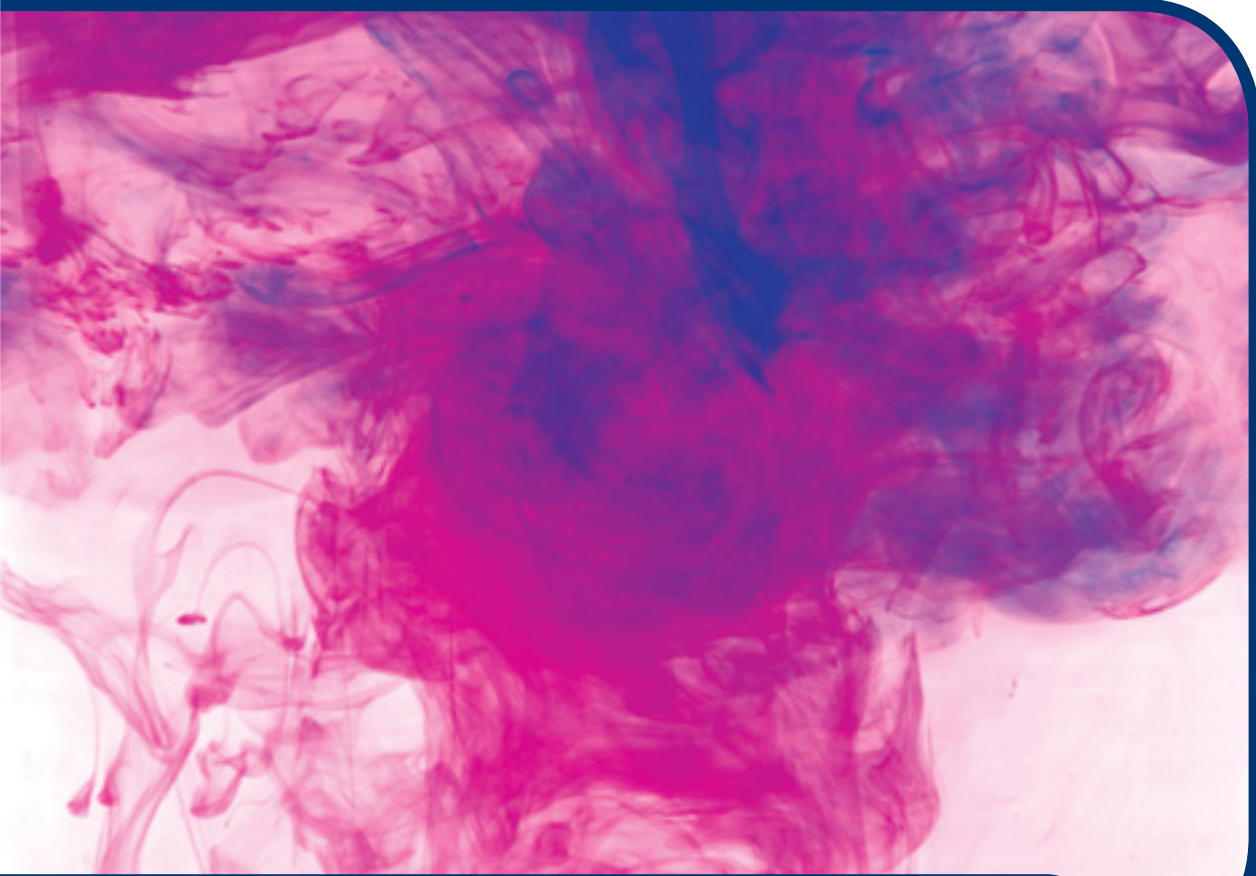


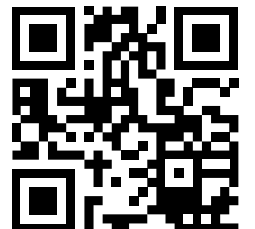
# Lovibond® Water Testing

## Tintometer® Group

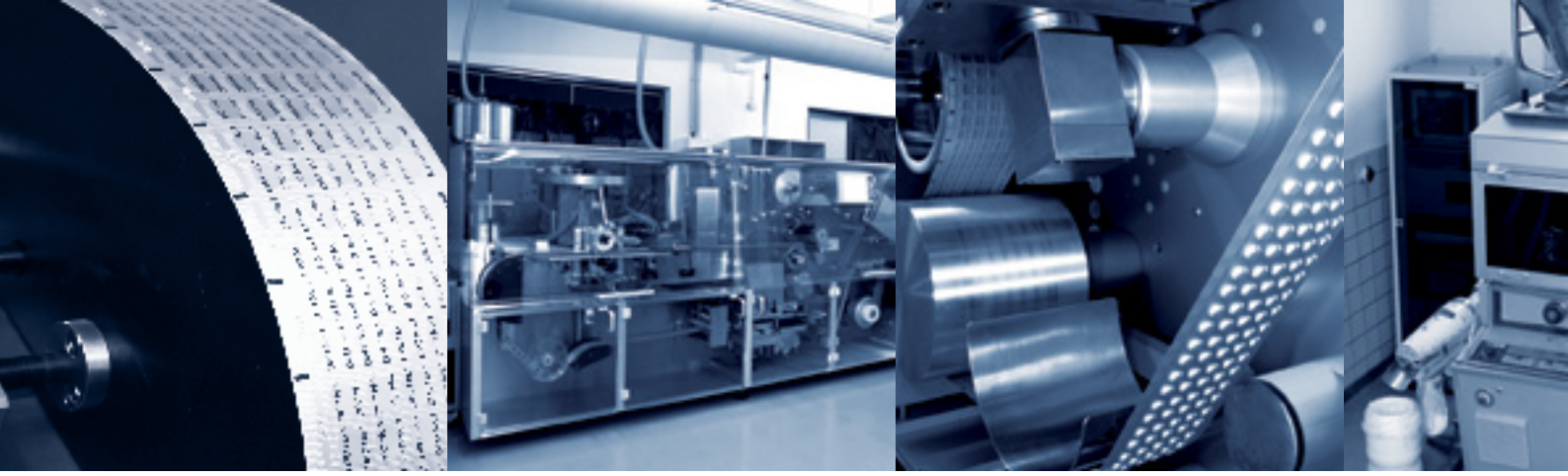


## Industrial Water Catalogue

[www.lovibond.com](http://www.lovibond.com)



Rank Lovibond Türkiye  
[www.rank.com.tr](http://www.rank.com.tr)



# Corporate Introduction



## The Lovibond® product range is being used to ensure water quality throughout the world.

The company has always specialised in scientific and technological products which make water analysis simple and, most importantly, dependable and reliable.

The trade-name Lovibond® is synonymous with quality, accuracy and reliability. It is known in over 120 countries, where the company offers innovative products for the precise determination of different types of water:

- Drinking water
- Waste water
- Surface and ground water
- Untreated water and effluents
- Cooling water
- Boiler water
- Swimming pools & spas

## The product range comprises:

- Electronic instruments providing results in digital format with data storage and computer linkage
- High quality visual comparators offering precision colour comparison
- Accurately formulated chemical reagents in either tablet, powder or liquid form
- Convenient, easy to use microbiological test equipment and media.
- Test parameters ranging from Acidity to Zinc; pH; Temperature; BOD; COD; Turbidity; Biocides; TVC and *E. coli*; and many more.

All products are available stand-alone or as an integrated set, housed in one of the comprehensive Lovibond® engineering kits.

The Lovibond® range presents an accurate and flexible approach to routine water analysis that is simple to use, yet gives reliable results in factories, laboratories and in the field.

Tests use either Lovibond® tablet reagents, with a guaranteed shelf life up to 10 years, VARIO powder reagents or liquid reagents, manufactured to rigorous standards in the Lovibond® factories. As the only reagent producer in the world to offer a complete range of reagent forms, the company is unbiased in its advice of which reagent type best suits the need of the application.

Commitment to quality is fundamental to the company's philosophy. All Lovibond® products are manufactured according to the company's DIN ISO 9001:2008 certification and comply with international standards such as ISO 7393/2 and ISO 15705:2002. All the instruments and chemicals conform to the relevant international safety regulations and EC directives.

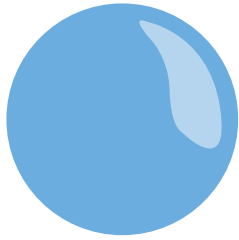
“Water is the basis of life. Water analysis and water purification are fundamental to the quality of life.”

Cay-Peter Voss



# Catalogue Navigation

The **Lovibond® Industrial Water Catalogue** has been divided in sections to aid navigation:



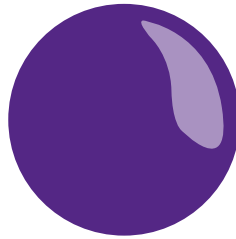
**Standard Test Kits** or equipment designed for a particular application or purpose



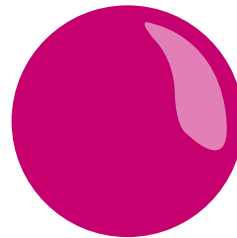
**Build Your Own Test Kit:**  
Customised Test Kits from a selection of the Lovibond® range



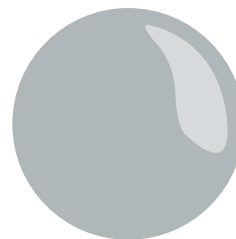
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Lovibond®  
**Comparator Solutions**



Lovibond®  
**Electrochemistry Systems**



Lovibond®  
**Titration Systems**

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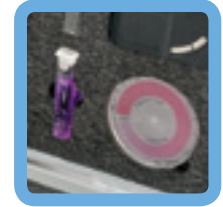
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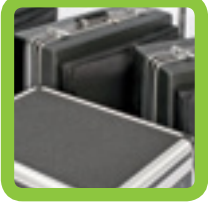
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# Lovibond® Standard Test Kits



# Boiler Water Test Kits

- Accurate dosage of corrosion and scale inhibitors
- Drop tests for speed and simplicity
- Kit 1 for daily analysis
- Enhanced Kit 2 for service engineers

Measuring and monitoring treatment levels in boilers and associated conditioning plant is essential to maintaining output efficiency and longevity of plant. The Lovibond® range of test equipment enables personnel to ensure treatments such as corrosion and scale inhibitors are correctly dosed.

Lovibond® test kits contain all equipment and test reagents for every-day boiler water testing, optimising treatments and monitoring critical control parameters.



## Two standard test kits are available:

**56K000101: Boiler Water Test Kit 1:**  
Ideal for daily checks on critical inhibitor levels.



### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>56R003990</b>	P+OH Alkalinity Drop Test	0 – 2400 mg/l CaCO <sub>3</sub>	100+
<b>56R004990</b>	Chloride Drop Test	20-12,000mg/l Cl <sup>-</sup>	100+
<b>56R006690</b>	Hardness (Total) Drop Test	5-60mg/l CaCO <sub>3</sub>	100+
<b>56R009190</b>	Sulphite Drop Test	25-150mg/l Na <sub>2</sub> SO <sub>3</sub>	100+
<b>56S001190</b>	pH Test Strips	pH 7.0 – 14.0	100

## **56K000201: Boiler Water Test Kit 2:**

For a complete analysis, ideal for service engineers.



### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>56R003990</b>	P+OH Alkalinity Drop Test	0 – 2400 mg/l CaCO <sub>3</sub>	100+
<b>56R004990</b>	Chloride Drop Test	20-12,000mg/l Cl <sup>-</sup>	100+
<b>56R006690</b>	Hardness Total Drop Test	5-60mg/l CaCO <sub>3</sub>	100+
<b>146250W</b>	Phosphate HR CHECKIT® Comparator Disc	0-80mg/l PO <sub>4</sub> <sup>3-</sup>	-
<b>511980</b>	Phosphate CHECKIT® Reagent Pack	0-80mg/l PO <sub>4</sub> <sup>3-</sup>	100
<b>56R009190</b>	Sulphite Drop Test	0-150mg/l Na <sub>2</sub> SO <sub>3</sub>	100+
<b>194800</b>	SD 50 Hand-held pH meter	pH 0-14.00	-
<b>194802</b>	SD 70 Hand-held conductivity & temperature meter	0-20,000µS, 0-100°C	-

## Biochemical Oxygen Demand (BOD) – OxiDirect

- Manometric analysis of BOD for accurate, direct display of measurements
- Direct sample selection
- Measuring range 0 – 4000mg/l
- Selectable measuring period: 1 – 28 days
- Inductive stirring system
- Mercury free, environmentally friendly

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

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

BOD Range (mg/l)	Sample Volume (ml)
0-40	428
0-80	360
0-200	244
0-400	157
0-800	94
0-2000	56
0-4000	21.7

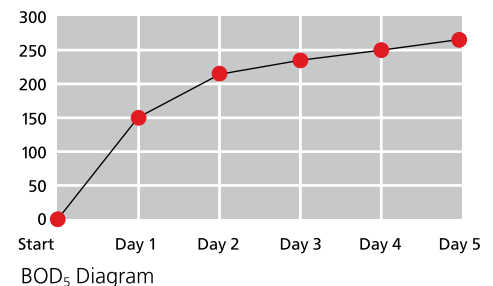
The Lovibond® OxiDirect is a Manometric, respirometric BOD measurement system. Manometric respirometers relate oxygen uptake to the change in pressure caused by oxygen consumption while maintaining a constant volume. Thanks to the modern integral pressure sensors, it is no longer necessary to use mercury for pressure measurements.

The unit is a 6 sample system that allows precise measurements of BOD from 1 to 28 days. Data is stored in the individual sensor heads, so it is possible to remove and reposition the bottles without losing vital data. By using different volumes of sample, the OxiDirect is capable of measuring from 0 to 4000mg/l without the need to dilute the sample. Overflow measuring flasks are supplied with the unit, and a full range of flasks are available. BOD CM Tablets, which can be used to verify the validity of results, can also be supplied.



The unit is easy to use and set up using scrolling menus on the LCD display. Results can be monitored throughout the incubation period to ensure accurate analysis. With a selectable automatic start function, variations in sample temperature prior to testing can be eliminated, as the unit will begin the analysis period only when the temperature is constant. Such variations would normally cause errors during manometric measurement.

An inductive stirring unit is also supplied to provide constant mixing of the sample over the analysis period.



BOD<sub>5</sub> Diagram

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



**Thermostatically Controlled Incubators**  
(see page 11 for details)

# Biochemical Oxygen Demand (BOD) – OxiDirect

**2444406:** OxiDirect BOD  
Sensor Suite – 6 place

**2444410:** OxiDirect BOD  
Sensor Suite – 12 place



## Ordering Information:

Code	Product	Contents
<b>2444406</b>	Lovibond® OxiDirect, complete unit with 6 sensor heads and control unit with batteries	Complete Unit Inductive stirring unit with power supply 6 sample bottles 6 rubber gaskets 6 magnetic stirring rods 1 overflow flask, 157 ml 1 overflow flask, 428 ml 1 bottle, 50 ml potassium hydroxide solution 1 bottle, 50 ml nitrification inhibitor solution 1 instruction manual
<b>2444410</b>	Lovibond® OxiDirect, complete unit with 12 sensor heads and control unit with batteries	As above

## Accessories:

Code	Product
<b>2444430</b>	<b>Sensor head</b>
<b>418644</b>	<b>BOD sample bottle</b> Brown glass, 500 ml
<b>418645</b>	<b>BOD sample bottles</b> Brown glass, 500 ml, set of 6 bottles
<b>2444440</b>	<b>Cable for connection to a PC</b> serial 9-pins
<b>2444452</b>	<b>Inductive stirring system</b> for 6 samples, 100-240 V / 50-60 Hz
<b>418637</b>	<b>Stirring rod</b>
<b>418638</b>	<b>Stirring rod remover</b>
<b>418636</b>	<b>Rubber gasket</b>
	<b>Chemicals:</b>
<b>2418634</b>	<b>Potassium hydroxide solution</b> 45 %, 50 ml
<b>2418642</b>	<b>Nitrification inhibitor</b> (N-ATH) 50 ml

Code	Product
<b>418664</b>	<b>Overflow flask</b> , 21.7 ml
<b>418655</b>	<b>Overflow flask</b> , 56 ml
<b>418656</b>	<b>Overflow flask</b> , 94 ml
<b>418657</b>	<b>Overflow flask</b> , 157 ml
<b>418658</b>	<b>Overflow flask</b> , 244 ml
<b>418659</b>	<b>Overflow flask</b> , 360 ml
<b>418660</b>	<b>Overflow flask</b> , 428 ml
<b>418654</b>	<b>Complete set Overflow flasks</b>
<b>418328</b>	<b>Test set</b> , BOD CM test tablets, box with 8 tablets

## Biochemical Oxygen Demand (BOD) – Thermostatic Cabinets

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

The Lovibond® range of incubators are designed for incubation from 2 to 40°C and can be used for a variety of applications including dairies, laboratories or microbiology. Convenient internal power sockets allow stirring units or other electrical equipment to be monitored without opening the door or compromising the temperature.

The digital temperature control unit is adjustable to 0.1°C and has a backlit display for ease of use.

The ET618-4 and ET619-4 can accommodate 3 x Lovibond® OxiDirect BOD units.

A complete range of 8 Lovibond® Thermostatic Cabinets is available to hold up to 12 standard COD systems. For further details, visit [www.lovibond.com](http://www.lovibond.com)



### Ordering Information:

Code	Product	Contents
<b>2428200</b>	ET 618-4 type 180 – Metal Door	Temperature range: 2°C to 40°C 3 metal racks + 1 bottom grid + 4 sockets Consumption: 1.35 kWh / 24h* I. D. (approx.): 700 H x 515 D x 430 W mm Net capacity: approx. 135 l O. D. (approx.): 850 H x 600 D x 600 W mm with work top 820 H x 600 D x 600 W mm without work top Suitable for built under applications Weight: approx. 39.0 kg
<b>2444410</b>	ET 619-4 type 180 – Glass Door	Temperature range: 2°C to 40°C 3 metal racks + 1 bottom grid + 4 sockets Consumption: 1.77 kWh / 24h** I. D. (approx.): 700 H x 515 D x 443 W mm Net capacity: approx. 140 l O. D. (approx.): 885 H x 600 D x 600 W mm Weight: approx. 50.0 kg

\* Ambient temperature 25°C – Target temperature 20°C.

\*\* Ambient temperature 25°C – Target temperature 20°C with interior light switched on (15W).

### Temperature Control Unit

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

# Chemical Oxygen Demand (COD) Determination

- Maximum operating reliability and convenience
- Simple button layout
- Robust waterproof design
- Large backlit display
- Small scale, sealed tube
- 3 Ranges:
  - 0-150mg/l (ISO 15705:2002)
  - 0-1500mg/l (ISO 15705:2002)
  - 0-15000mg/l

It is vital that industrial effluents comply with regulatory consents imposed by local water authorities/environment agencies. Discharge maximums are often set for COD and TOC as these are general measurements of discharge water quality. Other consent levels can be set for the process of specific items such as chromium, phosphate and nitrogen. Heavy fines are possible for continued breaches of consent values. The Lovibond® COD system is simple to operate, requires no training and enables industry to rapidly assess effluent quality and remain fully compliant.

**COD Chemistry:** The Lovibond® sealed tube system is based upon the standard dichromate method and can be considered as an estimate of the theoretical oxygen demand, i.e. the amount of oxygen consumed in total chemical oxidation of the organic constituents present in the water.



## 276130: MD 100 COD System (VARIO):

A complete COD system using the dedicated MD 100 COD instrument for photometer determination following digestion.



## MD 100 COD System (VARIO): 276130 contains:

Code	Product	Range	Qty
276120	MD 100 COD Photometer	All Range	1
2418940	RD 125 Thermoreactor	100-150°C	1
2420720	COD VARIO Tube Tests	0-150mg/l*	2 x 25
2420721	COD VARIO Tube Tests	0-1500mg/l*	2 x 25

\*Accurate to +/- 3.5%

# Chemical Oxygen Demand (COD) Determination

## 56K019501:

### MaxiDirect COD System (VARIO):

A complete COD measurement system using the MaxiDirect photometer. Additional testing for metals and TOC can be incorporated. See the full suite of MaxiDirect tests available on page 56.



### MaxiDirect COD System (VARIO):

#### 56K019501 contains:



Code	Product	Range	Qty
214010	MaxiDirect COD Photometer	Multi Range	1
2418940	RD 125 Thermoreactor	100-150°C	1
2420720	COD VARIO Tube Tests	0-150mg/l*	2 x 25
2420721	COD VARIO Tube Tests	0-1500mg/l*	2 x 25

### COD Tube Tests and Reagent Consumables

All Lovibond® VARIO tube tests comprise 16mm diameter tubes and are suitable for use on Lovibond® and HACH® photometers.

#### Ordering Information:

Code	Product	Range	Qty
2420710	COD VARIO Tube Tests – Mercury Free	0-150mg/l*	25
2420720	COD VARIO Tube Tests*	0-150mg/l*	25
2420725	COD VARIO Tube Tests*	0-150mg/l*	150
2420711	COD VARIO Tube Tests – Mercury Free	0-1500mg/l*	25
2420716	COD VARIO Tube Tests – Mercury Free	0-1500mg/l*	150
2420721	COD VARIO Tube Tests*	0-1500mg/l*	25
2420726	COD VARIO Tube Tests*	0-1500mg/l*	150
2420712	COD VARIO Tube Tests – Mercury Free	0-15000mg/l*	25
2420722	COD VARIO Tube Tests**	0-15000mg/l*	25
2420727	COD VARIO Tube Tests**	0-15000mg/l*	150
2420803	COD Standard Solution	100mg/l COD	30ml
2420804	COD Standard Solution	500mg/l COD	30ml
2420805	COD Standard Solution	5000mg/l COD	10ml

\* Suppression of chloride interference up to 1000mg/l

\*\* Suppression of chloride interference up to 10000mg/l

+ Accurate to +/- 3.5%

# Chemical Oxygen Demand (COD) Determination

**Order Code: 2418940**  
**Thermoreactor RD 125**

- Tube test digestion of  
 COD (150°C)  
 TOC (120°C)  
 Total Chromium (100°C)  
 Total Nitrogen (100°C)  
 Total Phosphate (100°C)
- Three pre-set reaction times (30/60/120 mins)
- 24 vial wells for 16mm diameter vials

A compact digestion unit for tube test analysis on wastewater and effluents. The RD 125 reactor is fitted with 24 x 16mm vial wells for use with the Lovibond® range of tube tests.

