

# Lovibond® Water Testing

## Tintometer® Group



### Tintometer GmbH

Lovibond® Water Testing  
Schleefstraße 8-12  
44287 Dortmund  
Tel.: +49 (0)231/94510-0  
Fax: +49 (0)231/94510-20  
sales@tintometer.de

Germany

### Tintometer South East Asia

Unit B-3-12, BBT One Boulevard,  
Lebuh Nilam 2, Bandar Bukit Tinggi,  
Klang, 41200, Selangor D.E  
Tel.: +60 (0)3 3325 2285/6  
Fax: +60 (0)3 3325 2287  
lovibond.asia@tintometer.com

Malaysia

### Tintometer AG

Hauptstraße 2  
5212 Hausen AG  
Tel.: +41 (0)56/4422829  
Fax: +41 (0)56/4424121  
info@tintometer.ch

Switzerland

### The Tintometer Limited

Lovibond House  
Sun Rise Way, Amesbury  
SP4 7GR  
Tel.: +44 (0)1980 664800  
Fax: +44 (0)1980 625412  
sales@tintometer.com

UK

### Tintometer India Pvt. Ltd.

B-91, A.P.I.E. Sanath Nagar,  
Hyderabad, 500018  
Tel.: +1 941 758 8671  
Toll Free: 1 800 102 3891  
indiaoffice@tintometer.com

India

### Tintometer Spain

PO Box: 24047  
08080 Barcelona  
Tel.: +34 661 606 770  
www.lovibond.com

Spain

### Tintometer Inc

6456 Parkland Drive  
Sarasota  
FL 34243  
Tel.: +1 941 758 8671  
Fax: +1 941 727 9654  
sales@tintometer.us

USA

### Tintometer China

Room 1001, China Life Tower,  
16 Chaoyangmenwai Avenue,  
Beijing, 100020  
Tel: +86 10 85251111 ext.330  
Fax: +86 10 85251001  
chinaoffice@tintometer.com

China

### Tintometer Brazil

Caixa Postal: 271  
CEP: 13201-970  
Jundiaí – SP -  
Tel.: +55 (11) 3230-6410  
sales@tintometer.com.br

Brazil



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# The Company



## 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 130 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; *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



**Photometry**



**Colorimetry**



**Electrochemistry**



**Titration**

# Contents

## APPLICATION KITS

### Building Services

- Cooling Water Kits (open system) Page 8
- Cooling Water Kits (closed system) Page 9
- Legionella Compliance Kits Page 10
- Cleaning & Chlorination Kit Page 11
- Boiler Water Kits Page 12
- Refractometers Page 13

### Process Control

- Cutting Fluid Kits Page 14
- Laundry Kit Page 15
- Food & Beverage Kits Page 16

### Water Conditioning

- Resin Kits Page 18
- Silt Density Index Kit Page 19



## MICROBIOLOGY

- Dipslides Page 20
- Dipslide Comparator App Page 21
- Dipslide Incubator Page 22
- Coliform & E.coli Page 23
- Non-Oxidising Biocide Kits Page 24



## POTABLE & WASTE WATER

### Potable Water

- Potable Water Kit Page 25
- Turbidity Infra-red Page 26
- Turbidity White Light Page 27

### Waste Water

- BOD & Cabinets Page 28
- Chemical Oxygen Demand (COD) Equipment Page 31
- Flocc Testers Page 34



## BUILD YOUR OWN TEST KIT

- Bespoke Test Kits Page 38



## PHOTOMETRY

- MD 100 Page 46
- MD 110 Page 50
- MD 600 Page 52
- MD 610 Page 52
- MD 640 Page 52



## COLORIMETRY

- Comparator 2000+ Page 60
- CHECKIT® Comparator Page 64



## ELECTROCHEMISTRY

- SD Hand-held Series Page 70
- SensoDirect 110 Series Page 71
- SensoDirect 150 Page 73
- SD 300 Series Page 75



## TITRATION

- Burette Titration Page 80
- Digital Titration Page 81
- Drop Tests Page 82
- Vario Titrator & Photometer Packs Page 84
- Test Strips Page 88



# Lovibond® Standard Test Kits



## Cooling Water Test Kits (Open System)

- 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.



This kit includes:

Code	Product	Range	Tests/Pack
146280	Bromine CHECKIT® Comparator Disc	0-5mg/l Br <sub>2</sub>	-
511310 BT	DPD No.1 Rapid	0-5mg/l Br <sub>2</sub>	100
56R007250	Hardness Yes/No Tablet Count Test	8-20mg/l CaCO <sub>3</sub>	250
194800-16	SD 50 Hand-held pH meter	pH 0-14	-
194802-16	SD 70 Hand-held conductivity & temperature meter	0-20,000µS	-

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



This kit includes:

Code	Product	Range	Tests/Pack
56R003790	M Alkalinity Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
146280	Bromine CHECKIT® Comparator Disc	0-5mg/l Br <sub>2</sub>	-
511310 BT	DPD No.1 Rapid	0-5mg/l Br <sub>2</sub>	100
56R005090	Chloride Drop Test	20-400mg/l Cl <sup>-</sup>	100+
56R006290	Hardness (Calcium) Drop Test	5-600mg/l CaCO <sub>3</sub>	100+
56R006690	Hardness (Total) Drop Test	5-600mg/l CaCO <sub>3</sub>	100+
146220	Iron LR CHECKIT® Comparator Disc	0-1mg/l Fe	-
56R020790	Iron LR CHECKIT® Reagent Pack	0-1mg/l Fe	250
56R008350	Phosphonate Drop Test	4-20mg/l HEDP	50
194800-16	SD 50 Hand-held pH Meter ATC	pH 0-14.00	-
194802-16	SD 70 Hand-held Conductivity ATC	0-20,000µS	-

## 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 two 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.



This kit includes:

Code	Product	Range	Tests/Pack
56R007990	Nitrite Drop Test	10-2000mg/l NaNO <sub>2</sub>	100+
56S001190	pH Test Strips	pH 7-14	100

**56K000601:**  
Cooling Water/LPHW/Chilled Test Kit 4:  
A more complete analysis kit including molybdate, iron & conductivity.



This kit includes:

Code	Product	Range	Tests/Pack
146220	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+
194800-16	SD 50 Hand-held pH Meter ATC	pH 0-14.00	-
194802-16	SD 70 Hand-held Meter ATC	0-20,000µS	-

### 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 13)



For microbiological testing (dipslides + DI 10 dipslide incubator), see page 22

## Legionella Compliance 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*.

**56K000701:**  
Legionella L8 Test Kit (Weekly)  
– Bromine Option

**56K000801:**  
Legionella L8 Test Kit (Weekly)  
– Chlorine Option

In 2002, the Health and Safety Executive released guidelines for the control of *Legionella*, known as the L8 guidelines.

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.



