup>2</sup>	
		0,06 - 5 mg/l	-	-	660	660	-	-	890	890	890		
	total: 0,02 - 1,1 mg/l												
	0,06 - 3,5 mg/l												

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
24 mm ø 24 mm ø 50 mm □	O <sub>3</sub>	O <sub>3</sub> in absence of Cl <sub>2</sub> : DPD No. 1  DPD No. 3  O <sub>3</sub> beside Cl <sub>2</sub> : Combi pack# DPD No.1 / No.3  Combi pack# DPD No.1 / No.3  GLYCINE <sup>g)</sup>	Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100	51 10 50 BT 51 10 80 BT 51 77 11 BT 51 77 12 BT 51 21 70 BT
24 mm ø	O <sub>3</sub>	Chlorine total - DPD/F10 GLYCINE	Powder Pack / 100 Tablet / 100	53 01 20 51 21 70 BT
24 mm ø	C <sub>6</sub> H <sub>5</sub> O <sub>H</sub>	PHENOLE No. 1 PHENOLE No. 2	Tablet / 100 Tablet / 100	51 59 50 BT 51 59 60 BT
24 mm ø	PHMB	PHMB PHOTOMETER	Tablet / 100	51 61 00 BT
16 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	Reaction tube, Phosphate-101, Phosphate- 102, Phosphate-103	Tube test / 24 Tube test / 24	2 41 90 19 with Barcode
16 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	Reaction tube, Phosphate-101, Phosphate-102, Phosphate-103	Tube test / 24	2 42 07 00 with Barcode
24 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	PHOSPHATE No. 1 LR PHOSPHATE No. 2 LR Combi pack# PHOSPHATE No.1 LR/No.2 LR	Tablet / 100 Tablet / 100 each 100	51 30 40 BT 51 30 50 BT 51 76 51 BT
24 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	PHOSPHATE No. 1 HR PHOSPHATE No. 2 HR Combi pack# PHOSPHATE No.1 HR/No.2 HR	Tablet / 100 Tablet / 100 each 100	51 58 10 BT 51 58 20 BT 51 76 61 BT
24 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	VARIO Phosphate Rgt., F10	Powder Pack / 100	53 15 50
16 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	VARIODilution Vial VARIO PHOSPHATERGT, F10 VARIO Deionised Water (for Zero)	50 Tubes Powder Pack / 50 Bottle, 100 ml <b>Set (Tube test )</b>	53 52 00 with Barcode
16 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	Reaction tube	Tube test / 24	2 42 07 01 with Barcode
16 mm ø 16 mm ø	PO <sub>4</sub> - P PO <sub>4</sub> PO <sub>4</sub> - P PO <sub>4</sub>	VARIO Acid Reagent Vial VARIO PHOSPHATERGT, F10 VARIO Deionised Water (for Zero) 1N NaOH 1,54 N NaOH VARIO Potassium Persulfate F10	50 Tubes Powder Pack / 50 Bottle, 100 ml Bottle / 100 ml Bottle / 100 ml Powder Pack / 50 <b>Set (Tube test )</b>	53 52 50 with Barcode

a) determination of free, combined and total

b) Thermoreactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C)

c) MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

d) Spectroquant® is a Merck KGaA Trademark

e) alternative reagent, used instead of DPD No.1 / DPD No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

f) additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine

g) Reagent recovers most insoluble iron oxides without digestion

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

i) high range by dilution

j) Vacu-vials® is a Chemetrics Trademark

# including stirring rod



# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500		
<b>Phosphate VARIO<sup>b)</sup> total</b>	M326	0,02 - 1,1 mg/l	-	-	660	660	-	-	890	890	890	Acid-/Persulphate digestion Phosphomolybdenum blue Ascorbic acid <sup>2</sup>	
		0,06 - 3,5 mg/l	-	-	660	660	-	-	890	890	890		
<b>Phosphate, ortho<sup>c)</sup></b>	M328	0,016 - 1,6 mg/l	-	-	660	660	-	-	-	660	660	Stannous chloride <sup>2</sup>	
		0,05 - 5 mg/l	-	-	660	660	-	-	-	660	660		
<b>Phosphate, ortho<sup>c)</sup></b>	M327	1,6 - 13 mg/l	-	-	430	430	-	-	-	430	430	Vanadomolybdate <sup>2</sup>	
		5 - 40 mg/l	-	-	430	430	-	-	-	430	430		
<b>Phosphate LR</b>	M334	0,033 - 3,3 mg/l	-	-	660	-	-	-	-	660	660	Phosphomolybdic acid// Ascorbic acid <sup>2</sup>	
		0,1 - 10 mg/l	-	-	660	-	-	-	-	660	660		
<b>Phosphate HR, ortho</b>	M335	1,63 - 26 mg/l	430	-	430	-	-	-	-	430	430	Vanadomolybdate <sup>2</sup>	
		5 - 80 mg/l	430	-	430	-	-	-	-	430	430		
<b>Phosphonate VARIO</b>	M316	0,02 - 125 mg/l	-	-	660	660	-	-	890	890	890	Persulfate UV-Oxidation	
<b>pH value</b>	M329	5,2 - 6,8	-	-	560	560	560	-	-	560	560	Bromcresol purple <sup>5</sup>	
<b>pH value</b>	M330	6,5 - 8,4	560	560	560	560	560	560	558	558	558	Phenol red <sup>5</sup>	
<b>pH value</b>	M331	6,5 - 8,4	560	560	560	560	560	-	558	558	558	Phenol red <sup>5</sup>	
<b>pH value</b>	M332	8,0 - 9,6	-	-	560	560	560	-	-	560	560	Thymol blue <sup>5</sup>	
<b>Polyacrylates</b>	M338	1 - 30 mg/l	530	-	660	-	-	-	-	660	660	Turbidity	

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

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



Green Chemistry

Tube	Display	Reagent	Form of reagent/Quantity	Order code
16 mm ø 16 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	VARIO Acid Reagent Vial VARIO PHOSPHATERGT, F10 VARIO Deionised Water (for Zero) 1,54 N NaOH VARIO Potassium Persulfate F10	50 Tubes Powder Pack / 50 Bottle, 100 ml Bottle / 100 ml Powder Pack / 50 <b>Set</b> (Tube test )	53 52 10 with Barcode
	PO <sub>4</sub> - P PO <sub>4</sub>	Vacu-vial® <sup>ij</sup>	Test Kit / 30 Adapter for Vacu-vials® <sup>ij</sup>	38 04 80 19 20 75
	PO <sub>4</sub> - P PO <sub>4</sub>	Vacu-vial® <sup>ij</sup>	Test Kit / 30 Adapter for Vacu-vials® <sup>ij</sup>	38 04 60 19 20 75
24 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	KS80 (CRP Reagent) KP119 (Ascorbic acid)  Digestion reagents: KS278 (50 % Sulfuric Acid) KS135 (Phenolphthalein Indicator) KS144 (Calcium Hardness Buffer) KP962 (Ammonium Persulfate Powder)	Liquid reagent / 2 x 65 ml Powder / 20 g <b>Set</b>  Liquid reagent / 65 ml Liquid reagent / 65 ml Liquid reagent / 65 ml Powder / 40 g	56L008065 56P011920 56R023765  56L027865 56L013565 56L014465 56P096240
24 mm ø	PO <sub>4</sub> - P PO <sub>4</sub>	KS228 (Ammonium Molybdate) KS229 (Ammonium Metavanadate)  Option Polyphosphate KS278 (50 % Sulfuric Acid) KS135 (Phenolphthalein Indicator) KS144 (Calcium Hardness Buffer) KP962 (Ammonium Persulfate Powder)	Liquid reagent / 65 ml Liquid reagent / 65 ml <b>Set</b>  Liquid reagent / 65 ml Liquid reagent / 65 ml Liquid reagent / 65 ml Powder / 40 g	56L022865 56L022965 56R019090  56L027865 56L013565 56L014465 56P096240
24 mm ø	PO <sub>4</sub>	VARIO Potassium Persulfate F10 VARIO PHOSPHATERGT, F10	Powder Pack / 100 Powder Pack / 200 <b>Set</b>	53 52 20
24 mm ø	pH	BROMOCRESOLPURPLE/PHOTOMETER	Tablet / 100	51 57 00 BT
24 mm ø	pH	PHENOLRED/ PHOTOMETER	Tablet / 100	51 17 70 BT
24 mm ø	pH	PHENOLREDSolution	Liquid reagent / 15 ml	47 10 40
24 mm ø	pH	THYMOLBLUE / PHOTOMETER	Tablet / 100	51 57 10 BT
24 mm ø	Polyacryl	KS255 (Polyacrylate Reagent 1) KS256 (Polyacrylate Reagent 2)  KS336 (Propan-2-ol) C18 (Cartouche) KS173 (2,4 Dinitrophenol) KT183 (Nitric Acid)	Liquid reagent / 65 ml Liquid reagent / 65 ml <b>Set</b> Liquid reagent / 65 ml  Liquid reagent / 65 ml Liquid reagent / 65 ml	56L025565 56L025665 56R019165 56L033665 56A020101  56L017365 56L018365