Chemical digestion of samples is required for the photometric determination of COD, TOC, total phosphate and total nitrogen. The required temperatures and reaction time can be selected by using the membrane keypad. The unit works at three different temperatures (100 / 120 / 150°C) and three pre-set reaction times 30 / 60 / 120 minutes). When digestion is complete, the reactor automatically switches off and gives a corresponding LED indication with short beep alarm. Suitable to use at 220 V and 110 V.



Technical Data RD 125	
Power supply	230 V / 50-60 Hz or 115 V / 50-60 Hz (user selectable)
Power	550 W
Dimensions	248 x 219 x 171 mm
Weight	3.9 kg
Materials, housing Protection grid Lid Block insert Heating block	ABS PPS PC PBT Aluminium
Vial wells in the aluminium block	24 vial wells, 16.2 mm ± 0.2 mm
Selectable temp.	100 / 120 / 150 °C
Probe type	Pt100 A class

Technical Data RD 125	
Temperature stability	± 1 °C at the Pt100
Selected time	30 / 60 / 120 / min. and continuous operation (∞)
Heating up	from 20°C to 150°C in 12 min.
Regulation	Microprocessor
Protection against overheating	at the alu block at 190 °C
Beeper	max. 88 dB (Piezo Summer)
Environmental conditions	10 – 40 °C max. 85 % rel. humidity
EC-Conformity	CE



## Cleaning/Chlorination Test Kit

- Portable kit for rapid determination
- Control bacterial contamination
- Determine free chlorine levels, assess chemical flow and detect trace levels
- Identify biocide activity

Hot and cold water services require routine cleaning/chlorination in order to maintain effective control of any bacterial contamination, particularly in large buildings with extensive pipe-work. The Cleaning/Chlorination Test Kit is a small portable kit that allows the cleaning engineer to rapidly determine free chlorine levels are correct prior to disinfection, assess the flow through outlets and detect trace levels after the final flush. A pH meter is included to ensure optimum pH and hence biocide activity prior to disinfection.



**Code: 56K001001:** Chlorination Test Kit



### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>56R005190</b>	Chlorine (Free) Drop Test	15-300mg/l Cl <sub>2</sub>	100
<b>146020W</b>	Chlorine CHECKIT® Comparator Disc	0-4mg/l Cl <sub>2</sub>	100
<b>517711BT</b>	Chlorine CHECKIT® Reagent Pack	0-4mg/l Cl <sub>2</sub>	Each
<b>56S000190</b>	Starch/Iodide Strips – rapid test	0-200mg/l Cl <sub>2</sub>	100
<b>194800</b>	SD 50 Hand-held pH meter	pH 0-14.00	-

### Potassium Iodide Tablets (1g)

1g potassium iodide tablets (pack of 500) are ideal for the rapid detection of chlorine at sentinel outlets during chemical cleaning –  
Order code: **56T000197**

# Cooling Water Test Kits (Open Systems)

- Monitor parameters quickly, safely and accurately
- Ensures optimum output and efficiency
- Kit 1 for easy, daily analysis
- Enhanced Kit 2 for service engineers

Re-circulating cooling water requires carefully chosen chemical treatments. This helps to minimise microbiological contamination, scaling of critical parts such as heat exchangers and to prevent corrosion.

To be most effective, treatments must be maintained within specific control parameters, as excess inhibitor can have as detrimental an affect as too little.

The Lovibond® range of test kits and equipment for cooling water contain all equipment and test reagents required to optimise treatments and monitor critical control parameters quickly, safely and accurately, ensuring optimum output and efficiency.



**56K000301:** Cooling Water Test Kit 1:  
Ideal for daily checks on critical inhibitor levels



#### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>146280W</b>	Bromine CHECKIT® Comparator Disc	0-5mg/l Br <sub>2</sub>	-
<b>511310BT</b>	Bromine CHECKIT® Reagent Pack	0-5mg/l Br <sub>2</sub>	100
<b>56R007250</b>	Hardness Yes/No Tablet Count Test	0-10mg/l CaCO <sub>3</sub>	50
<b>194800</b>	SD 50 Hand-held pH meter	pH 0-14.00	-
<b>194802</b>	SD 70 Hand-held conductivity & temperature meter	0-20,000µS, 0-100°C	-

**56K000401:** Cooling Water Test Kit 2:  
For a complete analysis, ideal for service engineers.



#### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>56R003790</b>	M Alkalinity Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
<b>146280W</b>	Bromine CHECKIT® Comparator Disc	0-5mg/l Br <sub>2</sub>	-
<b>511310BT</b>	Bromine CHECKIT® Reagent Pack	0-5mg/l Br <sub>2</sub>	100
<b>56R005090</b>	Chloride Drop Test	20-400mg/l Cl <sup>-</sup>	100+
<b>56R006290</b>	Hardness (Calcium) Drop Test	5-600mg/l CaCO <sub>3</sub>	100+
<b>56R006690</b>	Hardness (Total) Drop Test	5-600mg/l CaCO <sub>3</sub>	100+
<b>146220W</b>	Iron LR CHECKIT® Comparator Disc	0-1mg/l Fe	-
<b>56R020790</b>	Iron LR CHECKIT® Reagent Pack	0-1mg/l Fe	250
<b>56R008350</b>	Phosphonate Drop Test	4-20mg/l H.E.D.P.	50
<b>194800</b>	SD 50 Hand-held pH meter	pH 0-14.00	-
<b>194802</b>	SD 70 Hand-held conductivity & temperature meter	0-20,000µS, 0-100°C	-

## Cooling Water/LPHW/Chilled Test Kits (Closed System)

- Prevents corrosion and scale
- Accurate inhibitor dosage rates
- Reproducible, accurate results
- Antifreeze/glycol option

Closed water systems are sealed entities, designed to distribute hot or chilled water, often as part of a manufacturing process.

These systems are particularly susceptible to corrosion and scale if not properly treated. Care must be taken when selecting the measurement system/chemistry used as inhibitor dose rates are high making the aqueous environment particularly aggressive. These closed system test kits have been specifically designed for the application and deliver reproducible and accurate results, even with highly coloured samples.



**Two standard test kits are available:**

### 56K000501:

Cooling Water/LPHW/Chilled Test Kit 3:  
Ideal for daily checks on nitrite and pH levels.



**Contents and Ordering Information:**

Code	Product	Range	Tests/Pack
56R007990	Nitrite Drop Test	10-2000mg/l NaNO <sub>2</sub>	100+
56S001190	pH Test Strips	pH 7-14.00	100

### 56K000601:

Cooling Water/LPHW/Chilled Test Kit 4:  
A more complete analysis kit including molybdate, iron & conductivity.



**Contents and Ordering Information:**

Code	Product	Range	Tests/Pack
146220W	Iron LR CHECKIT® Comparator Disc	0-1mg/l Fe	-
56R020790	Iron LR CHECKIT® Reagent Pack	0-1mg/l Fe	250
56R007590	Molybdate Drop Test	25-400mg/l MoO <sub>4</sub>	100+
56R007990	Nitrite Drop Test	10-2000mg/l NaNO <sub>2</sub>	100+
194800	SD 50 Hand-held pH meter	pH 0-14.00	-
194802	SD 70 Hand-held conductivity & temperature meter	0-20,000µS, 0-100°C	-

### Antifreeze (Glycol) Measurement:

Add a refractometer to either of the above test kits for quick and easy antifreeze (glycol) determination. Order code **56M000401** (see page 31)



For microbiological testing (dipslides + DI 10 dipslide incubator), see page 28

# Cutting Fluid Test Kit

- Ensures compliance to regional Health and Safety at Work Procedures
- Optimises cutting fluid performance
- Safely controls microbiological contamination
- Optimised for accurate trend analysis

Cutting fluids are required in metal machining to improve tool life, reduce work piece thermal deformation, enhance surface finish and to flush chips from the cutting zone. These fluids degrade with time due to bacterial growth and contamination with tramp oil.

Testing is essential since health risks exist for lathe operators by both fluid contact (dermatitis) and breathing of the mist/vapour (asthma, extrinsic allergic alveolitis and other breathing problems).

Biocidal additives improve the life of the fluid and reduce the hazard to health. On-going monitoring, inspection and maintenance are required in the UK as part of an employer's obligation under Section 2 of the Health and Safety at Work Act 1974. Similar work related mandates are in force across Europe.

Lovibond® test kits measure the key parameters necessary to optimise cutting fluid performance and enable enumeration and safe control of microbiological contamination. The basic kit is supplied with tests for cutting fluid concentration (refractometer), pH, water hardness, Nitrite/Nitrate and dipslides for monitoring microbiological activity. A deluxe version, incorporating the DI 10 dipslide incubator is also available. A uniform incubation temperature for dipslides allows accurate microbiological trend analysis month on month.



## Ordering Information:

**56K021401:** Basic Cutting Fluid Test Kit

**56K021501:** Deluxe Cutting Fluid Test Kit (Includes DI 10 Dipslide Incubator)



**56R021401:** Cutting Fluid Spares Pack: Contains dipslides, hardness test strips, nitrite/nitrate test strips and pH 7 buffer:

Code	Product	Range	Tests/Pack
<b>194800</b>	SD 50 Hand-held pH meter	pH 0-14.00	-
<b>56B000410</b>	Dipslides Combi/RBS	Aerobic/Yeast & Fungi	10
<b>56S000950</b>	Hardness Test Strips	0-500mg/l as CaCO <sub>3</sub>	50
<b>56S001890</b>	Nitrite/Nitrate Test Strips	0-10/0-50mg/l NO <sub>2</sub> /NO <sub>3</sub>	100
<b>56M000201</b>	Brix Refractometer	0-18% BRIX	-



## DI 10 Dipslide Incubator

Order Code: **56B000701**

For details on the DI 10 dipslide incubator supplied in the deluxe test kit, see page 28



## Flocculation Equipment (Jar Testers)

- Maximum convenience: minimum maintenance
- Continuously variable stirring speeds
- Four or six stirring places – laboratory use
- Four compact stirring places
- Portable, in-situ use
- Height adjustment during operation

Jar testers are designed for a range of applications – such as testing the efficiency of flocculation or precipitation agents. The ET 740 model with 4 stirring places and the ET 750 model with 6 stirring places are fitted with an illuminated back panel for glare-free observation of the samples and are suitable for laboratory use. The jar tester ET 730 with 4 stirring places is primarily designed for field use.

The 4 stirring points are arranged in a circle around a lamp making it easier to observe the flocculation process. State-of-the-art technology ensures maximum operating convenience and makes the unit maintenance-free. The main features of the laboratory jar testers are the continuously variable stirring speed, the digital display of stirring rpm, the timer function, the illuminated back panel, and the height adjustment option for the stirring blades during operation.

**ET 730** requires 1000ml beakers of low form (not included).

**ET 740** and **ET 750** require 1500 ml beakers of low or high form (not included).



### Ordering Information:

#### 2419155: ET 740

Technical data ET 740 (laboratory)	
<b>Stirring places</b>	four
<b>Stirring speed control</b>	10 - 300 revolutions per minute
<b>Resolution</b>	1 revolution
<b>Timer</b>	1 - 999 minutes or 0 - 99 hours (continuous)
<b>Power supply</b>	100 – 240 V, 50 - 60 Hz
<b>Weight</b>	approx. 13 kg
<b>Dimensions (mm)</b>	645 L x 347 W x 260 H
<b>EC-conformity</b>	CE

#### 2419160: ET 750

Technical data ET 750 (laboratory)	
<b>Stirring places</b>	six
<b>Stirring speed control</b>	10 - 300 revolutions per minute
<b>Resolution</b>	1 revolution
<b>Timer</b>	1 - 999 minutes or 0 - 99 hours (continuous)
<b>Power supply</b>	100 – 240 V, 50 - 60 Hz
<b>Weight</b>	approx. 17 kg
<b>Dimensions (mm)</b>	935 L x 347 W x 260 H
<b>EC-conformity</b>	CE

#### 2419150: ET 730

Technical data ET 730 (portable/field)	
<b>Stirring places</b>	four
<b>Stirring speed control</b>	20 - 40 - 50 - 100 - 120 revolutions per minute
<b>Timer</b>	1 - 30 minutes (continuous)
<b>Power supply</b>	100 – 240 V, 50 - 60 Hz
<b>Weight</b>	approx. 4.8 kg
<b>Dimensions (mm)</b>	250 L x 320 W x 250 H
<b>EC-conformity</b>	CE



### Accessories

Code	Description
<b>419165</b>	Measuring Beaker, glass, low form, 1000ml – (Minimum order quantity 10 units)
<b>419166</b>	Measuring Beaker, plastic, low form, 1000ml – (Minimum order quantity 6 units)

# Food & Beverage Test Kits

- Determination of cleaning or treatment chemicals
- Process machinery and surface sanitisation
- Easy-to-use kits for on-site testing
- Obtain results in just seconds
- Enable historical record keeping and compliance

Dairy producers, food processors and commercial sanitizers all require test equipment for the determination of cleaning or treatment chemicals. Whether it is for the on-going operation of process machinery or for surface sanitisation, the Lovibond® range of test kits provide a quick and easy way to obtain accurate product concentration in seconds.

Individual test kits are available based on simple titration chemistries. Step-by-step instructions guide the user to the final result. Many speciality chemical manufacturers use this range as the basis of a full testing program for their products. Kits are passed through to customers for continued on-site testing/record keeping and compliance.



## Alkalinity Hi / Low Test Kit

For caustic and carbonate determinations on gels, foams, conveyor lubricants and caustic CIP and bottle washing products. This versatile test kit is ideal for measuring a wide range of caustic products.



## Disinfection (QAC / Cationic) Test Kit & Anionic Test Kit

For the determination of cationic/anionic disinfectants such as QAC's/lauryl sulphate used in the sanitisation of process areas and machinery.



## Oxidising Biocides Test Kit

For measuring a wide range of oxidising biocides, including available chlorine, iodine, peracetic acid and hydrogen peroxide. This kit can be used to ensure correct application of terminal disinfectants used extensively throughout the food and beverage industry.



## Acidity Test Kit

Acid based cleaners are used extensively in cleaning, for the removal of dirt, deposits and scale. This test kit can be calibrated to measure a wide range of acid based commercial cleaners.



## Food & Beverage Test Kits

### EDTA / Total Chelant Test Kit

Chelating agents such as EDTA are excellent anti-foam and scale suppression additives, used extensively in commercial formulations.

### Warewashing Test Kit

For the determination of key elements in setting up commercial dishwasher systems. Hardness, detergent, starch and caustic tests are included.



### Ordering Information:

Code	Product	Range	Tests/Pack
<b>56K002801</b>	<b>Acid Products Test Kit</b>	0.01 – 5.0% H <sub>2</sub> SO <sub>4</sub>	<b>200+</b>
<b>56R002890</b>	Acid Products Reagent Pack		200+
<b>56K002901</b>	<b>Alkalinity Hi / Low Drop Test Kit</b>	0.025-6.0% NaOH	<b>100+</b>
<b>56R002990</b>	Alkalinity Hi/Lo Reagent Pack		100+
<b>56K003001</b>	<b>Anionic Drop Test Kit</b>	0-1200mg/l SLS (Sodium Lauryl Sulphate)	<b>100+</b>
<b>56R003090</b>	Anionic Reagent Pack		100+
<b>56K003101</b>	<b>Disinfection (QAC/Cationic) Drop Test Kit</b>	60-1800mg/l CTAB (Cetyl trimethyl ammonium bromide)	<b>100+</b>
<b>56R003190</b>	Disinfection (QAC/Cationic) Reagent Pack		100+
<b>56K003201</b>	<b>EDTA/Total Chelant Drop Test Kit</b>		<b>200+</b>
<b>56R003294</b>	EDTA Reagent Pack & Total Chelant Reagent Pack	100-2000mg/l EDTA 100-2000mg/l EDTA	100+ 100+
<b>56K003301</b>	<b>Oxidising Biocides Drop Test Kit</b>		<b>300+</b>
<b>56R003396</b>	Oxidising Biocides Reagent Pack Contains: Chlorine (Br <sub>2</sub> + I <sub>2</sub> ) Reagent Pack Hydrogen Peroxide Reagent Pack Peracetic Acid Reagent Pack	0-6.0% Cl <sub>2</sub> 0-75mg/l I <sub>2</sub> 15-5000mg/l 15-500mg/l	300+ 100+ 100+ 100+
<b>56K003401</b>	<b>Warewashing (Dishwasher) Drop Test Kit</b>		<b>300+</b>
<b>56R003496</b>	Warewashing Reagent Pack Contains: Hardness Reagent Pack Alkalinity (Detergent) Reagent Pack Starch Detection Reagent Pack	0-300mg/l CaCO <sub>3</sub> 10-300mg/l CaCO <sub>3</sub> Trace	300+ 100+ 100+ 100+

# Laundry Test Kit

- Tests chemical additives throughout the wash cycle
- Portable kit for on-site testing
- Easy to use with visual, comparative readings
- Reduces chemical additive needs and costs

A range of test equipment is available for the commercial laundry engineer to enable quick and efficient testing of key chemical additives throughout the wash cycle.

The multi-parameter Lovibond® test kit contains a specific range of tests for the quantification of commercial laundry cleaning products. A pH meter is also included to enable fast and accurate pH measurement, irrespective of water quality.

## 56K002501: Laundry Test Kit



### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
194800	SD 50 Hand-held pH Meter	pH 0-14.00	-
56R008190	pH Sour Colour Card Test	pH 4-10	100+
56R004190	Alkalinity Total (Wash)	0.25-6.0% NaOH	100+
56R004390	Alkalinity Free (Rinse)	250-6000mg/l NaOH	100+
56R005690	Chlorine Bleach Drop Test	0.25-15% Cl <sub>2</sub>	100+
56R005690	Chlorine Bleach (Concentrate)	100-2400mg/l Cl <sub>2</sub>	100+
56K005301	Chlorine Spot Test (Fabric)	Trace	100+
56R006890	Hardness Drop Test	10-300mg/l CaCO <sub>3</sub>	100+
56S000850	Hydrogen Peroxide Test Strips	0-100mg/l H <sub>2</sub> O <sub>2</sub>	50
56R007490	Iron Spot Test (Fabric)	Trace	100+
56R008090	Oxygen (Available) Drop Test	0-500mg/l O <sub>2</sub>	100+
56S000301	Starch/Iodide Test strip (for chlorine testing)	Presence/Absence	3M reel
56A004401	Pocket Thermometer (Spirit)	5-105°C	-



# Legionella Prevention Test Kits

- Conforms to regulatory guidelines
- Weekly and monthly testing
- Chlorine and Bromine options
- Easy-to-use, uncompromised accuracy

*Legionella* is the causative agent of Legionnaire's disease, a potentially fatal form of pneumonia. Guidelines exist across the world for the control of *Legionella*.

These guidelines detail the key parameters that should be tested on a weekly and monthly basis to minimise the risk of *Legionella* proliferating to harmful levels in open water system.

The Lovibond® *Legionella* "L8" Test Kits contain the recommended tests for both weekly and monthly monitoring.



## 56K000701:

*Legionella* L8 Test Kit (Weekly) – Bromine Option

## 56K000801:

*Legionella* L8 Test Kit (Weekly) – Chlorine Option



### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>146020W + 517711BT</b>	Chlorine CHECKIT® Comparator test	0-4.0mg/l Cl <sub>2</sub>	100
<b>146280W + 511310BT</b>	<b>Or</b> Bromine CHECKIT® Comparator Test	0-5.0mg/l Br <sub>2</sub>	100
<b>56B000310</b>	Dipslides – BT2**	Aerobic Bacteria	10
<b>56S001090</b>	pH Test Strips	pH 4.5-10.0	100
<b>194802</b>	SD 70 Hand-held conductivity & temperature meter	0-20,000µS 0-100°C	-

## 56K000901:

*Legionella* L8 Test Kit (Monthly) – with space to include the DI 10 dipslide incubator



### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>56R003790</b>	M Alkalinity Drop Test	50– 600mg/l CaCO <sub>3</sub>	100+
<b>146280W</b>	Bromine CHECKIT® Comparator Disc	0-5mg/l Br <sub>2</sub>	-
<b>511310 BT</b>	Bromine CHECKIT® Reagent Pack	0-5mg/l Br <sub>2</sub>	100
<b>56R005090</b>	Chloride Drop Test	20-400mg/l Cl <sup>-</sup>	100+
<b>146020W</b>	Chlorine CHECKIT® Comparator Disc	0-4mg/l Cl <sub>2</sub>	-
<b>517711BT</b>	Chlorine CHECKIT® Reagent Pack	0-4mg/l Cl <sub>2</sub>	100
<b>56B000310</b>	Dipslides – BT2**	Aerobic Bacteria	10
<b>56R006290</b>	Hardness (Calcium) Drop Test	5-600mg/l CaCO <sub>3</sub>	100+
<b>56R006690</b>	Hardness (Total) Drop Test	5-600mg/l CaCO <sub>3</sub>	100+
<b>146220W</b>	Iron LR CHECKIT® Comparator Disc	0-1mg/l Fe	-
<b>56R020790</b>	Iron LR CHECKIT® Reagent Pack	0-1mg/l Fe	250
<b>194800</b>	SD 50 Hand-held pH meter	pH 0-14.00	-
<b>194802</b>	SD 70 Hand-held conductivity & temperature meter	0-20,000µS 0-100°C	-

\*\* DI 10 Dipslide incubator (Code 56B000701) is required to perform the aerobic bacteria test, see page 28 for details. The incubator is not supplied as standard in the L8 monthly kit, but can be included if required.