**This kit includes:**

Code	Product	Range	Tests/Pack
<b>146020 + 517711 BT</b>	Chlorine CHECKIT® Comparator Test	0-4.0mg/l Cl <sub>2</sub>	100
<b>146280 + 511310 BT</b>	Or Bromine CHECKIT® Comparator Test (DPD No.1)	0-5.0mg/l Br <sub>2</sub>	100
<b>56B010110</b>	Dipslides – TTC	Aerobic Bacteria	10
<b>565001090</b>	pH Test Strips	pH 4.5-10.0	100
<b>194802-16</b>	SD 70 Hand-held Meter ATC	0-20,000µS	-

**56K000901:**  
Legionella L8 Test Kit (Monthly) –  
with space to include the DI 10 dipslide incubator



**This kit includes:**

Code	Product	Range	Tests/Pack
<b>56R003790</b>	M-Alkalinity Drop Test	50– 600mg/l CaCO <sub>3</sub>	100+
<b>146280</b>	Bromine CHECKIT® Comparator Disc	0-5mg/l Br <sub>2</sub>	-
<b>511310 BT</b>	DPD No. 1 Rapid	0-5mg/l Br <sub>2</sub>	100
<b>56R005090</b>	Chloride Drop Test	20-400mg/l Cl <sup>-</sup>	100+
<b>146020</b>	Chlorine CHECKIT® Comparator Disc	0-4mg/l Cl <sub>2</sub>	-
<b>517711 BT</b>	Chlorine CHECKIT® Reagent Pack	0-4mg/l Cl <sub>2</sub>	100
<b>56B010110</b>	Dipslides – TTC	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>146220</b>	Iron LR CHECKIT® Comparator Disc	0-1mg/l Fe	-
<b>56R020790</b>	Iron LR CHECKIT® Reagent Pack	0-1mg/l Fe	250
<b>194800-16</b>	SD 50 Hand-held pH Meter ATC	pH 0-14	-
<b>194802-16</b>	SD 70 Hand-held Conductivity Meter ATC	0-20,000µS	-



The DI 10 Incubator (56B000701) for these tests is not included as standard. See page 22 for details.

\*\* DI 10 Dipslide incubator (Code 56B000701) is required to perform the aerobic bacteria test, see page 22 for details. The incubator is not supplied as standard in the L8 monthly kit, but can be included if required.

**56B006101:** Legionella Early Warning Indicative Test  
5 tests/kit

For a rapid indication of the presence of *Legionella pneumophila* serogroup 1, the most commonly recorded cause of Legionnaires Disease. This 25 minute test enables routine screening of industrial and potable water systems for the presence of Legionella, inbetween (and not replacing) mandatory laboratory culture tests.



## 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



**This kit includes:**

Code	Product	Range	Tests/Pack
<b>56R005190</b>	Chlorine (Free) Drop Test	15-300mg/l Cl <sub>2</sub>	100
<b>146020</b>	Chlorine CHECKIT® Comparator Disc	0-4mg/l Cl <sub>2</sub>	100
<b>511310 BT + 511290 BT</b>	DPD No. 1 and DPD No.3	0-4mg/l Cl <sub>2</sub>	100
<b>565000190</b>	Starch/Iodide Strips – Rapid Test	0-200mg/l	100
<b>194800-16</b>	SD 50 Hand-held pH Meter ATC	pH 0-14	-

### 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**

\*\* DI 10 Dipslide incubator (Code 56B000701) is required to perform the aerobic bacteria test, see page 22 for details. The incubator is not supplied as standard in the L8 monthly kit, but can be included if required.

## Boiler Water Test Kits

- Enables the 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.



This kit includes:

Code	Product	Range	Tests/Pack
56R003990	P+OH Alkalinity Drop Test	0 – 2400 mg/l CaCO <sub>3</sub>	100+
56R004990	Chloride Drop Test	20-12,000mg/l Cl <sup>-</sup>	100+
56R006690	Hardness (Total) Drop Test	5-60mg/l CaCO <sub>3</sub>	100+
56R009190	Sulphite Drop Test	25-150mg/l Na <sub>2</sub> SO <sub>3</sub>	100+
56S001190	pH Test Strips	pH 7 – 14	100

**56K000201:** Boiler Water Test Kit 2: For a complete analysis, ideal for service engineers.

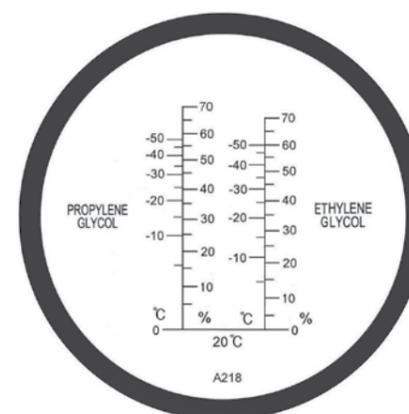


This kit includes:

Code	Product	Range	Tests/Pack
56R003990	P+OH Alkalinity Drop Test	0 – 2400mg/l CaCO <sub>3</sub>	100+
56R004990	Chloride Drop Test	20-12,000mg/l Cl <sup>-</sup>	100+
56R006690	Hardness Total Drop Test	5-60mg/l CaCO <sub>3</sub>	100+
146250	Phosphate HR CHECKIT® Comparator Disc	0-80mg/l PO <sub>4</sub> <sup>3-</sup>	-
511980	Phosphate CHECKIT® Reagent Pack	0-80mg/l PO <sub>4</sub> <sup>3-</sup>	100
56R009190	Sulphite Drop Test	25-150mg/l Na <sub>2</sub> SO <sub>3</sub>	100+
194800-16	SD 50 Hand-held pH Meter ATC	pH 0-14.00	-
194802-16	SD 70 Hand-Held Conductivity Meter ATC	0-20,000µS, 0-60°C	-

## Refractometers

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

## 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	-
<b>56B010310</b>	Dipslides Combi/RBS	Aerobic/Yeast & Fungi	10
<b>56S000950</b>	Hardness Test Strips	0-500mg/l CaCO <sub>3</sub>	50
<b>56S001890</b>	Nitrite/Nitrate Test Strips	10-500mg/l NO <sub>2</sub> <sup>-</sup> ; 1-80mg/l NO <sub>3</sub> <sup>-</sup>	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 22