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

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

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

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

<sup>e)</sup> alternative reagent, used instead of DPD No.1 / DPD No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

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

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

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

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

<sup>j)</sup> Vacu-vials® is a Chemetrics Trademark

# including stirring rod



# Reagents

Test	No. Methods	Range	Wave lengths / nm									Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500	
<b>Potassium</b>	M340	0,7 - 16 mg/l	-	-	660	430	-	-	730	730	730	Tetraphenylborate-Turbidity <sup>4</sup>
<b>PTSA (only MD 640)</b>	M500	10 - 1000 ppb	-	-	> 395	-	-	-	-	-	-	Fluorescence
<b>Silica VLR</b> <span style="background-color: red; color: white; padding: 2px;">new!</span>	M349	5 - 500 µg/l	-	-	-	-	-	-	820	820	820	Heteropolyblue <sup>2</sup>
<b>Silica</b>	M350	0,05 - 4 mg/l 0,05 - 3 mg/l 0,05 - 4 mg/l	660 - -	- - -	660 - -	660 - -	- - -	- - -	- 820 -	820 - 820	820 - 820	Silicomolybdate <sup>2,3</sup>
<b>Silica VARIO LR</b>	M351	0,1 - 1,6 mg/l 0,05 - 1,6 mg/l	660 -	- -	660 -	660 -	- -	- -	815 -	- 815	- 815	Heteropolyblue <sup>2</sup>
<b>Silica VARIO HR</b>	M352	1 - 90 mg/l 1 - 100 mg/l	430 -	- -	430 -	430 -	- -	- -	- 452	- 452	- 452	Silicomolybdate <sup>2,3</sup>
<b>Silica</b>	M353	0,1 - 8 mg/l	-	-	430	-	-	-	-	660	660	Heteropolyblue <sup>2</sup>
<b>Sodiumhypochlorite</b>	M212	0,2 - 16 % 0,2 - 17 %	- -	- -	530 -	530 -	530 -	530 -	- -	- 470	- 470	Potassiumiodide <sup>5</sup>
<b>Spectral Absorption-coef cient (S.A.K.)</b>	M344 M345 M346 M347	0,5 - 50 m <sup>-1</sup>	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- 436 525 620	- 436 436 620	254 436 436 620	Direct reading <sup>1</sup> ISO7887:1994
<b>Spectral Absorption-coef cient (S.A.K.)</b>	M344 M345 M346 M347	3 - 250 m <sup>-1</sup>	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- 436 525 620	254 436 525 620	Direct reading <sup>1</sup> ISO7887:1994
<b>Sulphate VARIO</b>	M360 M361	5 - 100 mg/l 50 - 1000 mg/l	530 -	- -	530 530	530 530	530 -	- -	450 530	530 530	530 530	Bariumsulphate Turbidity <sup>2</sup>
<b>Sulphate</b>	M355	5 - 100 mg/l	-	-	610	610	610	-	-	610	610	Bariumsulphate Turbidity <sup>2</sup>