# Marine Potable Water Kit

- Ensures compliance to WHO guidelines
- Tests potable water supplies on-board
- Customised kit: sufficient tools for all identified risk points
- Step-by-step instructions: accurate testing in demanding environments

The World Health Organisation (WHO) Guide to Ship Sanitation document was published in April 2011, and when combined with the International Health Regulations 2005, provides a more robust "Water Safety Plan" approach to potable water supplies in the marine environment.

This includes identification of potential contamination points, implementation of

control measures and regular water testing. The Lovibond® Potable Water Kit has been developed to provide the ship's engineer with sufficient tools to carry out the required routine testing on all identified risk points.

The kit contains all equipment and reagents, with replacements readily available. Step-by-step instructions lead the operator to achieve accurate measurement even in the most demanding environments.

The test equipment and reagents are supplied in a strong lockable, aluminium storage case.



## 56K002701: Marine Potable Water Test Kit



### Contents and Ordering Information:

Code	Product	Range	Tests/Pack
56B001740	Aerobic Bacteria Pack	0-1400 CFU/ml	40
56B001825	Microbial Detection Pack – includes <i>P. Aeruginosa</i> test sachets <i>Enterococci</i> test sachets <i>Coliforms/E.coli</i> test sachets Thio Bags (with Thiosulphate) UV lamp (for <i>E.coli</i> test)	Detects 1 CFU per 100ml Detects 1 CFU per 100ml Detects 1 CFU per 100ml	25 25 25
56B000701	DI 10 Incubator (bacteria tests)	-	-
146010W + 517711BT	Chlorine CHECKIT® Comparator Test	0-1mg/l Cl <sub>2</sub>	100
146020W + 517711BT	Chlorine CHECKIT® Comparator Test	0-4.0mg/l Cl <sub>2</sub>	100
146030W + 517721BT	Chlorine CHECKIT® Comparator Test	10-300mg/l Cl <sub>2</sub>	100
146130 + 515440	pH CHECKIT® Comparator Test	4 – 10 pH	100
56M000801	Digital Thermometer (surface/immersion)	-200 – +600°C	-

<b>Water storage tanks:</b>	1-4mg/l free chlorine
<b>Potable water outlets:</b>	>0.2mg/l free chlorine
<b>System super-chlorination:</b>	>50mg/l free chlorine
<b>Water network:</b>	<1000 CFU/ml Aerobic bacteria (trend analysis)
<b>Bunkering &amp; water network:</b>	Zero CFU/100ml <i>coliforms/e.coli</i> Zero CFU/100ml <i>enterococci</i> Zero CFU/100ml <i>pseudomonas</i> ( <i>P. Aeruginosa</i> )

### Reference Material

World Health Organisation 2009 Guide to ship sanitation, Third Edition. International Health Regulations 2005

Health Protection Agency 2003 Guidelines For Water Quality On Board Merchant Ships including Passenger Vessels.

## Microbiology – ATP Meter (Sanitation Monitoring)

- Real-Time ATP Monitoring
- Quick, easy and accurate
- Monitor cleanliness in sds
- Measures levels of organic matter and micro-organisms
- Detects surface or water borne contamination

ATP is an accepted method of routine surface screening for organic matter and micro-organisms by the detection of adenosine triphosphate (ATP), a substance found in living cells. When ATP contacts the firefly reagent luciferin luciferase, a reaction takes place that produces light. The ATP meter simply measures this light output. The higher the levels of organic matter and micro-organisms on a surface or in a water sample, the more ATP is present, and thus a greater intensity of light produced. The ability to quickly, easily and accurately monitor cleanliness can be a huge aid in the control of microbiological contamination. ATP technology can be used in a number of industrial applications as part of a systematic monitoring and control program.

### Technical Features

- Intuitive symbols provide a universal interface
- Leading edge circuitry and enhanced silicon photo-diode
- LCD display of site name, number, group and test type
- User information selected and recorded with test results
- Up to 999 unique test sites can be accommodated
- Complete self-test at power-on
- Real-time random site selection
- USB interface for fast data transfer



Flat Pad for Extensive Sampling of Area

### Code: 56B001001: ATP Meter

Code	Article	Description
56B001190	Surface Sampler	Consistency is the key to a successful sanitation monitoring program. AccuPoint's Surface Sampler is the perfect choice for consistent sampling of most food contact surfaces, from flat food prep areas to all types of processing equipment.
56B001290	Access Sampler	AccuPoint's unique Access Sampler was created specifically for testing tight spaces, such as filler heads. The easy-to-use design provides consistently accurate results.
56B001390	Liquid Sampler	AccuPoint's Liquid Samplers feature precision engineered collection pads and reagents to make them the samplers of choice for accurately sampling liquid for the presence of ATP.  <b>Unique Sampler Design</b> The unique design of the AccuPoint sampler allows greater sample precision and consistency. Unlike traditional swabs, the sampler utilizes a large surface-area sample pad to extract ATP from the work surface.

### Windows® Compatible Software

AccuPoint comes with Data Manager Software that allows users to:

- Upload results to a PC
- Create and print trend analysis graphs
- Keep a record of sanitation effectiveness to verify SSOPs
- Set pass/caution/fail levels
- Export data to spreadsheets

# Microbiology – Coliform/E.coli Test Kit

- Early identification of bacterial contamination
- Simple one step procedure
- Coliforms and E.coli in one test
- 100ml sample (regulatory reporting)
- Detects one CFU/100ml

Potable water is our most important nutrient, used for both drinking and cooking. The water being used for personal hygiene and all types of cleaning requires the same high quality. It is therefore important to have enough water of satisfactory quality to cover all types of usage. Safe potable water secures good health, but water can also contain hazardous microbes that cause infectious disease or food poisoning.

Coliform and E.coli are good indicators of general bacterial contamination and, because they are easy to test for, make ideal indicator bacteria to monitor in water courses, tanks and pipe work. WHO guidelines on potable water quality state that zero Colony Forming Units (CFU) of coliforms and E.coli should be present per 100ml of water sample.

The Lovibond® system tests 100ml samples and will indicate the presence of just one CFU/100ml.



The test uses a pre-dispensed dry blended reagent formulation for total coliform and E.coli. Positive samples are detected by a visible colour change. Performing the coliform test is simple. Add one sachet to 100ml of water, incubate and note the colour change. The formation of a yellow colour in 24 hours or less indicates the presence of total coliforms. Positive tubes are then checked for the presence of E.coli by looking for fluorescence under UV light.

A simple, reliable technique which enables the rapid, confirmed enumeration of both total coliforms and pathogenic E.coli.

The Lovibond® DI 10 dipslide incubator is ideal for correct incubation of samples prior to reading, see page 28 for information.



**Code: 56K009701**  
**Coliform/E.coli Test Kit**

### Contents and Ordering Information:

Code	Article	Tests/Pack
<b>56B002125</b>	Coliform/E.coli test set (includes 25 test sachets & 25 sample bags)	25
56B001425	Coliform/E.coli sachets	25
56B001525	100ml Sample Bags (with thiosulphate)	25
<b>56B001601</b>	UV Lamp (battery operated)	–

### Optional Extra:

<b>56B000701</b>	DI 10 Dipslide Incubator	–
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## Microbiology – Dipslides

- Determine aerobic and anaerobic bacteria levels
- Early indication of bacteria proliferation
- Results in 48 hours
- Inexpensive
- Easy-to-Use
- Excellent for trend analysis

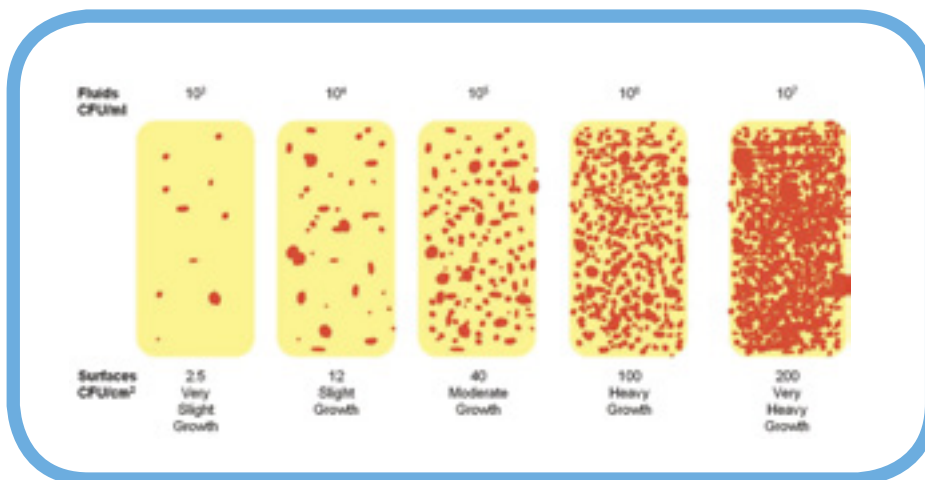
Guidelines to advise on the correct practices to control legionella bacteria in water systems exist worldwide. Suppressing bacteria levels does substantially reduce the possibility of an outbreak of this often fatal disease. Guidelines recommend introducing a monitoring and control program. This program includes the testing of cooling tower waters with dipslides on a regular basis.

A full range of dipslides is available for semi-quantitative determination of aerobic and anaerobic bacteria populations in industrial and recreational waters. Dipslide accuracy is limited due to the small sample size, but if used correctly and incubated at a constant temperature using the Lovibond® dipslide incubator, they are excellent for trend analysis and can give an early indication of bacteria proliferation.

**Dipslides are supplied in a cardboard carton containing 10 slides.**

**Dipslides have a working shelf life of 6-9 months.**

**Results are quantified by comparison to a standard density chart**



Code	Dipslide	Application
56B000110	Sulphate Reducing	Sulphate reducing bacteria
56B000210	Denitrifying Bacteria	Nitrite Reducing bacteria
56B000310	TTC/BT2	Aerobic Bacteria
56B000410	COMBI/RBS	Aerobic bacteria and yeast/fungi (Rose Bengal for yeast/fungi)
56B002610	TP/PT	Aerobic Bacteria/Pseudomonas

# Microbiology – DI 10 Dipslide Incubator Code: 56B000701

- Robust design
- Holds up to 12 dipslides or 10 quanti-discs
- Excellent temperature stability
- In-car operation
- Programmable incubation period setting

The Lovibond® DI 10 Incubator is designed for the reliable incubation of bacteriological slides, on-site, in a laboratory or even while mobile in a car or van.

National and European guidelines give practical advice on how to monitor, clean, test and ultimately control harmful legionella bacteria in water systems.

Dipslides provide a crucial part in the testing program, but must be used correctly and regularly as part of a planned regime, week on week to be of any meaningful value.

The incubation period and the incubation temperature should be the same each time the test is performed so that bacteria growth is controlled and consistent each time the test is performed. This allows for week by week comparisons to be made and high counts easier to identify. Dipslides are usually incubated at 30°C for 48 hours, but this can vary depending upon the specific application.

The Lovibond® DI 10 Incubator, when used in conjunction with dipslides, enables effective microbiological monitoring of cooling water in accordance with the many European guidelines. The DI 10 Incubator is also part of the Lovibond® Marine Test Kit for the monitoring of other potable water contaminants, such as *pseudomonas*, *streptococci coliforms* & *E.coli*, see page 24 for more information.



- Low Voltage (12V)
- Wide temperature range – Ambient +5 to 40°C (+/- 0.5°C)
- Uniform temperature (fan assisted)
- LCD Temperature display with up/down push button control.
- Rapid heating times for fast testing
- External status LEDs
- Universal (100 – 240V) via external power supply
- Includes in-car (12V) power adaptor



### Accessories:

Code	Description
<b>56B000801</b>	Dipslide holder
<b>56B000901</b>	Quanti-disc holder



Technical Specifications	
<b>Dimensions:</b>	(w)246 x (d)215 x (h)162 mm
<b>Weight:</b>	1.7Kg
<b>Operating Voltage:</b>	12V
<b>Input Voltage:</b>	12V/110V/240V (via external power supply)
<b>Display:</b>	1 x 16 bit Backlit LCD
<b>Capacity:</b>	12 dipslides/10 quanti-discs

## Non-Oxidising Biocide Kits

- Control microbiological activity
- Measure biocide levels in minutes
- Designed for use by non-technical personnel
- Ensure environmental bleed concentrations are met

Non-oxidising biocides are used across industry to control microbiological activity in a wide range of water systems, often in rotation with oxidising biocides. Biocidal performance is concentration dependant, so it is essential to monitor the activity levels closely in any system to ensure microbiological control.

The Lovibond® non-oxidising biocide test kits are based on novel colorimetric or titrimetric procedures and are designed for use by non-technical persons as a site-based aid. Accurate biocide levels can be measured in minutes to ensure continued system control.

There is also a developing sensitivity to non-oxidising biocide pollution of waterways from industrial waste, particularly from cooling tower bleed. The Lovibond® non-oxidising biocide test kits provide a simple solution to ensure bleed concentrations are in line with environmental consents.



### Ordering Information:

Code	Product	Range	Tests/Pack
<b>56K001101</b>	Bronopol Kit (2-bromo-2-nitropropane-1.3-diol)	0-50mg/l	50
<b>56R001150</b>	Bronopol Reagent Pack		50
<b>56K001201</b>	DBNPA Kit (2,2-dibromo-3-nitrilopropionamide)	5-20mg/l	50
<b>56R001250</b>	DBNPA Reagent Pack		50
<b>56K001401</b>	Isothiazoline Kit	0-7.5mg/l	50
<b>56R001450</b>	Isothiazoline Reagent Pack		50
<b>56K001501</b>	MBTC Kit (methylene bis (thiocyanate))	0-5mg/l	50
<b>56R001550</b>	MBTC Reagent Pack		50
<b>56K001601</b>	THPS Kit (tetrakis(hydroxymethyl) phosphonium sulphate)	0-100mg/l	50
<b>56R001650</b>	THPS Reagent Pack		50
<b>56K001701</b>	QUATS/Polyquat/Amine Kit (Lonza Biocides) (Disposable single use kit)	0-320mg/l Bardac 22 0-80mg/l Barquat PQ 0-160mg/l Lonzabac 12.100	100+
<b>56K001801</b>	Bardac 22 Test Kit (Lonza Biocides) (Disposable single use kit)	0-15mg/l	50

# Potable (Water Check) Test Kit

- Enables compliance to WHO guidelines
- Integrated kit to test all required parameters
- Easy-to-follow testing process: no training required
- Suitable for use in rural communities without access to laboratories

In many areas of the third world, drinking water quality cannot be relied upon. It is vital to be able to screen water sources for potability to prevent the spread of water borne infection. The World Health Organisation publishes guidelines for drinking water quality. A section of a summary table included as part of these guidelines is given (below) for the maximum tolerable concentration for both chemical and microbiological contaminants. The Lovibond® potable water check test kit enables an effective screen of water supplies for these key indicators of faecal and agricultural contamination to help in the assessment of general quality and potability.

The tests are simple to use and no operator training is required. However, it is important that the operator carries out all tests in a precise and competent manner, with due consideration for cleanliness at all times. Tests have been carefully chosen so that they can be used in the more rural global locations, where access to laboratory facilities is limited.



Summary Level	
<b>1. Arsenic Limit</b>	0.01 mg/l (10 µg/l)
<b>2. E.coli Limit</b>	0 CFU per 100ml
<b>3. Hardness Ideal</b>	Less than 500 mg/l
<b>4. Nitrate Limit</b>	50 mg/l
<b>5. Nitrite Limit</b>	3 mg/l
<b>6. pH Ideal Range</b>	6.5 to 9.5
<b>7. TDS Ideal</b>	Less than 1500 mg/l

**Code: 56K002601:**  
**Potable (Water Check) Test Kit**



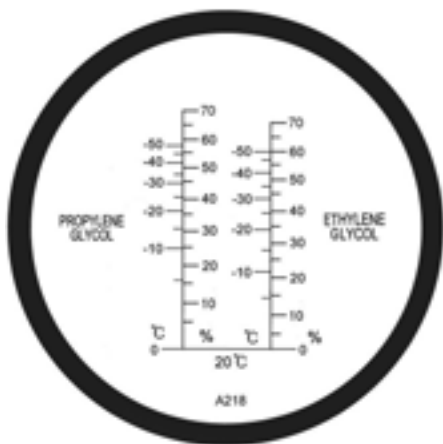
## Contents and Ordering Information:

Code	Product	Range	Tests/Pack
<b>56S002105</b>	Arsenic Colour Card Test	0-100ug/l	5
<b>56B002125</b>	Coliform/E.coli test set - includes	Detects 1 CFU per 100ml	25
	<b>56B001425:</b> Coliforms/ E.coli test sachets		25
	<b>56B001525:</b> Thio Bags (with Thiosulphate)		25
<b>56B001601</b>	UV lamp (battery operated)	E.coli determination	-
<b>56S000950</b>	Hardness Test Strips	0-500mg/l as CaCO <sub>3</sub>	50
<b>56S001090</b>	pH Test Strips	pH 4.5-10	100
<b>56S001890</b>	Nitrite/Nitrate Test Strips	0-10/0-50mg/l NO <sub>2</sub> /NO <sub>3</sub>	100
<b>56M000501</b>	Total Dissolved Solids (TDS) Meter	0-5,000mg/l TDS	-



# Refractometers

- Brix and Glycol
- Convenient, fast, accurate
- No mess, instant results
- Automatic temperature compensation
  - i) No need to measure temperature
  - ii) No need for compensation
- Direct readings of freeze points and concentration (Ethylene Glycol & Propylene Glycol)



## Brix

The Lovibond® Brix RHB series of refractometers was developed for working with sugar related liquids (fruit juices, soft drinks, wine) to help monitor and control sugar concentrations in foods and beverages.

They provide critical information to ensure product quality and are commonly used for controlling the concentration of various industrial fluids, cutting lubricants and flux rinsing compounds.

The kit includes a pipette for dropping test fluids onto the prism and a User's Guide.

## Glycol

The Lovibond® Glycol Refractometer offers a convenient, fast and accurate way to assess the glycol concentration of engine coolants and other anti-freeze solutions.

This easy-to-use optical instrument provides a no-mess, instant result that is impossible to achieve using traditional hydrometer based methods. Automatic temperature compensation provides immediate, accurate and direct readings without the need to measure temperature or apply a correction factor.

The refractometer scale provides direct readings of freeze points and concentration of Ethylene Glycol and Propylene Glycol.



Ordering Information	
56M000101	0 – 10% Brix Refractometer
56M000201	0 – 18% Brix Refractometer
56M000301	0 – 32% Brix Refractometer

Ordering Information	
56M000401	<b>Case containing:</b> Glycol Refractometer: Sampling Pipette: Instructions

# Resin Test Kits (Softener/Water Conditioning)

- Detects resin damaging iron (ferric) and colloidal organic matter
- Portable solutions for in-situ testing
- Increased efficiency, reduced operational costs
- Optional resin conversion kit

A set of Lovibond® test kits to monitor the condition of ion exchange resin in industrial demineralisation and domestic/industrial water softening plant. Iron fouling, organic fouling and physical bead damage are the three main causes of decreased exchange capacity. Poor condition resin beds promote the growth of micro-organisms and increase possibilities of scale formation, ultimately impacting on efficiency and operational costs.

Test kits are supplied in small, portable carry cases and contain sufficient reagents for between 25 and 100 tests.



## 56K002001: Resin Fouling Test Kit

For the detection of resin damaging iron (ferric) and colloidal organic matter.



### Reagent Ordering Information:

56R002090	Resin Fouling Reagent Pack	Tests/Pack
<b>Includes:</b>	Hydrochloric Acid	25
	Alkaline Brine Reagent	25
	Ammonium Thiocyanate Reagent	100
	Ferric Iron Test	100

## 56K002101: Resin Capacity Test Kit

Measurement of total ion exchange capacity of new resin (H<sup>+</sup>, OH<sup>-</sup> and Cl<sup>-</sup>) and the operational regeneration capacity of in service resin (H<sup>+</sup> and OH<sup>-</sup>)



### Reagent Ordering Information:

56R002190	Resin Capacity Reagent Pack	Tests/Pack
<b>Includes:</b>	Acidity Titration Test	100
	Chloride Test	100
	KN Reagent	100
	Sodium Bicarbonate	100
	Chlorine Titrant Cartridge	100

## 56K002601: Resin Conversion Test Kit

A complete test kit for the full conversion of 5ml portions of strongly cationic or anionic resin so that resin capacity can be determined using **The Resin Capacity Test Kit**.



### Reagent Ordering Information:

56R002290	Resin Conversion Pack	Tests/Pack
<b>Includes:</b>	Conversion Acid	25
	Hydrochloric Acid Dropper	25
	Ammonia Reagent	25
	Sodium Chloride	25

## Hardness Checker (Trade only)

Single or three reagent checkers for softener breakthrough.

**MOQ:** 1000pcs. Branding available

**56K002398** (single)

**56K002498** (3 reagent)



Rank Lovibond Türkiye  
www.rank.com.tr

## Silt Density Index (SDI) Test Kit

- SDI calculations in just 15 minutes
- Ideally suited for reverse osmosis plants
- Enables calculation of membrane fouling time, backwash frequency and membrane lifespan

The Silt Density Index (SDI) is a measure of the solids or particulate content of water and is of specific importance when commissioning reverse osmosis plant. The SDI of the feedwater is required to calculate membrane fouling time, backwash frequency and, ultimately, membrane lifespan. The Lovibond® test kit gives the RO engineer instant SDI values, increasing the speed and effectiveness of the installation.