## 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



### This kit includes:

Code	Product	Range	Tests/Pack
<b>194800-16</b>	SD 50 Hand-held pH Meter ATC	pH 0-14	-
<b>56R008190</b>	pH Sour Test (Colour Card)	pH 4-10	100+
<b>56R004190</b>	Alkalinity Total (Wash)	0.25-6.0% NaOH	100+
<b>56R004390</b>	Alkalinity Free (Rinse)	250-6000mg/l NaOH	100+
<b>56R005690</b>	Chlorine Bleach Drop Test Chlorine Bleach (Concentrate)	0.25-15% Cl <sub>2</sub> 100-2400mg/l Cl <sub>2</sub>	100+ 100+
<b>56K005301</b>	Chlorine Spot Test (Fabric)	Trace	100+
<b>56R006890</b>	Hardness Drop Test	10-300mg/l CaCO <sub>3</sub>	100+
<b>56S000850</b>	Hydrogen Peroxide Test Strips	0-100mg/l H <sub>2</sub> O <sub>2</sub>	50
<b>56R007490</b>	Iron Spot Test (Fabric)	Trace	100+
<b>56R008090</b>	Oxygen (Available) Drop Test	0-500mg/l O <sub>2</sub>	100+
<b>56S000301</b>	Starch/Iodide Test strip (for chlorine testing)	Presence/Absence	3m reel
<b>56A004401</b>	Pocket Thermometer (Spirit)	5-105°C	-

## 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.



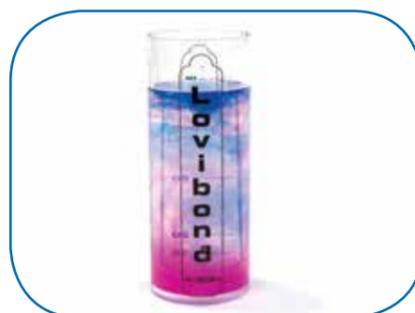
### Alkalinity Hi / Low Test Kit

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.



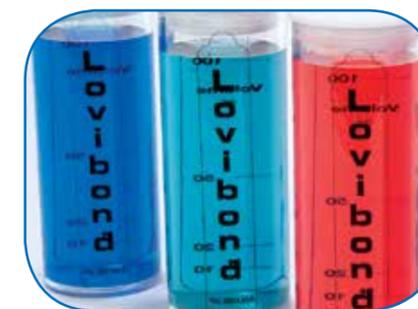
## Food & Beverage Test Kits

### 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 Drop Test Kit</b>		<b>200+</b>
<b>56R002890</b>	Acid Products Reagent Pack	0.01 – 5.0% H <sub>2</sub> SO <sub>4</sub>	200+
<b>56K002901</b>	<b>Alkalinity Hi / Low Drop Test Kit</b>		<b>100+</b>
<b>56R002990</b>	Alkalinity Hi/Low Reagent Pack	0.025-6.0% NaOH	100+
<b>56K003001</b>	<b>Anionic Drop Test Kit</b>		<b>100+</b>
<b>56R003090</b>	Anionic Reagent Pack	0-1200mg/l SLS (Sodium Lauryl Sulphate)	100+
<b>56K003101</b>	<b>Disinfection (QAC/Cationic) Drop Test Kit</b>		<b>100+</b>
<b>56R003190</b>	Disinfection (QAC/Cationic) Reagent Pack	60-1800mg/l CTAB (Cetyltrimethylammonium Bromide)	100+
<b>56K003201</b>	<b>EDTA/Total Chelant Drop Test Kit</b>		<b>200+</b>
<b>56R003294</b>	EDTA Reagent Pack and 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 H <sub>2</sub> O <sub>2</sub> 15-500mg/l CH <sub>3</sub> CO <sub>3</sub> H	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	100+ 100+ 100+

## 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
	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
	Acidity Titration Test	100
	Chloride Test	100
	KN Reagent	100
	Sodium Bicarbonate	100
	Chlorine Titrant Cartridge	100

**56K002201:** 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
	Conversion Acid	25
	Hydrochloric Acid	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 reagents)



## 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.

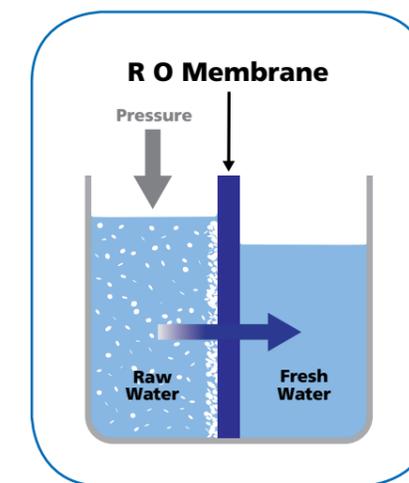
The kit utilises a membrane/flow meter system to enable SDI calculations in just 15 minutes. Sufficient membranes included for 100 tests.

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



### This kit includes:

Code	Product	Tests/Pack
<b>56A007690</b>	0.45µ 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	-



## 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

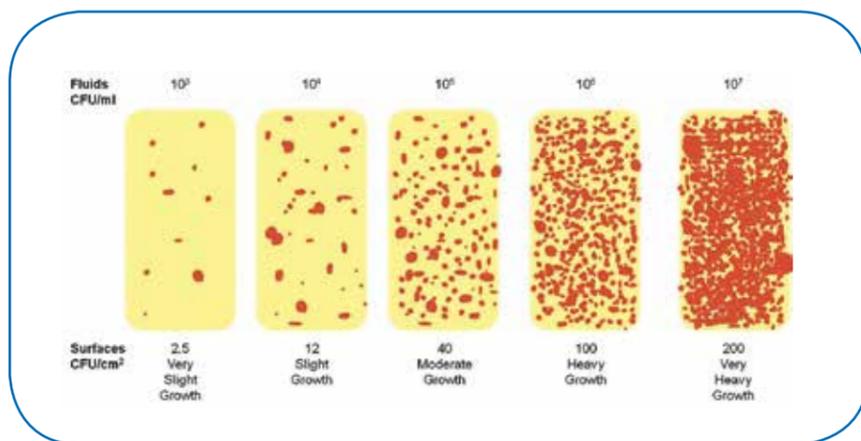
Guidelines to advise on the correct practices to control *legionella* bacteria in water systems exist worldwide. Suppressing bacteria levels does substantially reduce the possibility of an outbreak of this often fatal disease. Guidelines recommend introducing a monitoring and control program. This program 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 3-9 months.**

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



Code	Dipslide	Application
56B010810	Sulphate Reducing Bacteria	Sulphate Reducing Bacteria
56B010910	Nitrite Reducing Bacteria	Nitrite Reducing Bacteria
56B010110	Total Viable Count	Aerobic Bacteria (TVC)
56B010310	COMBI/RBS	Aerobic Bacteria (TVC) and Yeast/Fungi (Rose Bengal agar for Yeast/Fungi)
56B010710	TTC/PDM	Aerobic Bacteria (TVC)/Pseudomonas
56B010610	PDM/MAC	Pseudomonas/Coliforms
56B011110	R2A/TTC	Aerobic bacteria (TVC) for Potable Water
56B010510	TTC/E.Coli	Aerobic bacteria (TVC)/E.Coli, Coliforms
56B010410	TTC/MAC	Aerobic bacteria (TVC)/Coliforms
56B010210	TTC/MALT	Aerobic bacteria (TVC)/Yeasts/ Fungi (Malt agar for Yeast/Fungi)