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



Green Chemistry

Tube	Display	Reagent	Form of reagent/Quantity	Order code
24 mm ø	K	POTASSIUM T	Tablet / 100	51 56 70BT
24 mm ø	PTSA	no reagents required		
50 mm □	SiO <sub>2</sub>	Heptamolybdate Reagent Tartaric Acid Reagent Silica Amino Acid F10	Liquid reagent / 20 ml Liquid reagent / 20 ml Powder Pack / 100 Set	47 10 70 47 10 80 53 16 00 54 43 002
24 mm ø 10 mm □ 10 mm □	SiO <sub>2</sub>	SILICA No. 1 SILICA No.2 Combi pack# SILICA No.1 / No.2 Combi pack# SILICA No.1 / No.2 SILICA PR	Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100	51 31 30 BT 51 31 40 BT 51 76 71 BT 51 76 72 BT 51 31 50 BT
24 mm ø 24 mm ø	SiO <sub>2</sub>	VARIO Amino Acid F10 VARIO Citric Acid F10 VARIO Molybdate 3 Reagents solution	Powder Pack / 100 Powder Pack / 200 Liquid reagent / 2 x 50 ml <b>Set</b>	53 56 90
24 mm ø 24 mm ø	SiO <sub>2</sub>	VARIO Silica HR Molybdate F10 VARIO Silica HR Acid Rgt F10 VARIO Silica HR Citric Acid F10	Powder Pack / 100 Powder Pack / 100 Powder Pack / 100 <b>Set</b>	53 57 00
24 mm ø	SiO <sub>2</sub>	KS104 (Silica Reagent 1) KS105 (Silica Reagent 2) KP106 (Silica Reagent 3)	Liquid reagent / 65 ml Liquid reagent / 65 ml Powder / 10 g <b>Set</b>	56L010465 56L010565 56P010610 56R023856
24 mm ø	NaOCl	ACIDIFYING GP CHLORINE HR (KI) Combi pack# CHLORINEHR (KI)/ACIDIFYING GP Combi pack# CHLORINEHR (KI)/ACIDIFYING GP Dilution set for sample preparation	Tablet / 100 Tablet / 100 each 100 each 250 <b>1 Set</b>	51 54 80 BT 51 30 00 BT 51 77 21 BT 51 77 22 BT 41 44 70
50 mm □	-	no reagents required	-	-
10 mm □	-	no reagents required		
24 mm ø	SO <sub>4</sub>	VARIO Sulpha 4 / F10	Powder Pack / 100	53 21 60
24 mm ø	SO <sub>4</sub>	SULPHATE T	Tablet / 100	51 54 50 BT

a) determination of free, combined and total

b) Thermoreactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, -phosphate, -nitrogen, (100 °C)

c) MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75)

d) Spectroquant® is a Merck KGaA Trademark

e) alternative reagent, used instead of DPD No.1 / DPD No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

f) additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine

g) Reagent recovers most insoluble iron oxides without digestion

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

i) high range by dilution

j) Vacu-vials® is a Chemetrics Trademark

# including stirring rod





# Reagents

Test	No. Methods	Range	Wave lengths / nm										Method
			MD 100 & MD 110	MD 200	MD 600, MD 610 & MD 640	Multidirect	PM 620 & PM 630	PM 600	SpectroDirect	XD 7000	XD 7500		
<b>Sulphide</b>	M365	0,04 - 0,5 mg/l	-	-	660	660	-	-	668	668	668	DPD/Catalysator <sup>3,4</sup>	
<b>Sulphite</b>	M370	0,1 - 5 mg/l	-	-	430	430	-	-	-	405	405	DTNB	
		0,05 - 4 mg/l	-	-	-	-	-	-	405	-	-		
	M368	0,1 - 10 mg/l	-	-	-	-	-	-	405	405	405		
<b>Surfactants (anionic)</b>	M376	0,05 - 2 mg/l	-	-	660	660	-	-	660	660	660	Methylene blue <sup>1</sup>	
<b>Surfactants (cationic)</b>	M378	0,05 - 1,5 mg/l	-	-	610	610	-	-	610	610	610	Disulphine blue	
<b>Surfactants (non ionic)</b>	M377	0,1 - 7,5 mg/l	-	-	610	610	-	-	610	610	610	TBPE	
<b>Suspended solids</b>	M384	10 - 750 mg/l	660	-	660	660	-	-	660	810	810	Turbidity/Attenuated Radiation	
<b>TOC<sup>b)</sup></b>	M380	5 - 80 mg/l	-	-	610	610	-	-	596	610	610	H <sub>2</sub> SO <sub>4</sub> /Indicator	
<b>TOC<sup>b)</sup></b>	M381	50 - 800 mg/l	-	-	610	610	-	-	596	610	610	H <sub>2</sub> SO <sub>4</sub> /Indicator	
<b>Triazoles</b> (UV-lamp required)	M388	1 - 16 mg/l	430	-	430	-	-	-	-	430	430	Catalyzed UV Digestion	
<b>Turbidity</b>	M385	5 - 500	-	-	-	-	-	-	860	860	860	Attenuated Radiation Meth.	
	M386	10 - 1000	-	-	530	530	-	-	-	860	860		
<b>Urea</b>	M390	0,1 - 2,5 mg/l	610	610	610	610	610	-	-	676	676	Urease/ Indophenol	
		0,1 - 2 mg/l	-	-	-	-	-	-	676	-	-		
	M391	0,2 - 5 mg/l <sup>1)</sup>	610	610	-	-	-	-	-	-	-		
<b>Zinc</b>	M400	0,02 - 1 mg/l	-	-	610	610	-	-	-	616	616	Zincon <sup>3</sup> /EDTA	
		0,02 - 0,5 mg/l	-	-	-	-	-	-	616	-	-		
<b>Zinc</b>	M405	0,1 - 2,5 mg/l	610	-	610	-	-	-	-	610	610	Zincon <sup>3</sup> /EDTA	