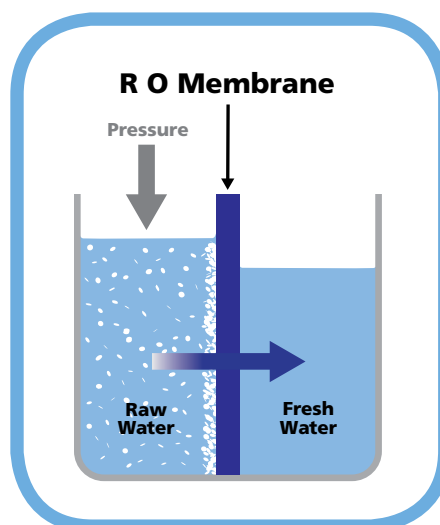
The kit utilises a membrane/flow meter system to enable SDI calculations in just 15 minutes. Sufficient membranes included for 100 tests.

**56K001901:** Silt Density Index (SDI) Test Kit



### Contents and Ordering Information:

Code	Product	Tests/Pack
<b>56A007690</b>	0.45 Pore Filter Circles – 47mm	100
<b>56A007201</b>	On/Off Valve	-
<b>56A007301</b>	Pressure Regulator	-
<b>56A007401</b>	Pressure Gauge	-
<b>56A007501</b>	High Pressure Hose – 1m	-
<b>56A007701</b>	Filter Holder – 47mm	-



# Softener Demonstration Test Kits

- Compares physical and chemical attributes
- Compares softened water to raw water
- Shows water softening process
- Standard and deluxe kits available

Designed for demonstration purposes, this test kit contains a range of tests to show the physical and chemical attributes of softened water compared to raw mains water. A mini-softener unit is included to show the water softening process.

The standard kit is supplied with the following tests:

- Hardness level (as calcium carbonate)
- Calcium precipitation test
- Soap test

The deluxe kit is supplied in a larger, robust case, with additional tests for chlorine, nitrite, nitrate and total hardness. The case is specially designed to take a document pack (A4 size – lever arch).



## 56K021601:

Standard Softener Demonstration Test Kit.



### Reagent Ordering Information:

Code	Product	Tests/Pack
<b>56R021601</b>	Standard Demo Softener Reagent Pack	
Includes:	Hardness test pack (single reagent)	100
	Soap test pack	50
	Calcium precipitation test pack	50

## 56K021701:

Deluxe Softener Demonstration Test Kit



### Reagent Ordering Information:

Code	Product	Tests/Pack
<b>56R021701</b>	Deluxe Demo Softener Reagent Pack	
Includes:	Hardness test pack (3 reagent)	100
	Soap test pack	50
	Calcium precipitation test pack	50
	Nitrite/Nitrate strips	100
	Chlorine CHECKIT® comparator test	100

## Test Strips

- Reagent free
- Hazard free
- Rapid
- Always to hand
- Semi quantitative results

Test strips offer quick, clean results without the fuss of reagents or tablets. Their dip and compare method makes them a popular choice for many applications where speed and simplicity are most important.



### Ordering Information:

Code	Description	Range	Tests/Pack	Type
56S000190	Chlorine HR	10-200mg/l Cl <sub>2</sub>	100	SQ
56S000290	Starch Iodide	Presence/Absence	100	Q
56S000301	Starch Iodide	Presence/Absence	5M reel	Q
56S000450	Chlorine Dioxide LR	0.1-1.6mg/l ClO <sub>2</sub>	50	SQ
56S000550	Chlorine Dioxide HR	0.5-100mg/l ClO <sub>2</sub>	50	SQ
56S000625	Copper	0.05-5.0mg/l Cu	25	SQ
56S000725	Iron	0.1-5.0mg/l Fe	25	SQ
56S000850	Hydrogen Peroxide	0.05-100mg/l H <sub>2</sub> O <sub>2</sub>	50	SQ
56S000950	Hardness Total	40-1000mg/l CaCO <sub>3</sub>	50	SQ
56S001090	pH (pH Fix)	pH 4.5-10	100	SQ
56S001190	pH (pH Fix)	pH 7-14	100	SQ
56S001290	pH (pH Fix)	pH 0-14	100	SQ
56S001394	pH (Paper)	pH 6.0-8.1	200	SQ
56S001494	pH (Paper)	pH 9.5-12	200	SQ
56S001594	pH (Paper)	pH 8.0-9.7	200	SQ
56S001690	Peracetic Acid	0.05-50mg/l CH <sub>3</sub> CO <sub>3</sub> H	100	SQ
56S001790	Peracetic Acid	100-500mg/l CH <sub>3</sub> CO <sub>3</sub> H	100	SQ
56S001890	Nitrate/Nitrite	10-500/1-80mg/l NO <sub>3</sub> <sup>-</sup> /NO <sub>2</sub> <sup>-</sup>	100	SQ
56S001990	Nitrite 3000	100-3000mg/l NO <sub>2</sub> <sup>-</sup>	100	SQ
56S002090	Sulphite	10-1000mg/l SO <sub>3</sub> <sup>2-</sup>	100	SQ

#### Q – Qualitative Papers

Indicator paper supplied in strips or reels. Dipping the strip into a sample will induce a colour change in the paper if the compound of interest is present.

#### SQ – Semi-quantitative Papers

Supplied in packs of 50 or 100 strips, the pad or set of pads will change colour when dipped into the sample if the compound of interest is present. The intensity of the colour produced is compared to a standard colour scale to determine the approximate concentration of the compound.

## TURBIDITY MEASUREMENT

# TurbiCheck with Infra-red Light Source (EN ISO 7027)

- Fast, precise, on-site testing
- Range 0.01 – 1100 NTU
- Coloured and colourless liquids
- EN ISO 7027 compliant
- ≥ 600 tests per battery life

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

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

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

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



Technical Data	
<b>Measurement cycle</b>	approx. 8 seconds
<b>Display</b>	backlit LCD (on keypress)
<b>Optics</b>	temperature compensated LED ( $\lambda = 860 \text{ nm}$ ) and photosensor amplifier in water proof sample chamber, infrared light
<b>Keypad</b>	polycarbonate membrane, splash proof
<b>Power supply</b>	9 V power pack battery
<b>Auto - OFF</b>	automatic switch-off
<b>Storage</b>	internal ring memory for 16 data sets
<b>Additional feature</b>	real time clock and date
<b>Range (Auto-range)</b>	0.01 - 1100 NTU
<b>Resolution</b>	0.01 - 9.99 NTU = 0.01 NTU, 10.0 - 99.9 NTU = 0.1 NTU, 100 - 1100 NTU = 1 NTU
<b>Accuracy</b>	$\pm 2,5 \%$ of reading or $\pm 0.01 \text{ NTU}$ (0 - 500 NTU), $\pm 5 \%$ (500 - 1100 NTU)
<b>Housing</b>	ABS
<b>Dimensions (L x W x H)</b>	190 x 110 x 55 mm
<b>Weight (base unit)</b>	approx. 0.4 kg
<b>Ambient conditions</b>	Temperature: 5 – 40 °C rel. humidity: 30 – 90%
<b>EC-Conformity</b>	CE

### Delivery Content

- Instrument in carrying case
- 4 turbidity standards (<0.1, 20, 200 and 800 NTU)
- 9 V battery
- 3 vials ( $\varnothing 24 \text{ mm}$ ) with lids
- Guarantee sheet
- Certificate of Compliance
- Instruction Manual

**Order code: 266020**

### Accessories:

Code	Description
<b>194150</b>	Turbidity standard set T-CAL (<0.1, 20, 200, 800 NTU)
<b>197655</b>	Set of 12 empty sample vials, 24 mm $\varnothing$

## TurbiCheck WL with White Light Source (EPA Standard 180.1)

- "White Light" source
- EPA turbidity measurement (standard 180.1)
- Auto-Ranging feature
- Easy-to-use, 4 button operation
- Regulatory monitoring, process control & field use

The TurbiCheck WL allows easy turbidity measurement in either the field or in the laboratory. Using a "white light" source and 90° detection, the TurbiCheck WL meets the specifications for EPA turbidity measurement (EPA Standard 180.1). A power efficient micro-circuit design allows the instrument to yield 5000 tests on 4-AA alkaline batteries with an estimated 7-10 year bulb life. Integrated diagnostics confirm proper operation and accuracy. The instrument provides an Auto-Ranging feature that automatically selects the correct turbidity range for the sample. Calibration is simple with the included calibration standards. The instrument comes with all required items for testing including the TurbiCheck WL Turbidimeter, sample cuvettes, batteries, calibration set, operators manual and carrying case.



Technical Data	
<b>Display</b>	Large LCD display
<b>Keypad</b>	5 key polycarbonate membrane, splash proof
<b>Power supply</b>	4 AA Alkaline batteries for approx. 20hr continuous operation or 3500 tests
<b>Range</b>	0.01 to 1100 NTU
<b>Accuracy</b>	± 2% of value or 0.01 NTU (0-500 NTU) ± 3% of value (500-1100 NTU)
<b>Resolution</b>	0.01 NTU to 99.99 NTU, 0.1 NTU from 100.0 to 999.9 NTU 1.0 NTU from 1000 to 1100 NTU
<b>Housing</b>	ABS
<b>Dimensions (L x W x H)</b>	210 x 95 x 45 mm
<b>Weight (base unit)</b>	approx. 0.45 kg (base unit)
<b>Ambient conditions</b>	Temperature: 0 – 50 °C rel. humidity: 0 – 90%
<b>EC-Conformity</b>	CE

### Delivery Content

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

2 sample vials, 3 turbidity standards, 4 batteries, instruction manual and guarantee sheet

**Order code: 194200**

### Accessories:

Code	Description
<b>194280</b>	Set of secondary standards 0.02, 10, 1000 NTU
<b>194290</b>	Set of 3 vials with black lids

# VARIO Reagent Systems (also suitable for use in HACH® Systems)

The Lovibond® VARIO range has been specially formulated to work on both Lovibond® and HACH® equipment allowing companies an extended choice and value for money when restocking reagents for laboratory equipment. Test packs are detailed as follows:



## Titration Reagents

Designed and also suitable for use on the HACH® Digital Titrator, the Lovibond® VARIO range of titration cartridges has been calibrated specifically to use the same factors as detailed in the HACH® handbook.

Test	As	Range	Specification	Code	Tests/Pack
<b>Acidity Pack**</b>	CaCO <sub>3</sub>	10 - 4000mg/l	FMA Cartridge 13ml 4.5 Indicator Reagent, 65ml	56R019650	50
<b>Alkalinity (M,P,OH) Pack</b>	CaCO <sub>3</sub>	10 - 4000mg/l	Sulphuric Acid 1.6N 13ml Sulphuric Acid 0.16N 13ml Phenolphthalein Indicator, 65ml 4.5 Indicator Reagent, 65ml Barium Chloride Reagent, 65ml	56R019750	50
<b>Alkalinity HR** (M,P,OH) Pack</b>	CaCO <sub>3</sub>	0 - 12000mg/l+	Sulphuric Acid 8.00N 13ml Phenolphthalein Indicator, 65ml 4.5 Indicator Reagent, 65ml Barium Chloride Reagent, 65ml	56R019850	50
<b>Carbon Dioxide Pack</b>	CO <sub>2</sub>	10 - 100mg/l	Sodium Hydroxide 0.3636N, 13ml Phenolphthalein Indicator, 65ml	56R019950	50
<b>Chloride Pack</b>	Cl <sup>-</sup>	50 - 2000mg/l	Silver Nitrate 1.128N 13ml Potassium Chromate, 65ml Nitric Acid Solution, 65ml	56R020050	50
<b>Hardness (Calcium) Pack</b>	CaCO <sub>3</sub>	10 - 4000mg/l	EDTA 0.8M 13ml EDTA 0.08M 13ml Calcium Hardness Indicator Tablets, 100 Calcium Hardness Buffer (NaOH), 65ml	56R020150	50





### Titration Reagents

Test	As	Range	Specification	Code	Tests/Pack
<b>Hardness (Total) Pack</b>	CaCO <sub>3</sub>	10 - 4000mg/l	EDTA 0.8M 13ml EDTA 0.08M 13ml Total Hardness Indicator Powder, 20g Total Hardness Buffer, 65ml	56R020250	50
<b>Nitrite Pack</b>	NaNO <sub>2</sub>	20 - 2500mg/l	Ceric Sulphate 0.5M 13ml Ferroin Indicator, 65ml Sulphuric Acid 50%, 65ml	56R020350	50
<b>Phosphonate Pack**</b>		2 - 50mg/l	Phosphonate Cartridge 13ml Phosphonate Indicator Tablets	56R020450	50
<b>Sulphite Pack</b>	Na <sub>2</sub> SO <sub>3</sub>	10 - 500mg/l	Sulphate Cartridge 13ml Acid / Starch Indicator, 40g	56R020550	50
<b>Zinc (Free, Complexed) Pack**</b>	Zn	1 - 10mg/l	Zinc Cartridge 13ml Zinc Indicator Solvent, 250ml Acetate Buffer, 65ml Dithizone, 0.25g Sodium Thiosulphate, 65ml	56R020650	50

\*\*Lovibond® methods adapted for use on the HACH® digital titrator.

# VARIO Reagent Systems (also suitable for use in HACH® Systems)

## Photometers

The following VARIO powder packs have been specially formulated to work on the HACH® photometer range, including the DR800 and DR2000 series instruments, giving identical results. Calibration for all of the following tests are also programmed into the Lovibond® MaxiDirect photometer.



Description	Range	Chemistry	Tests/Pack	Code
<b>Aluminium Pack, 20ml, Set</b>	0-0.22mg/l as Al	Cyanine R	100	535000
<b>Ammonia Pack, 10ml, Set</b>	0-0.5mg/l as N	Alkaline Salicylate	100	535500
<b>Ammonia LR, 5ml, Set</b>	0-2.5mg/l as N	Alkaline Salicylate	25	535600
<b>Ammonia HR, 5ml, Set</b>	0-50mg/l as N	Alkaline Salicylate	50	535650
<b>Ammonia (Free), Set</b>	0.01-0.5mg/l as N	Indophenol	100	535800
<b>Chlorine (Free), 5ml</b>	0-3.5mg/l as Cl <sub>2</sub>	Buffered DPD	100	530090
<b>Chlorine (Free), 5ml</b>	0-3.5mg/l as Cl <sub>2</sub>	Buffered DPD	1000	530093
<b>Chlorine (Free), 10ml</b>	0.01-2mg/l as Cl <sub>2</sub>	Buffered DPD	100	530100
<b>Chlorine (Free), 10ml</b>	0.01-2mg/l as Cl <sub>2</sub>	Buffered DPD	1000	530103
<b>Chlorine (Free), 25ml</b>	0-5mg/l as Cl <sub>2</sub>	Buffered DPD	100	530110
<b>Chlorine (Free), 25ml</b>	0-5mg/l as Cl <sub>2</sub>	Buffered DPD	1000	530113
<b>Chlorine (Total), 5ml</b>	0-3.5mg/l as Cl <sub>2</sub>	Buffered DPD	100	530080
<b>Chlorine (Total), 5ml</b>	0-3.5mg/l as Cl <sub>2</sub>	Buffered DPD	1000	530083
<b>Chlorine (Total), 10ml</b>	0.01-2mg/l as Cl <sub>2</sub>	Buffered DPD	100	530120
<b>Chlorine (Total), 10ml</b>	0.01-2mg/l as Cl <sub>2</sub>	Buffered DPD	1000	530123
<b>Chlorine (Total), 25ml</b>	0-5mg/l as Cl <sub>2</sub>	Buffered DPD	100	530130
<b>Chlorine (Total), 25ml</b>	0-5mg/l as Cl <sub>2</sub>	Buffered DPD	1000	530133
<b>Chlorine Dioxide</b>	See Chlorine above			
<b>COD LR</b>	0-150mg/l as O <sub>2</sub>	Dichromate	25	2420720
<b>COD LR</b>	0-150mg/l as O <sub>2</sub>	Dichromate	150	2420725
<b>COD LR (Mercury Free)</b>	0-150mg/l as O <sub>2</sub>	Dichromate	25	2420710
<b>COD MR</b>	0-1500mg/l as O <sub>2</sub>	Dichromate	25	2420721
<b>COD MR</b>	0-1500mg/l as O <sub>2</sub>	Dichromate	150	2420726
<b>COD MR (Mercury Free)</b>	0-1500mg/l as O <sub>2</sub>	Dichromate	25	2420711
<b>COD MR (Mercury Free)</b>	0-1500mg/l as O <sub>2</sub>	Dichromate	150	2420716
<b>COD HR</b>	0-15000mg/l as O <sub>2</sub>	Dichromate	25	2420722
<b>COD HR</b>	0-15000mg/l as O <sub>2</sub>	Dichromate	150	2420727
<b>COD HR (Mercury Free)</b>	0-15000mg/l as O <sub>2</sub>	Dichromate	25	2420712



Description	Range	Chemistry	Tests/Pack	Code
<b>Copper, 10ml</b>	0-5mg/l as Cu	Bicinchoninate	100	530300
<b>Copper, 10ml</b>	0-5mg/l as Cu	Bicinchoninate	1000	530303
<b>DEHA, 10ml, Set</b>	20-500µg/l as DEHA	PPST	100	536000
<b>Hydrazine, 10ml</b>	0.005-0.6mg/l as N <sub>2</sub> H <sub>4</sub>	p-dimethylamino- Benzaldehyde	100	531200
<b>Iron (Total), 10ml</b>	0-1.8mg/l as Fe	TPTZ	100	530550
<b>Iron (Total), 10ml</b>	0-3mg/l as Fe	1,10 Phenanthroline	100	530560
<b>Iron (Total), 10ml</b>	0-3mg/l as Fe	1,10 Phenanthroline	1000	530563
<b>Manganese LR, 10ml, Set</b>	0-0.7mg/l as Mn	PAN	50	535090
<b>Manganese HR, 10ml, Set</b>	0-20mg/l as Mn	Periodate Oxidation	100	535100
<b>Molybdate LR, 10ml, Set</b>	0.03-3mg/l as Mo	Ternary Complex	100	535450
<b>Molybdate HR, 10ml, Set</b>	0-35mg/l as Mo	Mercaptoacetic Acid	100	535300
<b>Molybdate HR, 25ml, Set</b>	0-35mg/l as Mo	Mercaptoacetic Acid	100	535400
<b>Monochloramine, 10ml, Set</b>	0.04-4.5mg/l as CL <sub>2</sub>	Indophenol	100	535800
<b>Nitrate, Tube Test, Set</b>	0-30mg/l as N	Chromotropic Acid	50	535580
<b>Nitrogen, total, LR Tube Test, Set</b>	0-25mg/l as N	Persulphate	50	535550
<b>Nitrogen, total, HR Tube Test, Set</b>	10-150mg/l as N	Persulphate	50	535560
<b>Nitrite LR, 10ml</b>	0-0.3mg/l as N	Diazotisation	100	530980
<b>Nitrite LR, 25ml</b>	0-0.3mg/l as N	Diazotisation	100	530970
<b>Phosphate, 10ml</b>	0-2.5mg/l as PO <sub>4</sub>	Molybdenum Blue	100	531550
<b>Phosphate, Ortho, 10ml, Set</b>	0.06-5mg/l as PO <sub>4</sub>	Molybdenum Blue	50	535200
<b>Phosphate, 10ml Acid Hydrolyzable And Total Tube Test, Set</b>	0.06-5mg/l as PO <sub>4</sub> 0.06-3.5mg/l as PO <sub>4</sub>	Molybdenum Blue	50	535250
<b>Phosphate Total, 10ml Tube Test, Set</b>	0.06-3.5mg/l as PO <sub>4</sub>	Molybdenum Blue	50	535210
<b>Silica LR, 10ml, Set</b>	0-1.6mg/l as SiO <sub>2</sub>	Heteropoly Blue	100	535690
<b>Silica HR, 10ml, Set</b>	0-100mg/l as SiO <sub>2</sub>	Silicomolybdate	100	535700
<b>Silica UHR, 25ml, Set</b>	0-200mg/l as SiO <sub>2</sub>	Silicomolybdate	100	535900
<b>Sulfate, 10ml</b>	0-70mg/l as SO <sub>4</sub>	USEPA Accepted	100	532160
<b>Sulfate, 25ml</b>	0-70mg/l as SO <sub>4</sub>	for wastewater	100	532150





**Lovibond® Build your own Test Kits**

# Building your own Test Kit

Lovibond® test kits can be constructed according to specific requirements by using this "Build Your Own" section of the catalogue.

Use the guide/log sheet below to compile all required part numbers for a quotation.