## Lovibond® Dipslide Comparator App

- Choice of different media specific comparison 'quantification palettes' to compliment the full range of Lovibond® Dipslides
- Facility to preload as many customer addresses as required with drop down menus for easy access
- Information screens provide resolutions to frequently asked questions
- Automatic graphical analysis of all entered data on a site by site basis
- Quick e-mail option for graphical analysis
- All photographic results are stored for a 90 day period prior to automatic deletion
- App can also be used to record and quantify all NRB & SRB results

**The Lovibond® app is available to download from Apple and Android stores.**



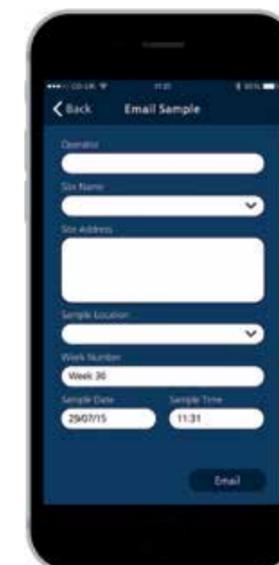
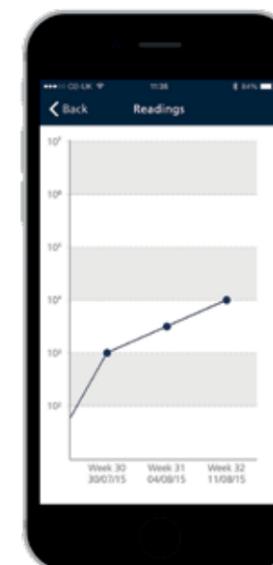
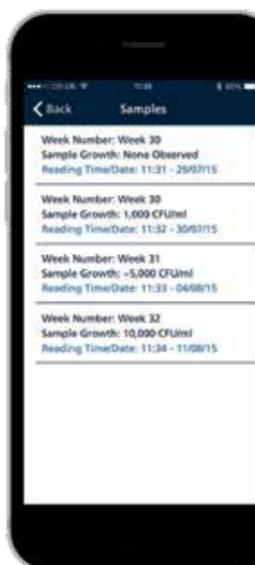
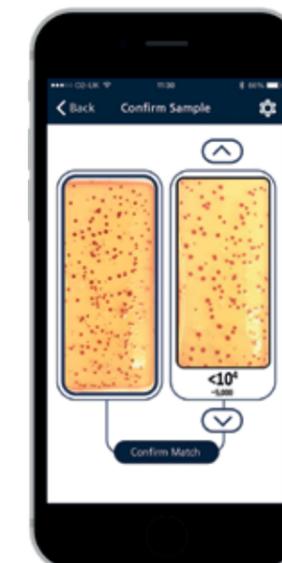
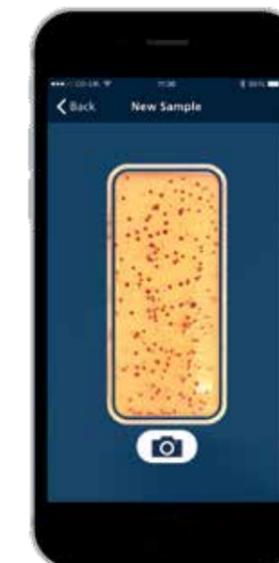
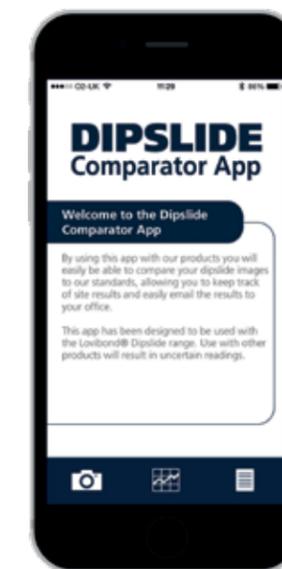
**Once downloaded the app requires the user to input the dipslide batch number for ease of use.**

### Simple to Use

The app provides a simple but effective method of photographing a dipslide which can then be visually compared to an adjacent coloured media specific quantification palette which can easily be moved to allow the operator to make a direct comparison.

The photograph of the 'compared' dipslide can then be e-mailed to one or more e-mail addresses for easy electronic storage, thereby improving compliance as the dipslide result can be recalled and viewed at any time.

Graphs can be viewed of historical results and may also be emailed to clients.



iOS® is a registered trademark of Cisco, Inc. and licensed to Apple, Inc. Android™ is a trademark of Google Inc.

## Microbiology – DI 10 Dipslide Incubator

- Robust design
- Holds up to 12 dipslides
- 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.



- Low Voltage (12V)
- Wide temperature range – Ambient +5 to 40°C (± 0.5°C ) not cooling
- 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



### 56B000701: DI 10 Dipslide Incubator

Technical Specifications	
<b>Dimensions</b>	(w)246 x (d)215 x (h)162 mm (external)
<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

#### Accessories:

Code	Description
56B000801	Dipslide holder



## 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.



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

#### This kit includes:

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

#### Optional Extra:

56B000701	DI 10 Dipslide Incubator	–
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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 blue 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 22 for information.



## 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 (thiocynate))	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 Lonzacab 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.



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



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

### This kit includes:

Code	Product	Range	Tests/Pack
<b>56S002105</b>	Arsenic Colour Card Test	0-100µg/l	5
<b>56B002125</b>	Coliform/E.coli test set - includes	Detects 1 CFU/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	0-500mg/l NO <sub>2</sub> <sup>-</sup> : 1-80mg/l NO <sub>3</sub> <sup>-</sup>	100
<b>56M000501</b>	Total Dissolved Solids (TDS) Meter	0-5,000mg/l TDS	-

## TURBIDITY MEASUREMENT

### TB 210 IR 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 TB 210 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.



### TB 250 WL with White Light Source (EPA Standard 180.1)

- “White Light” source
- EPA turbidity measurement (standard 180.1)
- Auto-Ranging feature
- Easy-to-use, 5 button operation
- Regulatory monitoring, process control & field use

The TB 250 WL allows easy turbidity measurement in either the field or in the laboratory. Using a “white light” source and 90° detection, the TB 250 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 that 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 TB 250 WL Turbidimeter, sample cuvettes, batteries, calibration set, operators manual and carrying case.