MSDS(Material Safety Data Sheets):[www.lovibond.com](http://www.lovibond.com)

For other reagent quantities please see our current price list.

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

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

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

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

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

Tube	Display	Reagent	Form of reagent/Quantity	Order code
24 mm ø	S	Sulphide No. 1 Sulphide No. 2	Tablet / 100 Tablet / 100	50 29 30 50 29 40
24 mm ø 24 mm ø 10 mm □	SO <sub>3</sub>	SULPHITE LR	Tablet / 100	51 80 20 BT
16 mm ø	MBAS	Spectroquant® 1.02552.0001	Tube test / 25	42 07 63
16 mm ø	CTAB	Spectroquant® 1.01764.0001	Tube test / 25	42 07 65
16 mm ø	Triton® X-100	Spectroquant® 1.01787.0001	Tube test / 25	42 07 64
24 mm ø 50 mm □	TSS	no reagents required	-	-
16 mm ø	TOC	Spectroquant® 1.14878.0001 <sup>d)</sup>	Tube test / 25 Aluminium screwcaps/ 6 pc.	42 07 61 42 07 57
16 mm ø	TOC	Spectroquant® 1.14879.0001 <sup>d)</sup>	Tube test / 25 Aluminium screwcaps/ 6 pc.	42 07 56 42 07 57
24 mm ø	Benzo- triazole	VARIO Triazole Rgt F25	Powder Pack / 100	53 22 00
50 mm □ 24 mm ø	FAU FAU	no reagents required	-	-
24 mm ø	CH <sub>4</sub> N <sub>2</sub> O	UREA-Reagent 1 UREA-Reagent 2 AMMONIA No. 1 AMMONIA No. 2 Combi pack# AMMONIA No.1 / No.2 Combi pack# AMMONIA No.1 / No.2 (without Urea-Reagent 1 and 2, please order separately) UREA PRETREAT (compensates for the interference of free Chlorine up to 2 mg/l) UREA Reagent Set, contains: UREA-Reagent 1/2, AMMONIA No.1/2, UREA PRETREAT	Liquid reagent / 15 ml Liquid reagent / 10 ml Tablet / 100 Tablet / 100 each 100 each 250 Tablet / 100 Set	45 93 00 45 94 00 51 25 80 BT 51 25 90 BT 51 76 11 BT 51 76 12 BT 51 61 10 BT 51 78 00 BT
24 mm ø	Zn	COPPER/ZINC LR EDTA DECHLOR(in case of high levels of residual chlorine)	Tablet / 100 Tablet / 100 Tablet / 100	51 26 20 BT 51 23 90 BT 51 23 50 BT
24 mm ø	Zn	KS243 (Zinc Reagent 1) KP244 (Zinc Reagent 2)	Liquid reagent / 65 ml Powder / 20 g <b>Set</b>	56L024365 56L024420 56R023965

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

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

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

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

<sup>e)</sup> alternative reagent, used instead of DPD No.1 / DPD No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity

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

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

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

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

<sup>j)</sup> Vacu-vials® is a Chemetrics Trademark

# including stirring rod