## Section A

Select the reagent packs and hardware required from the various sections of the catalogue (use steps 1 – 4 below to complete the part number listing)

## Section B

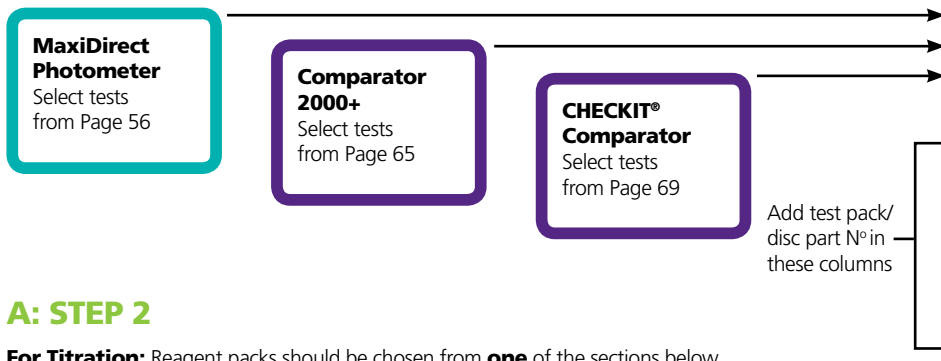
Select a case (step 5) that will hold your chosen equipment

## Selecting Test Packs

Hardware requirements are indicated where necessary and should be included (e.g. include Code No 214010 when picking MaxiDirect reagent packs or 56A004601 for Lovibond® Comparator 2000+ packs)

### ► A: STEP 1

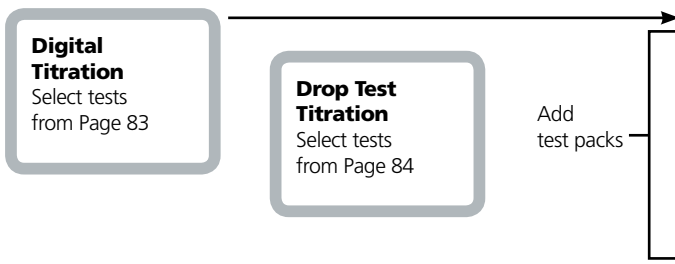
**For Colorimetric:** Reagent packs should be chosen from one of the three sections below. (Remember to include the comparator disc code when choosing from the CHECKIT® or Comparator 2000+ range)



Part Number	Yes/No (one choice)
Hardware: 214010	Yes/No
Hardware: 56A004601	Yes/No
Hardware: 56A004501	Yes/No
Pack N°	Disc N°

### ► A: STEP 2

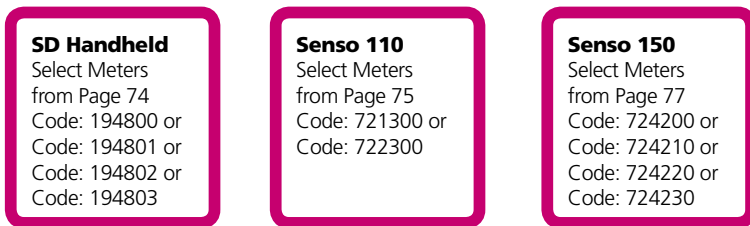
**For Titration:** Reagent packs should be chosen from **one** of the sections below.



Titration	Yes/No
Hardware: 56A003901	Yes/No

### ► A: STEP 3

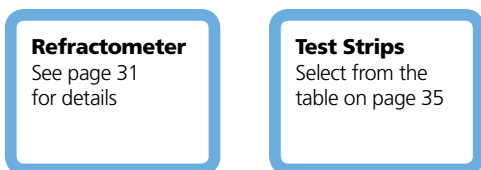
**For Electrochemistry:** Select any two instruments from the three sections below.



Electrochemistry
<i>maximum 2 meters</i>

### ► A: STEP 4

Add additional equipment from any of the following sections.



Additional Items

### ► B: STEP 5

Select a case from the listings on Pages 45 – 48. Insert the code N° here (all codes are now on one sheet to obtain a quotation).

Add the Case Code Here
Case N°
<b>EQ Pack: 56A004001</b> <i>(required for all portable labs)</i>

### Step 5: Select a Case

Test packs and equipment chosen in Section A can be housed in one of two types of case.

#### Plastic Moulded Portable Laboratory

#### Plastic Moulded Cases

- Durable and lightweight
- Highly portable
- Include standard foams
- Basic equipment added
- Modular
- Ideal for end-users and service chemists



Aluminium Frame for strength and durability  
Elastic straps and clips to hold equipment



#### Portable Laboratories

Designed for the water treatment professional, these well proven cases are an excellent option for constructing bespoke portable laboratories that feature colorimetric, titration and electro-chemical equipment. Fast becoming an industry standard for the water treatment engineer.

#### NEW DESIGN FEATURES INCLUDED

- Industry proven hard shell case
- Universal backboard to hold Instrumentation in place
- Storage boxes for tablets & sachets (EQ pack)
- New wide neck 250ml sample bottles (EQ pack)
- 125ml wide neck pH buffer bottles (EQ pack)
- Additional feet for extra stability
- Side document wallet



Standard equipment (EQ) packs comprise a range of basic equipment needed to perform Lovibond® tests. Ensure this pack is included in your portable laboratory.

#### Equipment (EQ) Pack

Part: 56A004001

250ml wide neck sample containers x 4
Titration vessels x 4
20ml, 10ml, 5ml, 2ml, 1ml sampling syringes x 1 each
Stirring/crushing rods x 4
0.45µ and GF/C filtration equipment x 1
25mm filter holder x 1
30ml graduated containers x 2
Plastic storage boxes x 10
150ml conical flask
10ml dilution tubes & wash bottle x 1
125ml pH buffers 4, 7 & 10 + 1413µS standard x 1

# Plastic Case Style Options

For small, compact test kits based on comparator and drop test packs, select from the 1001 or 1501 styles below. Possible contents are listed for each format below. If your chosen equipment will not fit into either format, select a larger case.

## 1001 Case Style



**Lovibond® Medium Grey Case + Foam**  
(39.5 x 29.5 x 10.6cm)

Two formats are available:

**56A001201** →  
Supplied with foam insert, 20ml syringe, titration jar and crushing rod.  
**Holds 2 x drop test reagent packs, 2 x SD handheld meters & 2 x CHECKIT® comparator tests.**

**Add the case code here**

**56A001301** →  
Supplied with foam insert, 20ml syringe, titration jar and crushing rod.  
**Holds 2 x drop test reagent packs, 1 x SD handheld meter & 2 x CHECKIT® comparator tests and pH test strips.**

**Add the Case Code here**

*Transfer the Case Code number to page 44*

## 1501 Case Style



**Lovibond® Large Grey Case + Foam**  
(45 x 36 x 10.6cm)

Two formats are available:

**Comparator 2000+**  
**56A001701** →  
Supplied with crushing rod, titration jar and 20ml syringe.

**Add the case code here**

**CHECKIT® Comparator**  
**56A001801** →  
Supplied with crushing rod, titration jar and 20ml syringe.

**Add the Case Code here**

**Both 1501 formats above have space to add a combination of 8-10 tests from the comparator and drop test reagent pack ranges. 2 SD Handheld meters, a glycol refractometer and 4 test strip packs can be included to complete the kit.**

*Transfer the Case Code number to page 44*



# Portable Laboratory Case Options

For professional industry proven test kits, choose from the following four case options.

## 1. 2001 Book Opening Case

**56A002201**

A book opening case with drop down work surface, universal equipment board and external document wallet.



A universal test kit foam for all combinations of equipment

<b>MaxiDirect</b>	(8 reagent packs)
<b>Comparator 2000+</b>	(8 reagent packs)
<b>CHECKIT® Comparator</b>	(8 reagent packs)
<b>Electrochemistry</b>	(2 instruments)
<b>Drop Test</b>	(8 reagent packs)
<b>Titration</b>	(7 reagent packs)
<b>Refractometer</b>	
<b>Test Strips</b>	

### Lovibond® Book Opening Case

(57 x 44 x 22cm)

(57 x 44 x 27cm including document wallet)

## 2. 2501 Conventional Opening Case

A conventional opening case with side work station, universal equipment board (lid) and external document wallet. (65 x 40 x 22cm)



All options hold:

<b>Titration/Drop Test</b>	(7 reagent packs)
<b>Electrochemistry</b>	(2 instruments)
<b>Refractometer &amp; test strips</b>	

Choose from the following 3 formats:

**56A002601**

Additional cut-outs to hold:

<b>MaxiDirect</b>	(8 reagent packs)
-------------------	-------------------

OR

**56A002701**

Additional cut-outs to hold:

<b>Comparator 2000+</b>	(8 reagent packs)
-------------------------	-------------------

OR

**56A002801**

Additional cut-outs to hold:

<b>CHECKIT® Comparator</b>	(8 reagent packs)
----------------------------	-------------------

### Lovibond® Conventional Opening Case

(50 x 40 x 22cm)

(50 x 40 x 27cm including document wallet)

Add the case code here

An equipment pack is required to complete the kit

**EQ pack: 56A004001**

Transfer the Case Code number to page 44

Add the case code here

Add the case code here

Add the case code here

An equipment pack is required to complete the kit

**EQ pack: 56A004001**

Transfer the Case Code number to page 44

# Portable Laboratory Case Options

## 3. 3001 City Case

A smaller conventional opening case designed for city travel. Compact, light weight and with removable wheels. Fitted with side work station, universal equipment board (lid) and external document wallet.



**Lovibond® City Case**

(45 x 40 x 25cm)  
(45 x 40 x 30cm including document wallet)

All options hold:

- Titration/Drop Test** (5 reagent packs)
- Electrochemistry** (2 instruments)
- Refractometer & test strips**

Choose from the following 3 formats:

**56A003101** →

Additional cut-outs to hold:

- MaxiDirect** (5 reagent packs)

OR

**56A003201** →

Additional cut-outs to hold:

- Comparator 2000+** (5 reagent packs)

OR

**56A003301** →

Additional cut-outs to hold:

- CHECKIT® Comparator** (5 reagent packs)

**Add the case code here**

**Add the case code here**

**Add the case code here**

An equipment pack is required to complete the kit

**EQ pack: 56A004001**

Transfer the Case Code number to page 44

## 4. 3501 Dual Compartment Case

A full size engineer's case with separate compartments for electronics and chemicals. Fitted with drop down work station and universal equipment board. (60 x 38 x 28cm)



**Lovibond® Dual Compartment Case**

(47 x 34 x 30cm)

All options hold:

- Titration/Drop Test** (8 test packs)
- MaxiDirect** (8 test packs)
- Comparator 2000+** (8 test packs)
- CHECKIT® Comparator** (8 test packs)
- Refractometer & test strips**

Choose from the following 2 formats:

**56A003601** →

Additional cut-outs to hold:

- SensoDirect 110** (2 instruments)
- SD Hand-Held Meter** (2 instruments)

**56A003701** →

Additional cut-out to hold:

- SensoDirect 150** (1 instrument)

**Add the case code here**

**Add the case code here**

An equipment pack is required to complete the kit

**EQ pack: 56A004001**

Transfer the Case Code number to page 44





# Lovibond® Photometry Instruments



# MD 100 Photometer

- Ergonomic, compact, waterproof design for portable testing
- Easy-to-use without compromising accuracy
- Storage and download function for historic reporting
- Tablet, Powder or Liquid Reagents

A highly accurate single/multi-parameter photometer ideally suited to field use, the MD 100's waterproof, lightweight and compact design makes remote testing simple and easy to perform.

The Lovibond® MD 100 uses high quality interference filters with long-life LEDs as a light source without any moving parts. The units provide accurate, reproducible results very quickly. Tests are conducted using either Lovibond® tablet reagents with long-term stability and a guaranteed minimum 5 or 10 year shelf life, VARIO powder reagents or liquid reagents.

The internal memory for storage of up to 16 data sets is enhanced by the optional infrared data transfer module for easy and fast download of results. This unit is supplied with data logging software with additional data manipulation tools to allow the data to be saved as a spreadsheet or text file.

See pages 56-59 for test kits, test ranges and reagent pack options.



## MD 100 Technical Data

<b>Optics</b>	LEDs, interference filters (IF) and photo sensor in transparent sample chamber. Depending on the version, up to 3 different interference filters are used. Wavelength specifications of interference filters: 430 nm $\Delta \lambda = 5$ nm 530 nm $\Delta \lambda = 5$ nm 560 nm $\Delta \lambda = 5$ nm 580 nm $\Delta \lambda = 5$ nm 610 nm $\Delta \lambda = 6$ nm 660 nm $\Delta \lambda = 5$ nm
<b>Wavelength Accuracy</b>	$\pm 1$ nm
<b>Photometric Accuracy<sup>4</sup></b>	3% FS (T = 20°C – 25°C)
<b>Photometric Resolution</b>	0.01 A
<b>Power Supply</b>	4 micro batteries (AAA), capacity approx. 17 hours or 5000 tests

## MD 100 Technical Data

<b>Auto - OFF</b>	automatic switch-off
<b>Display</b>	backlit LCD (on keypress)
<b>Storage</b>	internal ring memory for 16 data sets
<b>Interfaces</b>	infrared interface for test data transfer
<b>Additional feature</b>	real time clock and date
<b>Calibration</b>	factory calibration and user calibration. Reset to factory calibration possible
<b>Dimensions</b>	155 x 75 x 35 mm (L x W x H)
<b>Weight</b>	basic unit approx. 260 g
<b>Environmental conditions</b>	Temperature: 5 – 40 °C rel. humidity: 30 – 90% (non condensing)
<b>EC-Conformity</b>	CE

## Manufacturers Test Certificate M

Besides the "Certificate of Compliance" which is supplied with the MD 100, manufacturers test certificates M are available at cost on request. Manufacturers test certificates M are individually supplied per instrument and per method. These certificates have to be ordered together with the new instrument and cannot be delivered at a later stage.

## N.I.S.T. Traceability

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

### Accessories:

Code	Item	Description
197620	Set of 12 round vials with cap	Height 48 mm, Ø 24 mm
197665	Set of 10 round vials with cap	Height 90 mm, Ø 16 mm
19802220	Adapter for round vials ø 16 mm	
197600	Set of 12 plastic vials (PC), with lid	"Multi"-Type 2, Ø 10 mm
197635	Cleaning cloth for vials	
364100	Plastic stirring rod, 13 cm length	
364109	Plastic stirring rod, 10 cm length	
1950026	4 micro batteries (AAA)	
214050	Infra-red data transfer module IRiM	
215670	Verification Standard Kit	

## Reference Standard Kit for MD 100

The reference standards are designed to check the accuracy and the reliability of the results. It is not possible to calibrate the photometer with the reference standards.

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

## Membrane filter set

For use when preparing samples for photometric measurements  
Content: 25 x 0.45 µm membrane filters and two 20 ml syringes

### Order code: 36 61 50

#### Advantages

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

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

### Accessories:

Code	Item	Range
275650	Kit Chlorine for instruments with tablet / liquid reagent	0.2* and 1.0* mg/l
275655	Kit Chlorine for instruments with tablet / liquid reagent	0.5* and 2.0* mg/l
275656	Kit Chlorine for instruments with tablet / liquid reagent	1.0* and 4.0* mg/l
275660	Kit Chlorine for instruments with powder reagent (VARIO)	0.2* and 1.0* mg/l
275670	Kit pH for instruments with tablet / liquid reagent	7.45* pH

\* Approximate figure, actual figure specified in Certificate of Analysis.

# MaxiDirect Photometer:

- High End Photometer for laboratory or field analysis
- 1 photometer: > 70 Methods
- Automatic wavelength selection
- Uses Tablet, Liquids, Powders or Vials
- Storage of up to 1000 data sets
- Data logging capabilities

The MaxiDirect is a fully portable 6 LED, multi-parameter photometer. With the ability to store up to 1000 data sets in its internal memory system\*, the MaxiDirect is a completely functional integrated unit designed for the outdoor professional for on-site visits. It is waterproof, easy to handle and contains more than 70 programmed methods.

The modern design of the MaxiDirect succeeds in combining the mobility of a portable photometer with the characteristics of a modern laboratory photometer. This unit covers all the important parameters of water analysis, from aluminium to zinc. The high level of accuracy of Lovibond® reagents and the user-friendly nature of the instrument guarantee rapid and reliable analysis. Depending on the application, the unit will operate with tablet reagents, powder packs, liquid reagents or tube tests (16 / 13 mm).

\* The MaxiDirect can also be used with the optional infrared data transfer module which is supplied complete with data logging software, providing additional data manipulation tools and allowing the data to be saved as a spreadsheet or text file.



MaxiDirect Technical Data	
<b>Display</b>	Graphic-display
<b>Interfaces</b>	Infrared interface for test data transfer <sup>1</sup> , RJ45 socket for Internet updates <sup>2</sup>
<b>Optics</b>	LEDs, interference filters (IF) and photo sensor in transparent sample chamber. Wavelength range: 430 nm IF $\Delta \lambda = 5 \text{ nm}$ 530 nm IF $\Delta \lambda = 5 \text{ nm}$ 560 nm IF $\Delta \lambda = 5 \text{ nm}$ 580 nm IF $\Delta \lambda = 5 \text{ nm}$ 610 nm IF $\Delta \lambda = 6 \text{ nm}$ 660 nm IF $\Delta \lambda = 5 \text{ nm}$ IF = interference filter
<b>Wavelength Accuracy</b>	$\pm 1 \text{ nm}$
<b>Photometric Accuracy</b>	2% FS (T = 20°C – 25°C)
<b>Photometric Resolution</b>	0.005 A

MaxiDirect Technical Data	
<b>Operation</b>	Acid and solvent resistant, touch-sensitive keypad with audible feedback via integrated beeper
<b>Power Supply</b>	4 batteries (Mignon AA/LR6); Operation time: approx. 26 h continuous operation or 3500 tests
<b>Auto-Off</b>	approx. 20 minutes after last keypress with audible signal
<b>Dimensions</b>	approx. 210 x 95 x 45 mm (unit) approx. 395 x 295 x 106 mm (case)
<b>Weight (unit)</b>	approx. 450 g
<b>Ambient Conditions</b>	5–40°C at max. 30–90% rel. Humidity (non condensing)
<b>Language Selection</b>	German, English, French, Spanish, Italian, Portuguese, Polish, Indonesian; additional languages via Internet update
<b>Memory Capacity</b>	approx. 1000 data sets
<b>EC-Conformity</b>	CE

1 Option available: IRiM (Infrared Interface Module)

2 Option available: Connection cable with integrated electronics (RS232 / RJ-45 plug)



Code	Details
<b>214010</b>	MaxiDirect Standard Pack - Instrument in carrying case - 4 batteries - 3 Round vials each 24 and 16 mm ø - 1 adapter each for 16 mm and 13 mm vials - Plastic stirring rod 13 cm, brush 11 cm, screwdriver - Guarantee sheet - Certificate of Compliance - Instruction Manual - No reagents supplied (Choose the reagent packs required from the table on pages 56-59)

**Accessories:**

Code	Item
<b>197620</b>	Set of 12 round vials with cap Height 48 mm, Ø 24 mm
<b>197665</b>	Set of 10 round vials with cap Height 90 mm, Ø 16 mm
<b>19802220</b>	Adapter for round vials ø 16 mm
<b>19802221</b>	Adapter for round vials ø 13 mm
<b>197626</b>	Sealing ring for vial ø 24 mm (12 pc.)
<b>197635</b>	Cleaning cloth for vials
<b>471007</b>	Plastic funnel with handle
<b>364100</b>	Plastic stirring rod, 13 cm length
<b>380230</b>	Cleaning brush, 10 cm
<b>215640</b>	Verification Standard Kit
<b>214030</b>	Cable for update for connection to a PC
<b>215640</b>	<b>Verification Standard Kit:</b> The Verification standard kit for the MaxiDirect is designed to reassure the user about the accuracy and the reliability of the results. The shelf life of the Verification standard kit is two years from the date of production, provided that storage and use are in accordance with the instructions provided.
<b>214050</b>	<b>Infra-red data transmission module IRiM :</b> The IRiM is delivered ready for use, with the following accessories: USB cable, 4 batteries, screwdriver, CD-ROM, operating instructions and guarantee certificate



See the Portable Labs (Build Your Own) section on page 44 to combine the MaxiDirect with other Instrumentation in a larger test kit case.

**Membrane filter set**

For use when preparing samples for photometric measurements  
 Content: 25 x 0.45 µm membrane filters and two 20 ml syringes

**Order code: 36 61 50**

See Page 53 for further details.

# MD 100 and MaxiDirect Ordering Information

## MD100 Kit

MD 100 single parameter test kits are available where an order code exists in the MD 100 Kit column on the table below. The MD 100 Kit is supplied in a plastic case with cells, reagents and instruction booklet.

**Check out the Portable Labs (Build Your Own Test Kit) section on page 44 to combine the MaxiDirect with other Instrumentation.**

## Test Pack

Reagent packs are common to the MD 100 and MaxiDirect. Select from the Reagent Pack column in the table below. Reagent pack codes should be used to "Build Your Own Test Kit", see page 44.



Test	Range	MD 100 Kit	MaxiDirect Wavelength	Method	Reagent Pack	Tests/ Pack
<b>Acid capacity KS4.3</b>	0.1-4mmol/l		610	Acid/Indicator <sup>1,2</sup>	513210 BT	100
<b>Alkalinity-M</b>	5-200mg/l	+++	610	Acid/Indicator <sup>1,2,5</sup>	513210 BT	100
<b>Alkalinity-P</b>	5-300mg/l		560	Acid/Indicator <sup>1,2,5</sup>	513200 BT	100
<b>Aluminium VARIO</b>	0.01-0.25mg/l		530	VARIO Eriochrome cyanine R <sup>2</sup>	535000	100
<b>Aluminium</b>	0.01-0.3mg/l		530	Eriochrome cyanine R <sup>2</sup>	517601 BT	100
<b>Ammonia</b>	0.02-1mg/l	276060	610	Indophenole blue <sup>2,3</sup>	517611	100
<b>Ammonia VARIO</b>	0.01-0.8mg/l	276065	660	VARIO Salicylate <sup>2</sup>	535500	100
<b>Ammonia VARIO LR**</b>	0.02-2.5mg/l		660	VARIO Salicylate <sup>2</sup>	535600	100
<b>Ammonia VARIO HR</b>	1-50mg/l		660	VARIO Salicylate <sup>2</sup>	535650	100
<b>Ammonia, free VARIO</b> (Part of method monochloramine)	0.01-0.5mg/l	276070	660	Indophenol	535800	100
<b>Boron</b>	0.1-2mg/l		430	Azomethine <sup>3</sup>	517681	100
<b>Bromine</b>	0.05-13mg/l	+++	530	DPD	56R013590	100
<b>Chloride</b>	0.5-25mg/l		530	Silver nitrate/turbidity	517741 BT	100
<b>Chloride</b>	0.5-20mg/l		430	Mercuric Thiocyanate/Ferric Nitrate	56R018490	65
<b>Chloride</b>	5-60mg/l		430	Iron (III)-thiocyanate <sup>4</sup>	2419031	100
<b>Chlorine a)</b>	0.02-6mg/l	276000	530	DPD <sup>1</sup>	511050 BT	100
<b>Chlorine HR DPD a)</b>	0.1-10mg/l	+++		DPD <sup>1,2</sup>	56R018690	100
<b>Chlorine a)</b>	0.02-4mg/l		530	DPD <sup>1,2</sup> (Liquid Reagent Set)	471056	100
<b>Chlorine VARIO a)</b>	0.02-2mg/l	276025	530	VARIO DPD <sup>1,2</sup>	56R018790	100
<b>Chlorine HR (KI)**</b>	5-200mg/l	+++	530	KI/Acid <sup>5</sup>	517721 BT	100
<b>Chlorine dioxide</b>	0.05-11mg/l	276030	530	DPD/Glycine <sup>1,2</sup>	517731	100
<b>Chlorine dioxide VARIO</b>	0.02-3.8mg/l	276035		VARIO DPD <sup>1,2</sup>	530100	100

+++ Available as part of a multi-parameter MD 100 test kit (not available as a single parameter instrument)

\*\* 16mm tube tests (all other tests use standard 24mm glass cells).