Technical Data	
<b>Measurement cycle</b>	Approx. 8 seconds
<b>Display</b>	Backlit LCD (on keypress)
<b>Optics</b>	Temperature compensated LED (λ = 860 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>	± 2,5 % of reading or ± 0.01 NTU (0 - 500 NTU), ± 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 case	
• 4 turbidity standards (<0.1, 20, 200 and 800 NTU)	
• 9 V battery	
• 3 vials (ø 24mm) with lids	
• Guarantee sheet	
• Certificate of Compliance	
• Instruction Manual	
<b>Order code: 266020</b>	

#### 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, ø 24 mm
<b>418951</b>	Vial stand for 6 round vials ø 24 mm, acrylic glass
<b>197635</b>	Cleaning cloth for vials

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 up to 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 TB 250 WL comes ready to use in a case with following accessories:	
2 sample vials, 3 turbidity standards, 4 batteries, instruction manual and guarantee sheet	
<b>Order code: 194200</b>	

#### 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
<b>197635</b>	Cleaning cloth for vials
<b>418951</b>	Vial stand for 6 round vials 24 mm ø, acrylic glass

## Biochemical Oxygen Demand (BOD) – BD 600 / BD 606

- 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
- Graphical representation of measured values
- Remote control functionality – even through glass doors
- USB & SD card interface

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

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.

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

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

The Lovibond® BD 600 series 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 BD 600 series 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.



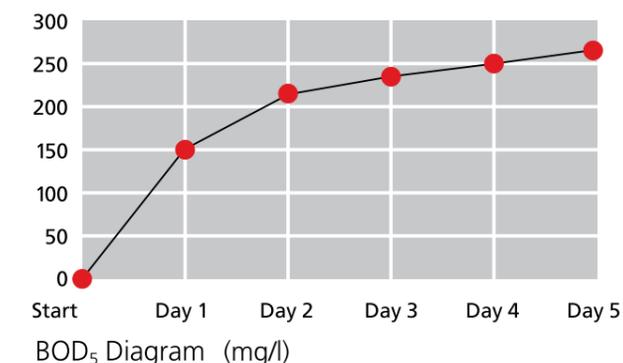
**Thermostatically Controlled Incubators**  
(see page 30 for details)

\*According to DIN EN 1899-2 H55 and APHA Standard Methods 5210 D

## Biochemical Oxygen Demand (BOD) – OxiDirect

**2444460** BD 600  
Sensor Suite – 6 place

**2444465** BD 606  
Sensor Suite – 12 place



### Ordering Information:

Code	Product	Contents
<b>2444460</b>	Lovibond® BD 600, 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, 157ml 1 overflow flask, 428ml 1 bottle, 50 ml potassium hydroxide solution 1 bottle, 50 ml nitrification inhibitor solution 1 instruction manual USB cable Remote control
<b>2444465</b>	Lovibond® BD 606, complete unit with 12 sensor heads and control unit with batteries	As above with 12 sample bottles, 12 rubber gaskets and 12 magnetic stirring rods

### Accessories:

Code	Product
<b>2444470</b>	Sensor head
<b>418644</b>	BOD sample bottle Brown glass, 500ml
<b>418645</b>	BOD sample bottles Brown glass, 500ml, set of 6 bottles
<b>2444482</b>	USB cable length 3 meter
<b>2444456</b>	Inductive stirring system for 6 samples, 100-240 V / 50-60 Hz
<b>418633</b>	Stirring rod
<b>418638</b>	Stirring rod remover
<b>418636</b>	Rubber gasket
	Chemicals:
<b>2418634</b>	Potassium hydroxide solution 45%, 50ml
<b>2418642</b>	Nitrification inhibitor (N-ATH) 50ml

Code	Product
<b>418664</b>	Overflow flask, 21.7ml
<b>418655</b>	Overflow flask, 56ml
<b>418656</b>	Overflow flask, 94ml
<b>418657</b>	Overflow flask, 157ml
<b>418658</b>	Overflow flask, 244ml
<b>418659</b>	Overflow flask, 360ml
<b>418660</b>	Overflow flask, 428ml
<b>418654</b>	Complete set Overflow flasks
<b>418328</b>	Test set, BOD CM test tablets, box with 10 tablets
<b>2444475</b>	Y – Cable
<b>2444481</b>	Remote Control

## 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 TC 135 S and TC 140 G can accommodate 3 x Lovibond® BD 600 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
2438200	TC 135 S	Temperature range: 2°C to 40°C 3 metal racks + 1 bottom grid + 4 sockets Consumption: 1.35 kWh / 24h* I. D. (approx.): 702 H x 441 D x 513 W mm Net capacity: approx. 135 l O. D. (approx.): 850 H x 600 D x 600 W mm with work top 819 H x 600 D x 600 W mm without work top Suitable for built under applications Weight: approx. 39.0 kg
2438210	TC 140 G	Temperature range: 2°C to 40°C 3 metal racks + 1 bottom grid + 4 sockets Consumption: 1.77 kWh / 24h** I. D. (approx.): 702 H x 441 D x 513 W mm Net capacity: approx. 140 l O. D. (approx.): 850 H x 600 D x 600 W mm Weight: approx. 48.0 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 (MD 100)
- 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):

This kit includes:

Code	Product	Range	Qty
276120	MD 100 COD Photometer	All Ranges	1
2418940	RD 125 Thermoreactor	100°C, 120°C, 150°C	1
2420720	COD VARIO Tube Tests	0-150mg/l*	1 x 25
2420721	COD VARIO Tube Tests	0-1500mg/l*	1 x 25

\*Accurate to ± 3.5%

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## Chemical Oxygen Demand (COD) Determination

**Order Code: 214040**  
MD 600 COD System (VARIO):

A complete COD measurement system using the MD 600 photometer. Additional testing for metals can be incorporated. See the full suite of MD 600 tests available on page 53.

This kit may also be supplied with the MD 610 smart photometer with Bluetooth® data transfer. Please check Bluetooth® compliance with international regulations.

To order the kit with the MD 610, use

**Order Code: 214041**  
MD 610 COD System (VARIO):



**This kit includes:**

Code	Product	Range	Qty
<b>214020</b>	MD 600 COD Photometer	Multi Range	1
<b>2418940</b>	RD 125 Thermoreactor	100-150°C	1
<b>2420720</b>	COD VARIO Tube Tests	0-150mg/l*	1 x 25
<b>2420721</b>	COD VARIO Tube Tests	0-1500mg/l*	1 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
<b>2420710</b>	COD VARIO Tube Tests – Mercury Free	0-150mg/l*	25
<b>2420720</b>	COD VARIO Tube Tests*	0-150mg/l*	25
<b>2420725</b>	COD VARIO Tube Tests*	0-150mg/l*	150
<b>2420711</b>	COD VARIO Tube Tests – Mercury Free	0-1500mg/l*	25
<b>2420721</b>	COD VARIO Tube Tests*	0-1500mg/l*	25
<b>2420726</b>	COD VARIO Tube Tests*	0-1500mg/l*	150
<b>2420712</b>	COD VARIO Tube Tests – Mercury Free	0-15000mg/l*	25
<b>2420722</b>	COD VARIO Tube Tests**	0-15000mg/l*	25
<b>2420727</b>	COD VARIO Tube Tests**	0-15000mg/l*	150
<b>2420803</b>	COD Standard Solution	100mg/l COD	30ml
<b>2420804</b>	COD Standard Solution	500mg/l COD	30ml
<b>2420805</b>	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%

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## 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 230 V and 115 V.