Test	Range	MD 100 Kit	MaxiDirect Wavelength	Method	Reagent Pack	Tests/ Pack
<b>COD LR**<sup>(b)</sup></b> <b>ISO 15705:2002<sup>(b)</sup></b>	0-150mg/l	276120	430	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	2420720 2420710 (Hg free)	25 25
<b>COD MR**</b> <b>ISO 15705:2002<sup>(b)</sup></b>	0-1500mg/l	276120	610	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	2420721 2420711 (Hg free)	25 25
<b>COD HR**<sup>(b)</sup></b>	0-15000mg/l	276120	610	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	2420722 2420712 (Hg free)	25 25
<b>Copper<sup>a)</sup></b>	0.05-5mg/l	276080	560	Biquinoline <sup>4</sup>	517691 BT	100
<b>Copper, free VARIO</b>	0.05-5mg/l	276085	560	VARIO Bicinchoninate	530300	100
<b>Copper, free + total</b>	0-4mg/l		560	Bicinchoninate	56R023355	75
<b>Cyanide</b>	0.01-0.5mg/l		580	Pyridine-barbituric acid <sup>1</sup>	2418875	200
<b>Cyanuric acid</b>	0-160mg/l <sup>1)</sup>	+++	530	Melamine	511370 BT	100
<b>DEHA</b>	20-500µg/l		560	PPST <sup>3</sup>	536000	100
<b>DEHA VARIO</b>	20-500µg/l		560	VARIO PPST <sup>3</sup>	56R018890	100
<b>Fluoride</b>	0.05-2mg/l	56K021301	580	SPADNS	467481	125
<b>Hardness, calcium</b>	50-900mg/l		560	Murexide <sup>4</sup>	515650	100
<b>Hardness, calcium</b>	0-500mg/l	+++	560	Murexid <sup>4</sup>	517761	100
<b>Hardness, total</b>	2-50mg/l		560	Metallphthalein <sup>3</sup>	515660 BT	100
<b>Hazen</b> (Pt-Co-units; APHA)	0-500mg/l		430	Direct reading <sup>1,2</sup>	No reagents required	
<b>Hydrazine</b>	0.05-0.5mg/l		430	Dimethylaminobenzaldehyde <sup>3</sup>	462910	100
<b>Hydrazine</b>	0.01-0.6mg/l		430	Dimethylaminobenzaldehyde <sup>3</sup>	531200	100
<b>Hydrazine<sup>o)</sup></b>	0.01-0.7mg/l		430	PDMAB Vacu-Vial	380470	30
<b>Hydrogen peroxide</b>	0.03-3mg/l		530	DPD/Catalyst <sup>5</sup>	512380	100
<b>Iodine</b>	0.05-3.6mg/l		530	DPD <sup>5</sup>	511050 BT	100
<b>Iron (II, III)</b>	0.02-1mg/l	276050	560	PPST	515370 BT	100
<b>Iron VARIO (II, III)</b>	0.02-3mg/l	276056	530	VARIO 1,10-Phenanthroline	530560	100
<b>Iron LR L</b>	0.03-2.0mg/l		580	Ferrozine/Thioglycolate	56R018990	100
<b>Iron VARIO, total<sup>g)</sup></b>	0.02-1.8mg/l	276055	580	VARIO TPTZ <sup>g)</sup>	530550	100
<b>Iron (Fe<sup>2+</sup>+Fe<sup>3+</sup>)</b>	0-2mg/l		560	Ferrozine/Thioglycolate	56R023490	100
<b>Iron HR</b>	0-10mg/l		530	Thioglycolate	56R023590	100
<b>Manganese</b>	0.2-4mg/l	276100	530	Formaloxime	517621	100
<b>Manganese VARIO LR</b>	0.01-0.7mg/l	276105	560	VARIO PAN	535090	100
<b>Manganese VARIO HR</b>	0.1-18mg/l	276106	530	VARIO Periodate oxidation <sup>2</sup>	535100	100
<b>Molybdenum LR VARIO</b>	0.03-3mg/l	276140	430	VARIO Mercaptoacetic acid	535450	100
<b>Molybdate</b>	1-50mg/l		430	Thioglycolate <sup>4</sup>	517631	100
<b>Molybdate VARIO</b>	0.5-66mg/l		430	VARIO Mercaptoacetic acid	535300	100
<b>Molybdate HR</b>	0-100mg/l		430	Thioglycolate <sup>4</sup>	56R023790	100

+++ Available as part of a multi-parameter MD 100 test kit (not available as a single parameter instrument)

\*\* 16mm tube tests (all other tests use standard 24mm glass cells).

# MD 100 and MaxiDirect Ordering Information



Test	Range	MD 100 Kit	MaxiDirect Wavelength	Method	Reagent Pack	Tests/ Pack
<b>Monochloramine VARIO</b>	0.04-4.5mg/l	276070	660	VARIO Indophenol	531810	100
<b>Nitrate VARIO**</b>	1-30mg/l		430	Chromotropic acid	535580	100
<b>Nitrite**</b>	0.01-0.5mg/l		560	N-(1-Naphthyl)-ethylenediamine <sup>2,3</sup>	512310	100
<b>Nitrite LR VARIO</b>	0.0-0.3mg/l		530	VARIO Diazotation	530980	100
<b>Nitrogen VARIO** total HR<sup>(b)</sup></b>	0.5-25mg/l		430	VARIO Persulphate digestion method	535550	50
<b>Nitrogen VARIO** total HR<sup>(b)</sup></b>	5-150mg/l		430	VARIO Persulphate digestion method	535560	50
<b>Oxygen, active</b>	0.1-10mg/l		530	DPD	511220 BT	100
<b>Oxygen, dissolved c)**</b>	10-800µg/l		530	Rhodazine D™ Vacu-vial® <sup>(i)</sup>	380450	30
<b>PHMB (Biguanide)</b>	2-60mg/l		560	Buffer/Indicator (PHMB Tablet)	516100	100
<b>Phosphate LR, ortho</b>	0.05-4mg/l	276040	660	Phosphomolybdic acid/Ascorbic acid <sup>2</sup>	517651 BT	100
<b>Phosphate HR, ortho</b>	1-80mg/l		430	Vanadomolybdate <sup>2</sup> (Tablet)	517661	100
<b>Phosphate HR, ortho</b>	5-80mg/l		430	Vanadomolybdate <sup>2</sup> (Liquid)	56R019090	100
<b>Phosphate VARIO ortho</b>	0.06-2.5mg/l	276045	660	VARIO Ascorbic acid <sup>2</sup>	531550	100
<b>Phosphate VARIO** ortho</b>	0.06-5mg/l		660	VARIO Ascorbic acid <sup>2</sup>	535200	50
<b>Phosphate VARIO**<sup>(b)</sup></b> acid hydrolysable acid hydrolysable total	acid hydrolysable 0.02-1.6 mg/l P 0.06-5 mg/l PO <sub>4</sub> total 0.02-1.1mg/l P 0.06-3.5mg/l PO <sub>4</sub>		660	VARIO Acid digestion/Ascorbic acid <sup>2</sup> VARIO Acid/persulphate digestion Ascorbic acid <sup>2</sup>	535250	50
<b>Phosphate VARIO** total<sup>(b)</sup></b>	0.02-1.1mg/l P 0.06-3.5mg/l PO <sub>4</sub>		660	VARIO Acid/persulphate digestion	535210	50
<b>Phosphate, ortho<sup>(c)</sup></b>	5-40mg/l		430	Vanadomolybdate – Vacu-vial	380460	30
<b>Phosphate, ortho<sup>(c)</sup></b>	0.05-5mg/l		660	Stannous chloride <sup>2</sup> – Vacu-vial	380480	30
<b>Phosphonate VARIO</b>	0.02-125mg/l		660	VARIO Persulfate UV-Oxidation	535220	100
<b>pH value</b>	5.2-6.8		560	Bromcresol purple	515700	100
<b>pH value</b>	6.5-8.4	+++	560	Phenol red (tablet) <sup>5</sup>	511770 BT	100
<b>pH value</b>	6.5-8.4	+++	560	Phenol red (solution) <sup>5</sup>	471040	100
<b>pH value</b>	8.0-9.6		560	Thymol blue <sup>5</sup>	515710	100
<b>Polyacrylate</b>	0-30mg/l Polyacrylic acid		660	Turbidity	56R019165	65
<b>Potassium</b>	0.7-12mg/l		430	Tetraphenylborate	515670	100
<b>Silica</b>	0.05-4mg/l	276110	660	Silicomolybdate <sup>2,3</sup> Silica PR tablets (in presence of PO <sub>4</sub> )	517671 513150	100 100

+++ Available as part of a multi-parameter MD 100 test kit (not available as a single parameter instrument) – see page ++

\*\* 16mm tube tests (all other tests use standard 24mm glass cells).

Test	Range	MD 100 Kit	MaxiDirect Wavelength	Method	Reagent Pack	Tests/ Pack
<b>Silica LR VARIO</b>	0.1-1.6mg/l	276115	660	VARIO Heteropolyblue <sup>2</sup>	535690	100
<b>Silica HR VARIO</b>	1-90mg/l	276116	430	VARIO Silicomolybdate <sup>2,3</sup>	535700	100
<b>Sodium hypochlorite</b>	0.2-16%	+++	530	Potassium iodide <sup>5</sup>	517721 BT	100
<b>Sulphate VARIO</b>	5-100mg/l		530	VARIO Bariumsulphate Turbidity <sup>2</sup>	532160	100
<b>Sulphate</b>	5-100mg/l		610	Bariumsulphate Turbidity <sup>2</sup>	515450	100
<b>Sulphide</b>	0.04-0.5mg/l		660	DPD/Catalyst <sup>3</sup>	56R019290	100
<b>Sulphite</b>	0.1-5mg/l		430	DTNB	518020	100
<b>Suspended solids</b>	5-750mg/l		660	Turbidity/attenuated radiation (no reagents required)		
<b>Tolyltriazole</b>	1-16mg/l as Benzotriazole		430	Catalysed UV photolysis	53220	100
<b>Turbidity</b>	0-1000		530	Attenuated radiation method (no reagents required)		
<b>Urea</b>	0.1-2.5mg/l		610	Urease/Indophenol	56R019390	100
<b>Zinc</b>	0.02-1mg/l		610	Zincon <sup>3</sup> /EDTA	56R019490	100

## MD 100 Multi-Parameter Instruments – Ordering Information

Test	Range	MD 100 Kit	Method	Reagent Pack	Tests/ Pack
<b>MD 100 2in1</b>					
Chlorine	0.02-6.0mg/l	278020	DPD <sup>1</sup>	511050 BT	100
Chlorine	0.1-10mg/l		DPD <sup>1,2</sup>	as above	
pH	6.5-8.4		Phenol red (tablet) <sup>5</sup>	511770 BT	100
<b>MD 100 2in1 – VARIO</b>					
Chlorine Vario	0.02-2.0mg/l	278030	VARIO DPD <sup>1,2</sup>	56R018790	100
Chlorine	0.1-8.0mg/l		DPD (10mm cell)	as above	
pH	6.5-8.4		Phenol red (tablet) <sup>5</sup>	511770 BT	100
<b>MD 100 3in1</b>					
Chlorine LR	0.02-6.0mg/l	278000	DPD <sup>1</sup>	511050 BT	100
Chlorine HR	5-200mg/l		KI / Acid <sup>5</sup> (16mm round vial)	517721 BT	100
Chlorine Dioxide	0.05-11mg/l		DPD/Glycine <sup>1,2</sup>	517731	100
<b>MD 100 6in1</b>					
Alkalinity-M	5-200mg/l	278090	Acid/Indicator <sup>1,2,5</sup>	513210 BT	100
Bromine	0.05-13.0mg/l		DPD	56R013590	100
Calcium Hardness	0-500mg/l		Murexid <sup>4</sup>	517761	100
Chlorine	0.02-6.0mg/l		DPD <sup>1</sup>	511050 BT	100
Cyanuric Acid	0-160 mg/l		Melamine	511370 BT	100
pH	6.5-8.4		Phenol red (tablet) <sup>5</sup>	511770 BT	100

Other multi-parameter combinations are available – see [www.lovibond.com](http://www.lovibond.com) for more information.

See page 60 for notes and abbreviations

# MD 100 and MaxiDirect Ordering Information (continued)

## Notes and abbreviations

+++ Available as part of a multi-parameter MD100 test kit (not available as a single parameter instrument)

\*\* 16mm tube tests (all other tests use standard 24mm glass cells).

MSDS (Material Safety Data Sheets):  
www.lovibond.com

For other reagent quantities please see our current price list.

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

**a)** Determination of free, combined and total

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

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

**d)** Spectroquant® is a Merck KGaA Trademark

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

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

**g)** Reagent recovers most insoluble iron oxides without digestion

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

**i)** High range by dilution

**j)** Rhodazine D™ and Vacu-vials® are Chemetrics Trademarks

# including stirring rod





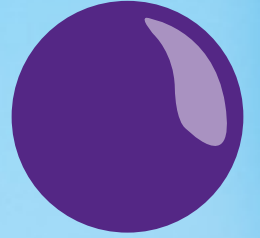


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# Lovibond® Comparator Solutions



# Lovibond® Comparator 2000+

- Visual comparison method
- High precision : High accuracy
- Fade-free glass standards – guaranteed consistency
- > 400 tests discs
- Optional lighting unit

The Lovibond® Comparator 2000+ System is an extremely versatile modular system for testing water. It is simple to use yet is uncompromising in terms of precision and reproducibility of results. It is compact and portable making it equally suitable for on-site and laboratory use. The integrated prism brings the glass standards of the test discs and the coloured sample into the same field of view for easy comparison.

## Test discs

Glass colour standards used in every Lovibond® Comparator 2000+ discs are fade-free, resistant to chemicals and scratchproof. Every test disc is fitted with guaranteed colour-stable non-fading glass. Lovibond® standards are made from coloured glass filters and comply with international standards, e.g. ISO 7393/2.

## Lighting unit

It is recommended to use the battery-operated Lovibond® lighting unit in variable lighting conditions. This guarantees uniform lighting conditions, and ensures greater test accuracy.

## Cells

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



# Lovibond® Comparator 2000+

Ordering information for the Lovibond® Comparator 2000+ range is as follows:

## Test Kit

Ordered using the Test Kit code in the table below. The kit is supplied in a plastic case with a Lovibond® Comparator 2000+, disc, 2 x comparator cells and reagent pack.

Or

## Reagent Pack

Ordered using the reagent pack code in the table below. The pack is supplied in a cardboard carton containing test reagent only.

Or

## Disc

Disc only, supplied with instruction sheet

**Or choose a number of discs and reagent packs with a standard case to create your own multi-parameter kit in the "Build Your Own Test Kit" Section of the catalogue (see page 44).**

**56A005701:** Comparator Test Kit Case: A 1501 Compact Plus Case: Supplied with Lovibond® Comparator 2000+, cells, crushing rod and instruction booklet and space to add a combination of 8-10 tests from the Lovibond® Comparator 2000+ and drop test ranges. An SD 50 pH meter and either an SD 60 conductivity or SD 70 TDS unit can be added to complete the kit – simply choose reagent packs and discs from the appropriate tables.

**56A004601:** Lovibond® Comparator 2000+ and two cells.



Test	Disc/ Range	Chemistry	Test Kit	Disc	Reagent Pack	Test/kit or Pack
Aluminium	3/127A/0-0.5mg/l	Solochrome Cyanine R	56K013001	230205W	517601BT	100
Amine	3/58/1.0-10mg/l	Bromocresol Green	56K013101	235800W	511010	100
Amine	3/64/0-2mg/l	Methyl Orange	56K013201	236400W	56R013290	100
Ammonia**	3/112/0-0.4mg/l NH <sub>4</sub>	Alkaline Salicylate	56K013301	230060W	517611	100
Ammonia	3/113/0-1.0mg/l N	Alkaline Salicylate	56K013401	230070W	517611	100
Bromine	3/53A/ 0.2-2.0mg/l	Buffered DPD	56K013501	235310W	56R013590	100
Bromine	3/53B/1.0-10mg/l	Buffered DPD	56K013601	235320W	56R013590	100
Bromine	3/53C/0.5-6mg/l	Buffered DPD	56K013701	235330W	56R013590	100
Chlorine** free, combined, total	3/40E/0.02-0.3mg/l	Buffered DPD/KI	56K013801	234060W	517711BT	100
Chlorine free, combined, total	3/40A/0.1-1.0mg/l	Buffered DPD/KI	56K013901	234010W	517711BT	100
Chlorine free, combined, total	3/40B/0.2-4.0mg/l	Buffered DPD/KI	56K014001	234020W	517711BT	100
Chlorine free, combined, total	3/40K/0.5-6.0mg/l	Buffered DPD/KI	56K014101	233930W	517711BT	100

\*\* 40mm glass cell required (all other tests use 13.5mm cells)

# Lovibond® Comparator 2000+



Test	Disc/ Range	Chemistry	Test Kit	Disc	Reagent Pack	Test/kit or Pack
<b>Chlorine HR**</b> total chlorine only	3/2APH/2-10mg/l	Potassium Iodide	56K014201	232060W	517721BT	100
<b>Chlorine HR</b> total chlorine only	3/2ARP/5.0-50mg/l	Potassium Iodide	56K014301	232070W	517721BT	100
<b>Chlorine HR</b> total chlorine only	3/2IOD/0-250mg/l	Potassium Iodide	56K014401	232090W	517721BT	100
<b>Chlorine dioxide</b>	3/40A/0.19-1.9mg/l	DPD/Glycine	56K014501	292260W	517731	100
<b>Chlorine dioxide**</b>	3/40ED/0.04-0.57mg/l	DPD/Glycine	56K014601	297970W	517731	100
<b>Copper</b>	3/106/0-1.0mg/l	Zincon	56K014701	230050W	512620BT	100
<b>Copper</b>	3/110/0-4.0mg/l	Zincon	56K014801	230040W	512340	100
<b>DEHA**</b>	3/150/16-160µg	DEHA	56K014901	230460W	536000	100
<b>Hydrazine</b>	3/126/ 0-0.5mg	p-dimethylaminobenzaldehyde	56K015001	230190W	462910	100
<b>Hydrazine**</b>	3/135/0.02-0.2mg/l	p-dimethylaminobenzaldehyde	56K015101	230290W	462910	100
<b>Hydrogen peroxide</b>	3/50 A/0.05-0.5mg/l	DPD/Catalyst	56K015201	235000W	512380	100
<b>Hydrogen peroxide</b>	3/50B/0.1-3mg/l	DPD/Catalyst	56K015301	235010W	512380	100
<b>Iron, total</b>	3/116 0.1-1.0mg/l	Ferrozine/Thioglycolate	56K015401	230100W	515370BT	100
<b>Iron, total</b>	3/117/1.0-10mg/l	Thioglycolate	56K015501	230110W	515380	100
<b>Manganese</b>	3/169/0-4.0mg/l	PAN	56K015601	230690W	517621	100
<b>Molybdate**</b>	3/162/0-10mg/l MoO <sub>4</sub>	8-hydroxybenzoic acid	56K015701	230620W	56R015750	100
<b>Molybdate**</b>	3/137/5 -50mg/l MoO <sub>4</sub>	Thioglycolic acid	56K015801	230320W	517631	100
<b>Molybdate</b>	3/138/10-150mg/l MoO <sub>4</sub>	Thioglycolic acid	56K015901	230330W	517631	100
<b>Nitrate</b>	3/124/0.1-1.0mg/l NO <sub>3</sub>	NO <sub>3</sub> > NO <sub>2</sub> + Diazotisation	56K016001	230170W	56R016090	100
<b>Nitrate</b>	3/142/10-100mg/l NO <sub>3</sub>	Chromotropic Acid	56K016101	230360W	517641	100
<b>Nitrite</b>	3/103/0.05-0.5mg/l N	NO <sub>3</sub> Diazotisation	56K016201	230030W	512310	100
<b>Oxygen</b>	3/165/2.0-12mg/l	Sodium azide	56K016301	230650W	56R016390	100
<b>Ozone</b>	3/67/0.1-1.0mg/l	Buffered DPD	56K016401	236700W	511220BT	100
<b>Ozone</b>	3/67A/0.01-0.1mg/l	Buffered DPD	56K016501	236710W	511220BT	100
<b>Ozone</b>	3/148/0-0.5mg/l	Ozone-Indigo	56K016601	230440W	513170	100
<b>pH</b>	2/1G/5.2-6.8 pH	Bromocresol purple	56K016701	221100W	511730	100
<b>pH</b>	2/1H/6.0-7.6 pH	Bromothymol blue	56K016801	221110W	511640	100
<b>pH</b>	2/1J/6.8-8.4 pH	Phenol red	56K016901	221130W	511750BT	100
<b>pH</b>	2/1P/4.0-11 pH	Universal (mixed)	56K017001	221220W	451771	100

\*\* 40mm glass cell required (all other tests use 13.5mm cells)

Test	Disc/ Range	Chemistry	Test Kit	Disc	Reagent Pack	Test/kit or Pack
<b>Phosphate</b>	3/133/0-4.0mg/l PO <sub>4</sub>	Molybdenum blue	56K017101	230270W	517651BT	100
<b>Phosphate</b>	3/136/ 0-40mg/l PO <sub>4</sub>	Molybdenum blue	56K017201	230310W	511980	100
<b>Phosphate</b>	3/70/0-100mg/l PO <sub>4</sub>	Phospho-molybdate	56K017301	237000W	511980	100
<b>Phosphate</b>	3/60/10-100mg/l PO <sub>4</sub>	Vanadomolybdate	56K017401	236000W	56R017490	100
<b>Phosphate</b>	NMD/10-100mg/l PO <sub>4</sub>	Molybdenum blue	56K017501	283950W	56R017590	100
<b>QAC (Quaternary** Ammonia Compounds)</b>	3/118/0-20mg/l	Sulphonaphthalein dye	56K017601	230120W	515390	100
<b>QAC (Quaternary Ammonia Compounds)</b>	3/119/0-200mg/l	Sulphonaphthalein dye	56K017701	230130W	515400	100
<b>Silica</b>	3/139/0.4-4.0mg/l SiO <sub>2</sub>	Molybdenum blue	56K017801	230340W	517671	100
<b>Silica</b>	3/147/1.0-10mg/l SiO <sub>2</sub>	Molybdenum blue	56K017901	230420W	517671	100
<b>Silica**</b>	3/13/2.5-25mg/l SiO <sub>2</sub>	Silico-Molybdate	56K018001	231300W	460241	100
<b>Sodiumhypochlorite</b>	3/2 Hypo/2-16%	Acidified KI	56K018101	232110W	517721BT	100
<b>Zinc</b>	3/151/0-1.0mg/l	Zincon	56K018201	230470W	56R018290	100
<b>Zinc</b>	3/102/0-4.0mg/l	Zincon	56K018301	230020W	56R018390	100

\*\* 40mm glass cell required (all other tests use 13.5mm cells)

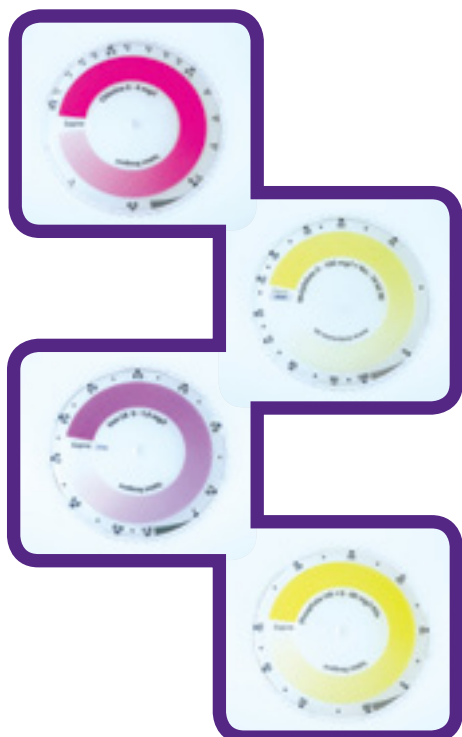
#### Ordering Information:

Code	Type	Item
<b>142000</b>	TK 100	Lovibond® Comparator 2000+
<b>142050</b> <b>171010</b>	TK 102	Portable lighting unit, battery operated Daylight Unit for Comparator 2000+, mains operated
<b>170500</b>	AF 631	Water sampler with two 500 ml bottles and one lid
<b>170260</b> <b>364110</b> <b>364100</b> <b>380230</b>	DB 426	Cell stand for 10 cells-13.5 mm, path length Glass stirring rod, 12 cm length Plastic stirring rod, 13 cm length Brush, 11 cm length
<b>Glass Cells</b>		
<b>354243</b>	DB424/S	5 glass cells, 13.5 mm path length, calibrated at 2 – 12 ml, with lids
<b>606890</b>	W 680/40	Glass cell 40 mm path length, calibrated at 20ml
<b>Plastic Cells</b>		
<b>145505</b>		5 plastic cells, frosted on two sides,
<b>145500</b>		13.5 mm path length, volume 10 ml, with lid
<b>145510</b>		10 plastic cells, as 14 55 05

# Lovibond® CHECKIT® Comparator

- Entry-level visual comparator kit
- Continuous colour scale for easy matching
- Optional variant with mirror optics for increased accuracy of reading
- Kits supplied complete with discs, cells, stirring rod and Lovibond® reagents

The Lovibond® CHECKIT® comparator is a cost effective means of performing colorimetric testing. The compact comparator unit accommodates a full range of continuous gradient plastic discs to enable a wide range of tests to be performed. Each test kit is supplied in a sturdy plastic case with a CHECKIT® comparator, comparator disc, 2 x 10ml plastic cells and reagent set. The operating instructions provide a step-by-step explanation on how to conduct the water test, ensuring that even "non-chemists" can achieve reliable and accurate measurements in the minimum of time.



## Ordering information for the CHECKIT® range is as follows:

### Test Kit

Ordered using the Test Kit code in the table opposite. Supplied in a plastic case with CHECKIT® comparator, disc, 2 x 10ml cells and reagent pack.

**Or**

### Reagent Pack

Ordered using the reagent pack code in the table opposite. The pack is supplied in a carton containing test reagents only.

**Or**

### Disc

Disc only, supplied with instruction sheet

**Or combine the disc & reagent pack with a standard case to create your own multi-parameter kit:**

### Code: 56A000601:

CHECKIT® Comparator Case: A sturdy 501 plastic case capable of housing up to 3 Lovibond® CHECKIT® comparator tests. Supplied with CHECKIT® comparator, cells and crushing rod and full instruction booklet - simply add disc & reagent packs from the table opposite to complete the kit.

### Code: 56A005801:

A 1501 Compact Plus Case: Supplied with the same standard equipment but with space to add a combination of 8-10 tests from the CHECKIT® comparator and drop test ranges. An SD 50 pH meter and either an SD 60 conductivity or SD 70 TDS unit can be added to complete the kit – simply choose reagent packs from the appropriate tables.

### Code: 56A004501:

CHECKIT® Comparator with two cells

### Code: 14550:

CHECKIT® Comparator Replacement cells (set of 10)

See our Portable Laboratory (Build Your Own Test Kit) section on page 44 for additional case/kit options.

**Rank Lovibond Türkiye**  
[www.rank.com.tr](http://www.rank.com.tr)



Test	Range	Chemistry	Test Kit	Disc	Reagent Pack	Test/kit or Pack
<b>Aluminium</b>	0-0.3mg/l Al	Solochrome cyanine R	1472 00	146200W	517601BT	100
<b>Ammonia</b>	0-1mg/l N	Alkaline salicylate	14 72 10	146210W	517611	100
<b>Ammonia VARIO</b>	0-0.5mg/l N	Alkaline Salicylate	14 72 11	146211W	535500	100
<b>Bromine</b>	0-5mg/l Br	Buffered DPD	14 72 80	146280W	56R013590	100
<b>Chlorine</b> free, combined**, total	0-1mg/l Cl <sub>2</sub>	Buffered DPD/KI	14 70 10	146010W	517711BT	100
<b>Chlorine</b> free, combined**, total	0-2mg/l Cl <sub>2</sub>	Buffered DPD/KI	14 70 40	146040W	517711BT	100
<b>Chlorine</b> free, combined**, total	0-4mg/l Cl <sub>2</sub>	Buffered DPD/KI	14 70 20	146020W	517711BT	100
<b>Chlorine</b> free, combined**, total	0-3.5mg/l Cl <sub>2</sub>	VARIO Buffered DPD/KI	147052	146050W	56R020894	100
<b>Chlorine</b> free, combined**, total	0.02-0.3mg/l Cl <sub>2</sub>	Buffered DPD/KI	147000	146000W	517711BT	100
<b>Chlorine KI, total only</b>	10-300mg/l Cl <sub>2</sub>	Potassium Iodide	147030	146030W	517721BT	100
<b>Chlorine dioxide</b> only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)	0.01-0.2mg/l ClO <sub>2</sub>	Buffered DPD/Glycine	147330	146330W	517731	100
<b>Copper, free (Cu<sup>2+</sup>)</b>	0-1mg/l Cu	Zincon	147230	146230W	512620BT	100
<b>Copper HR</b>	0-5mg/l Cu	Coppercol	147430	146430W	517691BT	100
<b>free and total</b>						
<b>Copper HR, free only</b>	0-5mg/l Cu	VARIO Coppercol	147431	146431W	530300	100
<b>Copper LR</b> free and total only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)	0-1mg/l Cu	Coppercol	147440	146440W	517691BT	100
<b>Copper LR, free only</b> only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)	0-1mg/l Cu	VARIO Coppercol	147441	146441W	530300	100
<b>DEHA</b>	0-0.5mg/l DEHA	Iron reduction/H <sup>+</sup>	147370	146370W	536000	100
<b>Fluoride</b>	0.2-2mg/l F	SPADNS Reagent	56K020901	146390W	467481	125
<b>Iron LR</b>	0-1mg/l Fe	Ferrozine/Thioglycolate	56K020701	146220W	56R020790	250
<b>Iron HR</b>	1-10mg/l Fe	Thioglycolate	147320	146320W	515380	100
<b>Iron (TPTZ)</b>	0-1.8mg/l Fe	TPTZ	147470	146470W	530550	100
<b>Manganese LR</b>	0.1-0.7mg/l Mn	PAN	56K021001	146410W	535090	100

\*\* may be calculated by deducting free from total chlorine only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)

# Lovibond® CHECKIT® Comparator (continued)



Test	Range	Chemistry	Test Kit	Disc	Reagent Pack	Test/kit or Pack
<b>Manganese VLR</b>	0.02-0.2mg/l Mn	PAN	56K021101	146420W	535090	100
only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)						
<b>Molybdate HR</b>	0-100mg/l MoO <sub>4</sub>	Thioglycolate	147290	146290W	517631	100
<b>Molybdate HR</b>	50-500mg/l MoO <sub>4</sub>	Thioglycolate	147295	146295W	517631	100
<b>Molybdate LR</b>	0-10mg/l MoO <sub>4</sub>	Thioglycolate	147291	146291W	517631	100
only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)						
<b>Nitrate HR</b>	10-100mg/l NO <sub>3</sub>	Chromotropic Acid	147400	146400W	517701	100
<b>Nitrate LR</b>	0-1mg/l N	NO <sub>3</sub> > NO <sub>2</sub> + Diazotisation	56K021201	146310W	56R016090	100
<b>Nitrite</b>	0-0.3mg/l N	VARIO NO <sub>3</sub> > NO <sub>2</sub> + Diazotisation	147301	146301W	530980	100
<b>Ozone (DPD)</b>	0-1.0mg/l O <sub>3</sub>	Buffered DPD	147270	146270W	517731	100
in the presence of chlorine						
<b>pH</b>	5.2-6.8 pH	Bromocresol purple	147110	146110W	511730	100
<b>pH</b>	6.0-7.6 pH	Bromothymol blue	147120	146120W	511640	100
<b>pH</b>	6.5-8.4 pH	Phenol red (Rapid)*	147100	146100W	511790BT	100
<b>pH-Universal</b>	4-10 pH	Universal (Mixed)	147130	146130W	515440	100
<b>Phosphate HR</b>	0-80mg/l PO <sub>4</sub>	Phospho-Molybdate	147250	146250W	511980	100
<b>Phosphate LR</b>	0-4mg/l PO <sub>4</sub>	Molybdenum blue	147240	146240W	517651BT	100
<b>Phosphate</b>	0-2.5mg/l PO <sub>4</sub>	VARIO Molybdenum blue	147480	146480W	531550	100
<b>Silica LR</b>	0.25-4mg/l SiO <sub>2</sub>	Molybdenum blue	147350	146350W	517671	100
<b>Silica HR VARIO</b>	0-100mg/l SiO <sub>2</sub>	VARIO Silico-molybdate	147351	146351W	535700	100
<b>Silica VLR</b>	0-1mg/l SiO <sub>2</sub>	Molybdenum blue	147360	146360W	517671	100
<b>Sodiumhypochlorite</b>	2-18%	Acidified potassium iodide	147490	146490W	517721BT	100
<b>Sulfite LR</b>	0.5-10mg/l SO <sub>3</sub>	DTNB	147380	146380W	518020	100
<b>Total Alkalinity</b>	20-240mg/l CaCO <sub>3</sub>	ALKACHECK	147450	146450W	513200BT	100
<b>Zinc LR</b>	0-1mg/l Zn	Zincon	147340	146340W	56R019490	100

\* RAPID: fast dissolving tablet

# including stirring rod









Lovibond

SD 50

24.7 °C  
5.16  
pH

Cal



!  
on/off

pH

Lovibond® Electrochemistry Systems



# SD Hand-held Meters

- Quick, accurate measurements of pH, ORP, Conductivity (EC) and TDS
- Backlit Display
- Durable – waterproof (IP67) and dust tight
- User replaceable electrodes – time and cost savings
- 25 data set storage with date/time stamp

The new Lovibond® SD series comprises a range of compact, easy-to-use, hand-held instruments for the accurate measurement of pH, ORP, Con, TDS or Salt. With robust housing and fully waterproof (IP67) casing, these testers are the ideal solution for in-situ testing in environmental, industrial or pool & spa applications. The intuitive scroll-bar and backlit display enable easy measurement and display of result, temperature date and time. All units are equipped with an automatic switch off and a "Hold" function which freezes the result in the display with a single key press.



Instrument	SD 50	SD 60	SD 70	SD 80
<b>Order Code</b>	194800	194801	194802	194803
<b>Range (Auto)</b>	0-14 pH 0-60°C	-1800 – 1800mV 0-60°C	1-1999µS 2.00-20.00mS 0-60°C	1-999mg/l NaCl 1.00-10.00ppt 0-60°C
<b>Resolution</b>	0.01 pH 0.1°C	0.1mV (±1000mV) 1mV (over ±1000mV) 0.1°C	1µS (<=1999 µS) 0.01mS (2-20mS) 0.1°C	0.1 mg/l (<=999mg/l) 0.01ppt (1-10ppt) 0.1°C
<b>Accuracy</b>	± 0.05 pH, ± 1°C	± 20mV, ± 1°C	± 1% F/S, ± 1°C	± 1% F/S, ± 1°C
<b>Calibration</b>	1, 2 or 3 point (NISA/IUPAC)	1-point (±150mV adjust)	1413 µS/cm 12.88 mS/cm	1 or 2 point
<b>Memory</b>	Time and date display / stamp with 25 sets of data storage (non-volatile)			
<b>Display</b>	22 x 22mm LCD with yellow green backlight			
<b>Compensation</b>	Automatic			
<b>Operation Temp.</b>	0-60°C			
<b>Battery Capacity</b>	> 25hr continuous use (backlight off) – Low battery warning on LCD			
<b>Auto Off</b>	8 minutes non-use			
<b>Size/Weight</b>	approx. 16.5cm x 3.8cm, 100g			

## Conversion table

- |  |  |
|--|--|
| <b>1)</b> 0-20,00 mS/cm = 0-20000 µS/cm        | <b>4)</b> mg/l = Parts per Million (ppm) |
| <b>2)</b> 0-10,00 ppt TDS = 0-10000 mg/l TDS   | <b>5)</b> ppt = Parts per Thousand (g/l) |
| <b>3)</b> 0-10,00 ppt NaCl = 0-10000 mg/l NaCl | <b>6)</b> F/S = Full Scale               |

## Delivery Content

Each SD Hand-held instrument is supplied with batteries, lanyard and instruction manual as a ready to use unit in a sturdy plastic box. The SD 50 also includes 10 x pH 4, 7, & 10 buffer tablets.

Rank Lovibond Türkiye  
www.rank.com.tr

## SensoDirect 110 Series

- Compact
- Versatile
- Easy-to-use
- Large digital display
- Instruments for:  
pH  
conductivity

The SensoDirect meters are high quality, portable, battery operated meters, equipped as standard with protective casing and built-in electrode holders. The units are extremely easy to use and are equipped with an LCD screen showing two or three decimal places.

The SensoDirect pH110 is a high quality, portable, battery operated pH meter. The gel electrode is temperature resistant over the range 0 - 80 °C. It is fitted with a BNC connector as standard.

The SensoDirect Con110 is equipped with an LC display showing two or three decimal places and a measuring range either of 0.001 – 1.999 or 0.01 – 19.99 mS/cm. As conductivity measurement also depends on temperature, the SensoDirect Con110 includes an automatic temperature compensation feature. The SensoDirect Con 110 can be calibrated and adjusted using a potentiometer.



pH110 Technical Data	
<b>Range</b>	0 - 14 pH
<b>Resolution</b>	0.01 pH
<b>Temperature compensation</b>	not necessary
<b>Accuracy</b>	± 0.07 pH (pH5-pH9) ± 0.1 pH (pH4-pH10) ± 0.2 pH (pH1-pH3.9) ± 0.2 pH (pH10, 1-pH13) 23 ± 5 °C, after calibration
<b>Ambient conditions</b>	0-50 °C 0-80 % rel. humidity (non condensing)
<b>Battery</b>	9 V block
<b>Dimensions</b>	208 x 110 x 34 mm (L x W x H)
<b>Weight</b>	approx. 380 g
<b>EC-Conformity</b>	CE

Con110 Technical Data	
<b>Range</b>	0.001 - 1.999 mS/cm 0.01 - 19.99 mS/cm
<b>Resolution</b>	0.001 / 0.01 mS/cm
<b>Temperature compensation</b>	0-100°C automatically 2%/K, 25°C
<b>Accuracy</b>	± 3% Full Scale ± 1 Digit (23 ± 5 °C)
<b>Ambient conditions</b>	0-50°C 0-80% rel. humidity (non condensing)
<b>Battery</b>	9 V-Block
<b>Dimensions</b>	208 x 110 x 34 mm (L x W x H)
<b>Weight</b>	approx. 380g
<b>EC-Conformity</b>	CE

## SensoDirect 110 Series

Code	Details	Content
<b>721300</b>	SensoDirect pH110	SensoDirect pH110 Battery pH-buffer (4.0 / 7.0) pH plastic electrode-type 110 Case, instruction manual Guarantee sheet
<b>722300</b>	SensoDirect Con110	SensoDirect Con110 Battery Conductivity sensor Case, instruction manual Guarantee sheet

### SensoDirect pH110 Accessories:

Code	Description
<b>721330</b>	pH-electrode plastic/gel, type pH110
<b>721247</b>	pH-buffer, 4.00 (25°C), 90 ml
<b>721248</b>	pH-buffer, 7.00 (25°C), 90 ml
<b>721249</b>	pH-buffer, 10.00 (25°C), 90 ml
<b>56L004297</b>	pH-buffer, 4.00 (25°C), 500 ml
<b>56L000997</b>	pH-buffer, 7.00 (25°C), 500 ml
<b>56L000397</b>	pH-buffer, 10.00 (25°C), 500 ml



### SensoDirect Con110 Accessories:

Code	Description
<b>722320</b>	Conductivity sensor
<b>56L002297</b>	Conductivity calibration solution, 50 µS/cm, 500 ml
<b>56L001697</b>	Conductivity calibration solution, 1413 µS/cm, 500 ml
<b>56L049497</b>	Conductivity calibration solution, 2765 µS/cm, 500 ml
<b>56L001997</b>	Conductivity calibration solution, 12.88 mS/cm, 500 ml



## SensoDirect 150

- Multi Parameter Hand-held Meter
- Multi Purpose Operation
- Intuitive Interface – Easy-to-use
- Data logger & storage capabilities

The SensoDirect 150 combines the features of several hand-held meters. It is designed for multi-purpose operation and measures pH/Redox, dissolved oxygen and conductivity/TDS.

The SensoDirect 150 incorporates an intuitive user interface, large, easy to read display and is supplied with a sturdy handy case with electrodes, buffer solution and accessories.