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

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

## Floc 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

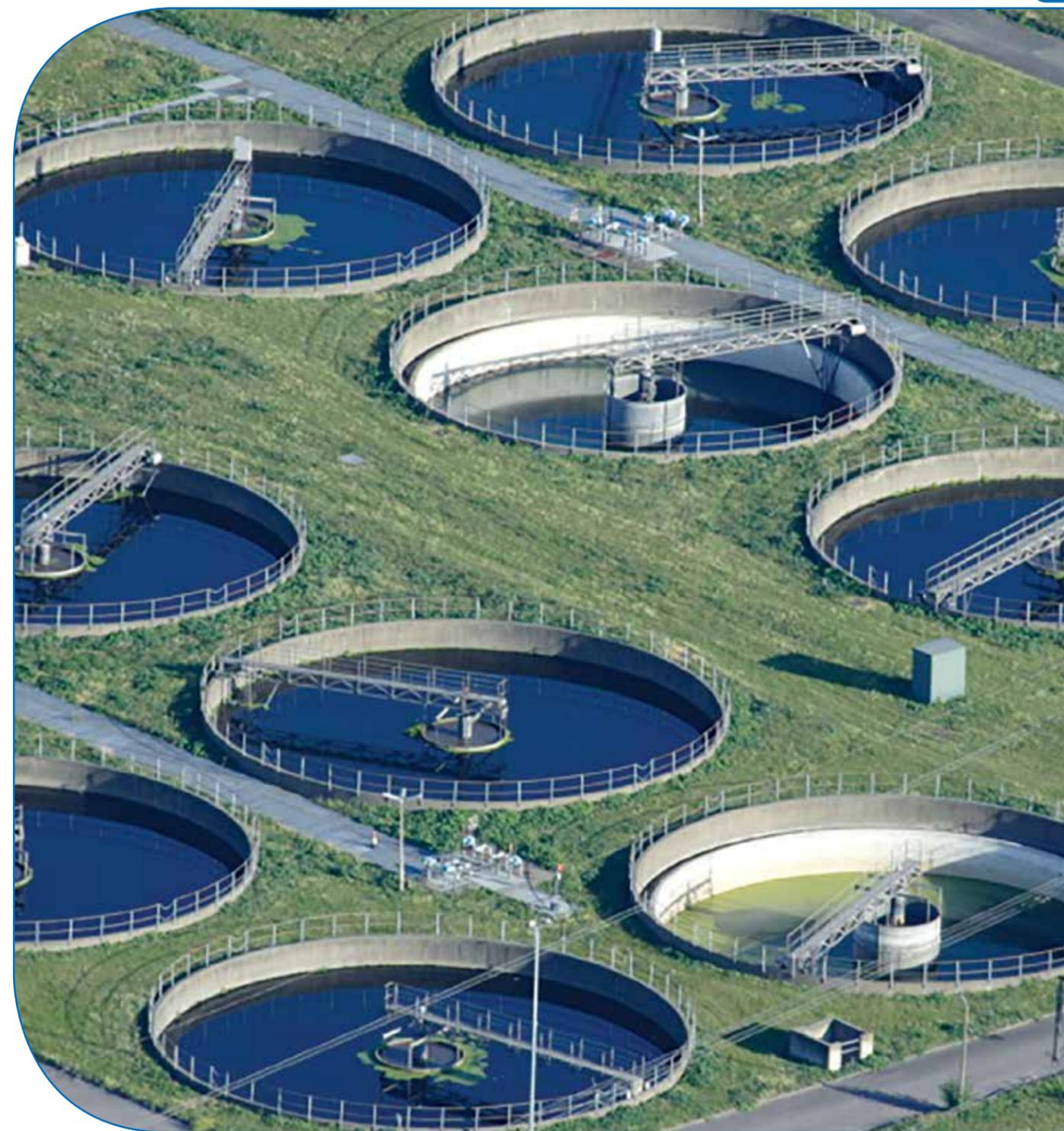
Technical data ET 750 (laboratory)	
<b>Stirring places</b>	Six
<b>Stirring speed control</b>	10 - 300 revolutions per minute
<b>Resolution</b>	1 revolution
<b>Timer</b>	1 - 999 minutes or 0 - 99 hours (continuous)
<b>Power supply</b>	100 – 240 V 50 - 60 Hz
<b>Weight</b>	approx. 17 kg
<b>Dimensions (mm)</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 - 200 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)





Lovibond® Build your own Test Kits

# Build 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

## Hardware

- 214020 :** MD 600 and accessories.
- 214025 :** MD 610 and accessories.
- 214140 :** MD 640 and accessories.
- 142020:** Lovibond® Comparator 2000+ and 2 x 10ml plastic cells.
- 145560:** CHECKIT® Comparator and 2 x 10ml plastic cells.
- 56A003901:** Digital Titrator + and 8 x complete syringette assemblies

## 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



BUILD YOUR OWN

## 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)

**MD 600 Series Photometer**  
Select tests from Page 53

**Comparator 2000+**  
Select tests from Page 60

**CHECKIT® Comparator**  
Select tests from Page 64

Add test pack/disc part N° in these columns

Part Number	Yes/No <small>(one)</small>	
Hardware: 214xxx	Yes/No	
Hardware: 142020	Yes/No	
Hardware: 145560	Yes/No	
Parameter	Disc Number	Reagent pack

## A: STEP 2

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

**Digital Titration**  
Select tests from Page 81

**Drop Test Titration**  
Select tests from Page 82

Add test packs

Titration	Yes/No
Hardware: 56A003901	
Parameter	Reagent pack

## A: STEP 3

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

**SD Range**  
Select from Page 70:  
194800 or 194801 or 194802 or 194803

**Senso 110**  
Select from Page 71:  
721300 or 722300

**Senso 150**  
Select from Page 73:  
724200 or 724210 or 724220 or 724230

**SD 300 Series**  
Select from Page 75:  
724611 or 724710 or 724650

Add test packs

Electrochemistry (maximum 2 meters)

## A: STEP 4

Add additional equipment from either of the following **two** sections.

**Refractometer**  
See page 13 for details

**Test Strips**  
Select from the table on page 88

Add test packs

Additional Items

## B: STEP 5

Select a case from the listings on Pages 39 – 42. Insert the code N° here (All codes are now on one sheet to obtain a quotation).

Case Code	Equipment Pack
	<b>56A004001</b>
	<i>(required for all portable labs)</i>

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.

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

### 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

### 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.



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

### 1001 Case Style

Two formats are available:

**Case code: 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.**

**Case code: 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.**

### 1501 Case Style

Three formats are available:

**Comparator 2000+**

**Case code: 56A001701**

Supplied with crushing rod, titration jar and 20ml syringe.

**CHECKIT® Comparator**

**Case code: 56A001801**

Supplied with crushing rod, titration jar and 20ml syringe.