- Dissolved Oxygen (O<sub>2</sub>) mg/l

- Conductivity/TDS/ °C/°F

- pH/ORP °C/°F



Technical Data SensoDirect 150	
<b>Display</b>	Large LCD display with contrast adjustment
<b>Measurement</b>	pH: 0 to 14.00 pH ORP: ± 1999 mV Conductivity: 200 µS / 2 mS / 20 mS / 200 mS TDS (Total Dissolved Solids): Dissolved Oxygen: 0 to 20.0 mg/l
<b>Data Logger</b>	Real time data logger
<b>Data Memory</b>	Auto or manual data memory, 16000 data sets
<b>Data Hold</b>	Max, Min
<b>Interface</b>	USB, RS232
<b>Probes</b>	pH, ORP, Conductivity/TDS, Dissolved Oxygen and Temperature
<b>Power off</b>	Auto shut off or manual off
<b>Data Output</b>	RS 232 PC serial interface
<b>Power Supply</b>	DC 1,5 V battery ( UM3, AA) x 4 PCs or DC 9V adapter
<b>Dimensions</b>	220 x 120 x 40 mm (L x W x H)
<b>Weight</b>	approx. 625 g (unit incl. batteries)
<b>Software</b>	Data acquisition software Data logger software
<b>EC-Conformity</b>	CE
PH/REDOX	
<b>Range</b>	pH 0 to 14 pH mV -1999 mV to 1999 mV
<b>Resolution</b>	0 - 14 pH, 0.01 pH, 0 - 1999 mV, 1 mV
<b>Accuracy</b>	0 - 14 pH, ± 0.02 pH + 2 digits 0 - 1999 mV, ± 0.5 % + 2 digits
<b>Temperature</b>	manual 0 - 100 °C
<b>Compensation</b>	automatic (ATC)
<b>pH</b>	pH 7, pH 4, and pH10,
<b>Calibration</b>	3 points calibration

Technical Data SensoDirect 150	
DISSOLVED OXYGEN	
<b>Range</b>	Dissolved Oxygen 0 to 20.0 mg/l (liter) Oxygen in Air 0 to 100.0% Temperature 0 to 50°C
<b>Resolution</b>	Dissolved Oxygen 0.1 mg/l 0.1 % O <sub>2</sub> Temperature 0.1 °C
<b>Accuracy (23± 5 °C)</b>	Dissolved Oxygen ± 0.4 mg/l Oxygen in Air ± 0.7% O <sub>2</sub> Temperature ± 0.8°C / 1.5°F
<b>Salinity Correction</b>	0 to 39 % Salt
<b>Air Pressure Compensation</b>	0 to 8900 meter
CONDUCTIVITY/TDS	
<b>Range/ Resolution</b>	<b>Conductivity</b> (µS, mS) 0 - 200.0 µS / 0.1 µS 0.2 - 2.000 mS / 0.001 mS 2 - 20.00 mS / 0.01 mS 20 - 200.00 mS / 0.1 mS <b>TDS (Total Dissolved Solids)</b> 0 - 132 mg/l / 0.1 mg/l 132 - 1,320 mg/l / 1 mg/l 1,320 - 13,200 mg/l / 10 mg/l 13,200 - 132,000 mg/l / 100 mg/l <b>Temperature</b> 0-60°C / 0.1°C 32-140°F / 0.1°F
<b>Accuracy</b>	± 2 % F.S. + 1 digit ± 0.8°C / ± 1.5°F
<b>Function</b>	Conductivity ( µS, mS ) TDS ( Total Dissolved Solids, mg/l ) Temperature (°C,°F)

## Ordering Information:

The SensoDirect 150 is available in a number of formats, depending upon the sensor combination required.



Code	Description	Content
<b>724200</b>	<b>SensoDirect 150 Set</b> pH / Con / TDS / Oxi	Instrument, pH electrode, Temperature probe, Conductivity probe Oxygen sensor, pH buffer set 4.00 / 7.00, Electrolyte, Membrane heads Instruction manual, Guarantee sheet, Batteries and Case
<b>724210</b>	<b>SensoDirect 150 Set</b> pH / Con / TDS	Instrument, pH electrode, Temperature probe, Conductivity probe pH buffer set 4.00 / 7.00, Instruction manual, Guarantee sheet Batteries & Case
<b>724220</b>	<b>SensoDirect 150 Set</b> pH / Oxi	Instrument, pH electrode, Temperature probe, Oxygen sensor pH buffer set 4.00 / 7.00, Electrolyte, Membrane heads Instruction manual, Guarantee sheet, Batteries & Case
<b>724230</b>	<b>SensoDirect 150 Set</b> pH / Redox	Instrument, pH electrode, Temperature probe, Redox electrode pH buffer set 4.00 / 7.00, Instruction manual, Guarantee sheet Batteries & Case

### Accessories:

Code	Description
721330	Spare electrode, (approx. 1m cable), plastic/gel type BNC-plug
721250	pH buffer set 4.00/7.00/10.00 (25°C)
721247	pH buffer, 4.00 (25°C), 90ml
721248	pH buffer, 7.00 (25°C), 90ml
721249	pH buffer, 10.00 (25°C), 90ml
56L004207	pH buffer 4.00 (25°C) 500ml
56L000997	pH buffer 7.00 (25°C) 500ml
56L000397	pH buffer 10.00 (25°C) 500ml
721242	Redox electrode, (approx. 1m cable), plastic/gel type BNC-plug
195070	Redox calibration solution, 470 mV, 100ml
724400	Conductivity probe (Con / TDS), (approx. 1.2m cable)
722250	Calibration solution 1413 µS/cm
724410	Oxygen sensor, (approx. 4m cable)
724460	Spare membrane for oxygen sensor

Code	Description
724470	Spare electrolyte for oxygen sensor
724420	Temperature probe PT1000 (approx. 1.5 m cable)
724500	RS232 cable, for connection to a computer
724510	USB cable, for connection to a computer
724540	Power supply
725050	Case incl. foam
724520	Data Retrieve Software Software which enables the user to transmit data stored on the instrument to a computer
724530	Data Logger/Acquisition Software Software which enables the user to monitor and log data on a computer (online measurement)
721260	Adapter cable DIN19262 – BNC
721265	Adapter cable DIN19262, S7 plughead
725020	Case with foam inlet









# Lovibond® Titration Systems

# Burette Titration

- Highly accurate titrimetric analysis
- Robust packaging to avoid breakage
- Mix and match functionality
- Additional storage capability

Burette Methods have been traditionally used for many years in laboratories for highly accurate titrimetric analysis. However, being delicate glass units, outside of the laboratory they are quite cumbersome and easily broken. The Lovibond® Burette test kit has transformed this by combining 10 ml burettes with 250 ml reservoirs allowing for up to 5 burette systems to be incorporated into one robust carry case. The test packs below can be used to construct specific test kits. A multi-purpose board is included in the right hand side to hold other equipment from the Lovibond® range such as pH, conductivity and comparator tests.

## Code: 56A002101:

Burette Test Kit Case: A 2001 book opening case supplied with all equipment required to perform 5 burette tests – simply add reagent packs from the list below to complete the kit. Space for additional equipment on the universal equipment board.



## Test Packs

Each pack contains 1 x 250 ml titrant plus appropriate indicators/buffers to perform the analysis.

Pack Code	Description	Range	Tests/Pack
56R012050	Acidity Burette Reagent Pack	0.01-5% H <sub>2</sub> SO <sub>4</sub>	50+
56R012150	Alkalinity (P, M, OH) Burette Reagent Pack	10-2000mg/l CaCO <sub>3</sub>	50+
56R012250	Chloride Burette Reagent Pack	50-2000mg/l Cl <sup>-</sup>	50+
56R012350	Chlorine (Available) Burette Reagent Pack	100-5000pm Cl <sub>2</sub>	50+
56R012450	Hardness (Calcium & Magnesium) Burette Reagent Pack	10-2000mg/l CaCO <sub>3</sub>	50+
56R012550	Nitrite Burette Reagent Pack	10-2000mg/l NaNO <sub>2</sub>	50+
56R012650	Sulphite Burette Reagent Pack	10-100mg/l Na <sub>2</sub> SO <sub>3</sub>	50+

## Additional Equipment:

Pack Code	Description	Qty/Pack
56A006301	10ml Burette including reservoir, jet and valve	1
56A006401	150ml flask	1
56A006501	Syringe, 20ml, plastic	1
56A006601	Stirring/crushing rod – plastic	1
56A006701	60ml Plastic Titration Jar with Cap	1

## Digital Titration

- High accuracy
- Safe and compact for field testing
- Dedicated syringette assembly for accurate dosing
- < 1 ml of reagent per test
- Reduced chemical exposure

Fast and accurate titration tests for the industrial chemist and industrial water treatment engineer. The DIGI Titrator uses a dedicated syringette assembly to deliver accurate doses of titrant to enable high accuracy titration tests to be performed outside of the laboratory in a safe, compact way, using less than a millilitre of reagent per test.

The compact DIGI Titrator is at the heart of the Lovibond® professional range of portable laboratories where several syringettes can be included in one kit for maximum flexibility. One syringette per test type.

See our Portable Laboratory (Build Your Own Test Kit) section on page 44 for case/kit options.



### Reagent Packs

All packs include reagents and method sheet (titrator and accessories are purchased separately)

Pack Code	Description	Range	Tests/Pack
56R010050	DIGI Acidity Titrator Pack	0.1-50 Acid Value	50
56R010150	DIGI Alkalinity (P, M, OH) Titrator Reagent Pack	10-2000 CaCO <sub>3</sub>	50
56R010250	DIGI Chloride Titrator Reagent Pack	50-2000 Cl <sup>-</sup>	50
56R010350	DIGI Chlorine Bleach Titrator Pack	10-2000 Cl <sub>2</sub>	50
56R010450	DIGI EDTA (Free) Titrator Pack	75-3000 EDTA	50
56R010550	DIGI Hardness (Total/Calcium) Reagent Titrator Pack	10-2000 CaCO <sub>3</sub>	50
56R010650	DIGI Hardness (Total) Titrator Reagent Pack	10-2000 CaCO <sub>3</sub>	50
56R010750	DIGI Hardness (Calcium) Titrator Reagent Pack	10-2000 CaCO <sub>3</sub>	50
56R010850	DIGI Nitrite Titrator Reagent Pack	20-2000 NaNO <sub>2</sub>	50
56R010950	DIGI Peracetic Titrator Pack	20-800 PAA	50
56R011050	DIGI Phosphonate Titrator Reagent Pack	2-50mg/l H.E.D.P.	50
56R011150	DIGI Sulphite Titrator Reagent Pack	10-100mg/l Na <sub>2</sub> SO <sub>3</sub>	50
56R011250	DIGI Total Chelant Titrator Pack	100-2800 EDTA	50
56R011350	DIGI Zinc (Free Soluble) Titrator Reagent Pack	0.1-10mg/l Zn <sup>+2</sup>	50
56R011450	DIGI Zinc (Total Complexed) Titrator Pack	0.1-10mg/l Zn <sup>+2</sup>	50

### Ordering Information & Accessories:

Pack Code	Description	Qty/Pack
56A006801	DIGI Titrator	1
56A006972	3 way valves for DIGI Titrator	5
56A007072	2mm Polypropylene Titrator Dispensing Tube	5
56A007101	Tip / Syringe for DIGI Brand Titrator	1
56A006501	Syringe, 20ml, plastic	1
56A006601	Stirring/crushing rod – plastic	1
56A006701	60ml Plastic Titration Jar with Cap	1

# Drop Test Titration

The Drop Test technique should be chosen if you require

- Accuracy to +/- 10%
- Speed
- Simplicity
- Portability

Derived from laboratory burette methods, the Lovibond® drop test range is an established methodology used across industry and which forms an integral part of the analytical program of many a speciality chemical supplier. The reagents are quick to use and give results fast, making the drop test the method of choice for many customers.

A number of the methods have been recently adapted to comply with changes in legislation and hazard awareness. As the Lovibond® solutions have been adapted to address these changes, they have also improved in accuracy with their hazard implications reduced. The procedure has also been simplified as part of the Lovibond® commitment to product development.



**Ordering information for the drop test range is as follows:**

**Test Kit** – Ordered using the test kit code in the table below. The kit is supplied with all reagents and equipment to perform the test, housed in a plastic case.

**Or**

**Reagent Pack** – Ordered using the reagent pack code in the table below. The pack is supplied in a carton containing test reagents and instruction sheet only.

**Or combine reagent packs with a standard case to create your own multi-parameter test kit:**

**56A001801: A 1501 Compact Plus Case:**

Supplied with standard equipment and space to add up to 8 reagent packs – simply choose reagent packs from the list below to complete the kit. See our Portable Laboratory (Build Your Own Test Kit) section on page 44 for additional case/kit options.



Test Kit Code	Reagent Pack	Description	Range	Tests/Pack
<b>56K003501</b>	56R003590	Acidity (P) Drop Test	0-7.5% H <sub>2</sub> SO <sub>4</sub>	100+
<b>56K003601</b>	56R003690	Alkalinity (M) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
<b>56K003701</b>	56R003790	Alkalinity (M) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
<b>56K003801</b>	56R003890	Alkalinity (P + M) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
<b>56K003901</b>	56R003990	Alkalinity (P + OH) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
<b>56K004001</b>	56R004090	Alkalinity (P) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
<b>56K004101</b>	56R004190	Alkalinity (P) HR Drop Test	0.25-6.0% NaOH	100+
<b>56K004201</b>	56R004290	Alkalinity (P) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
<b>56K004301</b>	56R004390	Alkalinity (P) LR Drop Test	250-6000mg/l NaOH	100+
<b>56K004401</b>	56R004490	Alkalinity (P, M + OH) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
<b>56K004501</b>	56R004594	Alkalinity (P, M + OH) LR + HR Drop Test	50-2400mg/l CaCO <sub>3</sub>	200+
<b>56K004601</b>	56R004690	Alkalinity (P, M + OH) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
<b>56K004701</b>	--	Alkalinity Total (Disposable)	9-540mg/l CaCO <sub>3</sub>	50+
<b>56K004801</b>	56R004890	Chloride HR Drop Test	200-12,000mg/l Cl <sup>-</sup>	100+
<b>56K004901</b>	56R004990	Chloride LR + HR Drop Test	20-12,000mg/l Cl <sup>-</sup>	100+
<b>56K005001</b>	56R005090	Chloride LR Drop Test	20-400mg/l Cl <sup>-</sup>	100+
<b>56K005101</b>	56R005190	Chlorine (Free) HR Drop Test	15-300mg/l Cl <sub>2</sub>	100+
<b>56K005201</b>	56R005290	Chlorine (Free) LR Drop Test	1-30mg/l Cl <sub>2</sub>	100+
<b>56K005301</b>	--	Chlorine Spot Tester Kit (Disposable)	Trace Cl <sub>2</sub>	500+
<b>56K005401</b>	56R005450	Chlorine (Semi-quantitative) Test	0.1-50mg/l Cl <sub>2</sub>	50
<b>56K005501</b>	56R005590	Chlorine (Total Available) HR Drop Test	0.2-15% Cl <sub>2</sub>	100+
<b>56K005601</b>	56R005690	Chlorine (Total Available) LR + HR Drop Test	0.01-15% Cl <sub>2</sub>	100+

Test Kit Code	Reagent Pack	Description	Range	Tests/Pack
56K005701	56R005790	Chlorine (Total Available) LR Drop Test	100-2400mg/l Cl <sub>2</sub>	100+
56K005801	56R005890	Chlorine Dioxide HR Drop Test	25-200mg/l ClO <sub>2</sub>	100+
56K005901	56R005990	Chlorine Dioxide MR Drop Test	10-150mg/l ClO <sub>2</sub>	100+
56K006001	56R006090	Chlorine Dioxide LR Drop Test	0.08-30 mg/l ClO <sub>2</sub>	100+
56K006101	56R006190	EDTA (Free) Drop Test	0-2000mg/l EDTA	100+
56K006201	56R006290	Hardness (Calcium) HR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K006301	56R006390	Hardness (Calcium) LR Drop Test	5-60mg/l CaCO <sub>3</sub>	100+
56K006401	56R006490	Hardness (Total) LR + HR Drop Test	5-600mg/l CaCO <sub>3</sub>	100+
56K006501	56R006590	Hardness (Total) HR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K006601	56R006690	Hardness (Total) LR Drop Test	5-60mg/l CaCO <sub>3</sub>	100+
56K006701	56R006790	Hardness (Total/Calcium) HR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K006801	56R006890	Hardness Raw Water Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K006901	56R006990	Hardness Stop/Go Drop Test	4mg/l CaCO <sub>3</sub>	100+
56K007001	--	Hardness (Temporary) Drop Test (Disposable)	9-540mg/l CaCO <sub>3</sub>	50+
56K007101	56R007190	Hardness Total/Calcium LR+HR	5-600mg/l CaCO <sub>3</sub>	100+
56K007201	56R007250	Hardness Yes/No Test Pack	8-20mg/l CaCO <sub>3</sub>	50
56K007301	56R007390	Hydrogen Peroxide Drop Test	15-500mg/l H <sub>2</sub> O <sub>2</sub>	100+
56K007401	56R007490	Iron Spot Tester Drop Test Pack	Trace Fe	100+
56K007501	56R007590	Molybdate HR Drop Test (New)	25-400mg/l MoO <sub>4</sub>	100+
56K007601	56R007690	Molybdate MR Drop Test (New)	10-200mg/l MoO <sub>4</sub>	100+
56K007701	56R007790	Molybdate LR Drop Test (New)	5-40mg/l MoO <sub>4</sub>	100+
56K007801	56R007890	Molybdate LR Drop Test	2.5-20mg/l MoO <sub>4</sub>	100+
56K007901	56R007990	Nitrite Drop Test	10-2000mg/l NaNO <sub>2</sub>	100+
56K008001	56R008090	Oxygen (Available) Drop Test	0-500mg/l O <sub>2</sub>	100+
56K008101	56R008190	pH (Universal Indicator)	pH 4-10	100+
56K008201	56R008290	Peracetic Acid Drop Test	0-450mg/l CH <sub>3</sub> CO <sub>3</sub> H	100+
56K008301	56R008350	Phosphonate Drop Test	4-20mg/l H.E.D.P.	50+
56K008401	56R008490	Phosphonate Drop Test	4-20mg/l H.E.D.P.	100+
56K008501	56R008550	Polyacrylate Single Phase HR Drop Test	0-20mg/l PAA**	50+
56K008601	56R008650	Polyacrylate Single Phase LR Drop Test	0-20mg/l PAA**	50+
56K008701	56R008750	Polyacrylate Two Phase HR Drop Test	0-20mg/l PAA**	50+
56K008801	56R008850	Polyacrylate Two Phase LR Drop Test	0-20mg/l PAA**	50+
56K008901	56R008990	Quaternary Ammonium Compounds HR Drop Test	60-1800mg/l C.T.A.B.*	100+
56K009001	56R009090	Quaternary Ammonium Compounds LR Drop Test	40-300mg/l C.T.A.B.*	100+
56K009101	56R009190	Sulphite Drop Test	25-150mg/l Na <sub>2</sub> SO <sub>3</sub>	100+
56K009201	56R009290	Tannin Drop Test	50-300mg/l Tannin	100+
56K009301	56R009390	Total Chelant Drop Test	0-2000mg/l EDTA	100+
56K009401	56R009490	Total Oxidant Drop Test	0.2-6.0mg/l ClO <sub>2</sub>	100+
56K009501	56R009550	Zinc (Free Soluble) Drop Test	1-10mg/l Zn <sup>2+</sup>	50
56K009601	56R009650	Zinc (Total Complex) Drop Test	1-10mg/l Zn <sup>2+</sup>	50

\* Cetyl trimethyl ammonium bromide \*\* Polyacrylic Acid

# Lovibond® Reagents

Lovibond® reagents offer the customer a unique range of in-house manufactured products, including tablets, liquids or powders. In this way the customer can be sure of unbiased advice, since different forms of reagents are often required for different applications. All Lovibond® reagents are available in convenient, state of the art packaging, with full operating instructions and safety data sheets.



## Specifications and Certificate of Analysis

To express the high quality standard of Lovibond® tablet reagents, specifications for each type of tablet as well as a "Certificate of Analysis" for each lot is available in the down-load area at [www.lovibond.com](http://www.lovibond.com).

## Tablet Reagents in Convenient Blister Packaging

In terms of quality, tablet reagents are generally considered the most accurate. Lovibond® test tablets are manufactured under tightly controlled conditions to the highest quality standards, enabling the company to guarantee\* some tablet reagents for as long as 10 years. Using convenient blister packaging, each tablet is individually sealed in high-grade, polyethylene-coated aluminium foil, protecting it from challenging environmental conditions. This packaging keeps each tablet in perfect condition, right up until the time it is needed by the user.

Reagents in tablet form ensure accuracy in dosing because the user can be sure all of the reagent is added to the water sample, and in exactly the right quantity. Now aluminium foil blister packaging brings added convenience. The user simply pushes the tablet through the protective foil, straight into the sample. It is simple, time-saving and practical.

## Powder Reagents

Some users prefer reagents in powder form, and so Lovibond® powder reagents have been developed to offer the user a wide range of tests, combined with rapid dissolution in the water sample. Powder reagents are packed in aluminium foil to protect them from the environment, and cover a wide range of applications.

## VARIO Powder Packs

Easy to use, VARIO Powder Packs are extremely popular for water testing applications in many countries throughout the world.

Lovibond® VARIO Powder Packs are produced to the same high quality standards that have made Lovibond® tablet reagents so successful over several decades.

Parameters from Aluminium and Chlorine through to Sulphate are just some of the well-known tests that are included in the VARIO Powder Pack range. Their chemical properties also enable them to be used with HACH® Photometer Systems.





## Liquid Reagents

Liquid reagents are the reagent of choice for many test applications. As a rule, liquid reagents do not consist of a single preparation but comprise several components that need to be added to the sample in a certain order. Liquids have long found favour in certain applications, and offer the user rapid dosing, and almost instant dissolution in the water sample.

Lovibond® liquid reagents are produced to exacting quality standards and the high volume production reassures the user that the reagents are freshly manufactured, and will provide accurate results.

The most popular form of packaging liquid reagents is the dropper bottle, and this is the best option for most applications. For higher accuracy, the Lovibond® range also includes sophisticated titration systems, including digital titrators and convenient cartridges containing the liquid titrant.

## Tube Tests

When testing for substances that are hard to detect, such as Total Nitrogen, or the more general parameter Chemical Oxygen Demand (COD), the Lovibond® range offers a tube test system that allows for more “aggressive” sample processing. Lovibond® tube tests enable the user to easily perform highly sensitive and precise water testing. When using tube tests, measurement is considerably faster and easier in comparison with other methods.

The tube tests contain a precise amount of reagent, avoiding problems of excess reagent and optimising test safety. Six different measuring ranges are available. The tubes are made of special optical glass with a 16 mm in diameter. They are supplied in a storage and dispatch box together with digestion or auxiliary reagents. The packs contain 24 or 25 reaction vials and up to 2 zero vials for photometer system calibration.

*\* Guarantee on Lovibond® reagents is dependent on several factors including, but not restricted to: form of reagent; the environment (presence of sunlight or high temperatures); adherence to storage conditions and handling. Please contact your regional representative for handling information and the guaranteed shelf life on specific reagent formulae.*

With over 30 years' experience in chemical science, manufacturing and packaging, the company is perfectly positioned to advise on Reagents and Formulations.





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