**MD 100/110**

**Case code: 56K001601**

Supplied with 10 plastic tablet boxes, syringes, crushing rod, titration jar.

**All 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 relevant Case Code number to page 38*

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

## Portable Laboratory Case Options

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

### 1. 2001 Book Opening Case

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



**Lovibond® Book Opening Case**

(57 x 44 x 22cm)  
(57 x 44 x 27cm including document wallet)  
Example configuration

### 2. 2501 Conventional Opening Case

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



**Lovibond® Conventional Opening Case**

(50 x 40 x 22cm)  
(50 x 40 x 27cm including document wallet)  
Example configuration

**Case Code: 56A002201**

Additional space to include:

**MD 600 Series** (8 reagent packs)

OR

**Comparator 2000+** (8 reagent packs)

OR

**CHECKIT® Comparator** (8 reagent packs)

Plus the following:

**Electrochemistry** (2 instruments)

**Drop Test** (8 reagent packs)

OR

**Titrator** (7 reagent packs)

**Refractometer**

**Test Strips**

All options hold:

**Titrator/Drop Test** (7 reagent packs)

**Electrochemistry** (2 instruments)

**Refractometer & test strips**

Choose from the following 3 formats:

**Case Code: 56A002601**

Additional cut-outs to hold:

**MD 600 Series** (8 reagent packs)

OR

**Case Code: 56A002701**

Additional cut-outs to hold:

**Comparator 2000+** (8 reagent packs)

OR

**Case Code: 56A002801**

Additional cut-outs to hold:

**CHECKIT® Comparator** (8 reagent packs)

*Transfer the relevant Case Code number to page 38*

## 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)  
Example configuration

All options hold:

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

Choose from the following 3 formats:

**Case code: 56A003101**

Additional cut-outs to hold:

- MD 600 Series** (5 reagent packs)

OR

**Case code: 56A003201**

Additional cut-outs to hold:

- Comparator 2000+** (5 reagent packs)

OR

**Case code: 56A003301**

Additional cut-outs to hold:

- CHECKIT® Comparator** (5 reagent packs)

### 4. 3501 Dual Compartment Case

A full size engineer's case with separate compartments for electronics and chemicals. Fitted with drop down work station.



**Lovibond® Dual Compartment Case**  
(47 x 34 x 30cm)  
Example configuration

All options hold:

- Titration/Drop Test** (8 test packs)
- MD 600 Series** (8 test packs)

OR

- Comparator 2000+** (8 test packs)

OR

- CHECKIT® Comparator** (8 test packs)

**Refractometer & test strips**

Choose from the following 3 formats:

**Case code: 56A003601**

Additional cut-outs to hold:

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

**Case code: 56A003701**

Additional cut-out to hold:

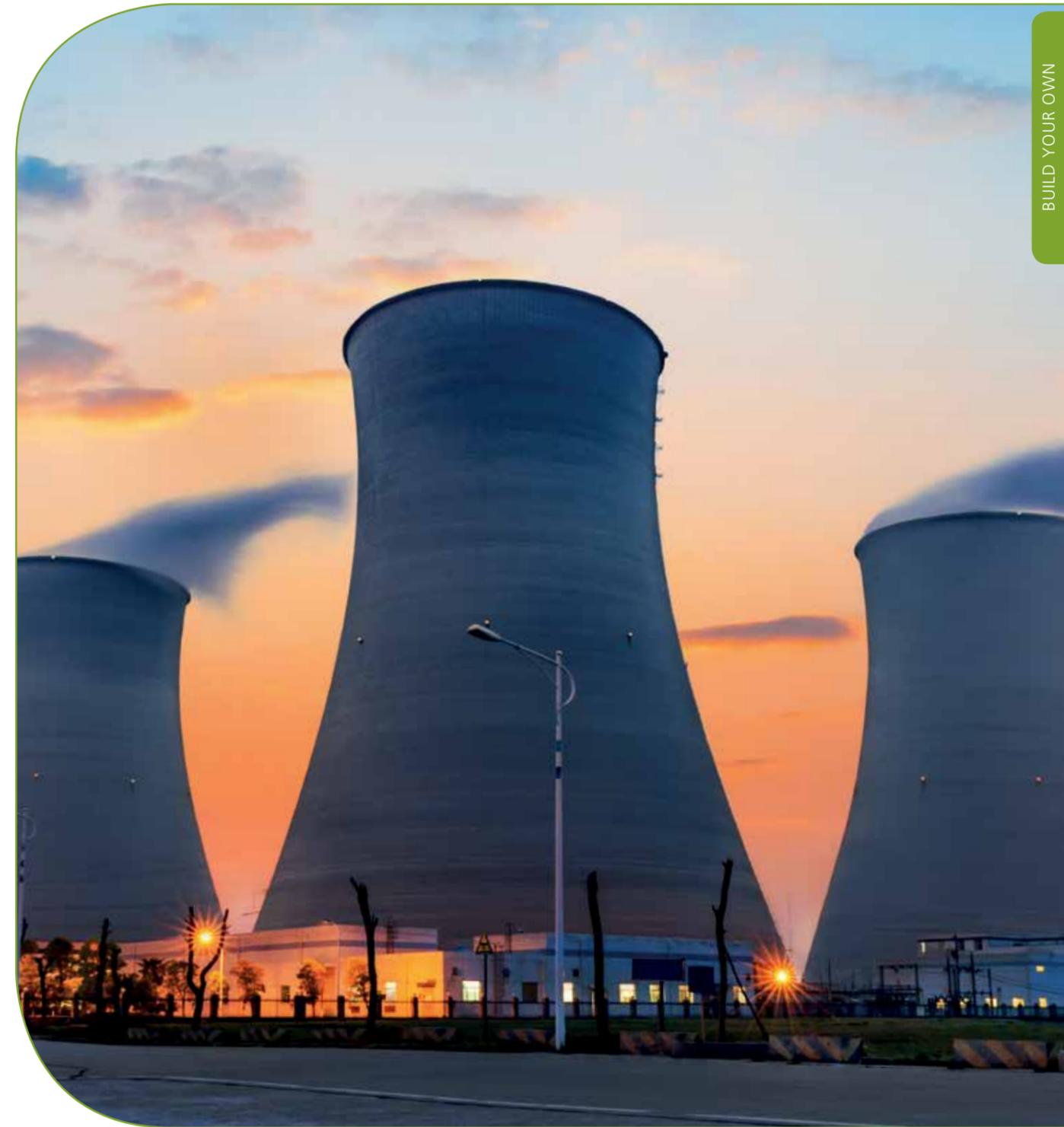
- SensoDirect 150** (1 instrument)

**Case code: 56A022801**

Additional cut-out to hold:

- SD 300 Series** (2 instruments)

Transfer the relevant Case Code number to page 38



BUILD YOUR OWN



Lovibond® Photometry Instruments

# MD 100/110 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
- Smart Bluetooth® connectivity available (MD 110)

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

The Lovibond® MD 100 Series 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 MD 100 and MD 110 models have internal memory for up to 16 data sets. The MD 100 models can be enhanced by the optional infrared data transfer module, whilst the MD 110 models have Bluetooth® functionality. Both these options allow easy and fast downloading of results to enable data logging and manipulation.

See pages 53-56 for test kits, test ranges and reagent pack options.



MD 100/110 Technical Data	
<b>Optics</b>	LEDs, interference filters (IF) and photo sensors in transparent sample chamber. Depending on the version, up to 3 different interference filters are used. Wavelength specifications of interference filters: 430 nm Δλ = 5 nm 530 nm Δλ = 5 nm 560 nm Δλ = 5 nm 580 nm Δλ = 5 nm 610 nm Δλ = 6 nm 660 nm Δλ = 5 nm
<b>Wavelength Accuracy</b>	± 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 batteries (AAA), capacity approx. 17 hours or 5000 tests

MD 100/110 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>Interface MD 100</b>	infrared interface for test data transfer*
<b>Interface MD 110</b>	Bluetooth® 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. 260g
<b>Environmental conditions</b>	Temperature: 5 – 40°C rel. humidity: 30 – 90%(non condensing)
<b>EC-Conformity</b>	CE

\* Requires IRIM (InfraRed Interface Module) 214050

The Bluetooth® word mark is a registered trademark owned by Bluetooth SIG, Inc and any use by the Tintometer® Group is under license.

## Manufacturers Test Certificate M

Besides the "Certificate of Compliance" which is supplied with the MD 100 / 110, 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)

## AquaLX®

The MD 110, MD 610 and MD 640 Series include a Bluetooth® interface for connection to smart phones and tablets to connect to an iOS® and Android™ app for data management and email delivery. The AquaLX® app, available free of charge, offers the possibility of transferring measurements to smart phones or tablets. The data management then enables analysis and export as a CSV file or graph via email. The app is available for iOS® and Android™.

## 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
19802190	Adapter for round vials Ø 16 mm	
197600	Set of 12 plastic vials (PC), with cap	"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 batteries (AAA)	
214050	Infra-red data transfer module IRIM	
215670	Verification Standard Kit	

## Reference Standard Kit for MD 100/110

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

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

For notes and abbreviations, see page 56

## MD 100 / MD 110 Single Parameter Kits

MD 100 / 110 kits are supplied in a plastic case with cells, reagents and instruction manual.

Code MD 100	Code MD 110	Parameter	Range	Method
+++		Alkalinity-M	5-200mg/l	Acid/Indicator <sup>1,2,5</sup>
276060		Ammonia	0.02-1mg/l	Indophenole blue <sup>2,3</sup>
276065		Ammonia VARIO	0.01-0.8mg/l	VARIO Salicylate <sup>2</sup>
276070		Ammonia, free VARIO (Part of method monochloramine)	0.01-0.5mg/l	Indophenol
+++		Bromine	0.05-13mg/l	DPD
276000		Chlorine <sup>a)</sup>	0.02-6mg/l	DPD <sup>1</sup>
+++		Chlorine HR DPD <sup>a)</sup>	0.1-10mg/l	DPD <sup>1,2</sup>
276025		Chlorine VARIO <sup>a)</sup>	0.02-2mg/l	VARIO DPD <sup>1,2</sup>
+++		Chlorine HR <sup>(KI)<sup>5</sup></sup>	5-200mg/l	KI/Acid <sup>5</sup>
276030		Chlorine dioxide	0.05-11mg/l	DPD/Glycine <sup>1,2</sup>
276035		Chlorine dioxide VARIO	0.02-3.8mg/l	VARIO DPD <sup>1,2</sup>
276120	2961202	COD LR <sup>(b)</sup> ISO 15705:2002 <sup>(b)</sup>	0-150mg/l	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>
276120	2961202	COD MR <sup>(b)</sup> ISO 15705:2002 <sup>(b)</sup>	0-1500mg/l	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>
276120	2961202	COD HR <sup>(b)</sup>	0-15000mg/l	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>
276080		Copper <sup>a)</sup>	0.05-5mg/l	Biquinoline <sup>4</sup>
276085		Copper, free VARIO	0.05-5mg/l	VARIO Bicinchoninate
+++		Cyanuric acid	0-160mg/l	Melamine
56K021301		Fluoride	0.05-2mg/l	SPADNS
+++		Hardness, calcium	0-500mg/l	Murexid <sup>4</sup>
276050		Iron (II, III)	0.02-1mg/l	PPST
276056		Iron VARIO (II, III)	0.02-3mg/l	VARIO 1,10-Phenanthroline
276055		Iron VARIO, total <sup>g)</sup>	0.02-1.8mg/l	VARIO TPTZ <sup>g)</sup>
276100		Manganese	0.2-4mg/l	Formaloxime
276105		Manganese VARIO LR	0.01-0.7mg/l	VARIO PAN
276106		Manganese VARIO HR	0.1-18mg/l	VARIO Periodate oxidation <sup>2</sup>
276140		Molybdenum LR VARIO	0.03-3mg/l	VARIO Mercaptoacetic acid
276070		Monochloramine VARIO	0.04-4.5mg/l	VARIO Indophenol
276040		Phosphate LR, ortho	0.05-4mg/l	Phosphomolybdic acid / Ascorbic acid <sup>2</sup>
276045		Phosphate VARIO ortho	0.06-2.5mg/l	VARIO Ascorbic acid <sup>2</sup>
+++		pH value	6.5-8.4	Phenol red (tablet) <sup>5</sup>
+++		pH value	6.5-8.4	Phenol red (solution) <sup>5</sup>
276110		Silica	0.05-4mg/l	Silicomolybdate <sup>2,3</sup> Silica PR tablets (in presence of PO <sub>4</sub> )
276115		Silica LR VARIO	0.1-1.6mg/l	VARIO Heteropolyblue <sup>2</sup>
276116		Silica HR VARIO	1-90mg/l	VARIO Silicomolybdate <sup>2,3</sup>
+++		Sodium hypochlorite	0.2-16%	Potassium iodide <sup>5</sup>

## MD 100 / MD 110 Multi Parameter Kits

MD 100 / 110 kits are supplied in a plastic case with cells, reagents and instruction manual.

Code MD 100	Code MD 110	Parameter	Range	Method
278020		<b>MD 100 2in1</b> Chlorine Chlorine pH	0.01-6.0mg/l 0.1-10mg/l 6.5-8.4	DPD <sup>1</sup> DPD <sup>1,2</sup> Phenol red (tablet) <sup>5</sup>
278110		<b>MD 100 2in1</b> Bromine Chlorine pH	0-6.0mg/l 0.05-13mg/l 6.5-8.4	DPD DPD <sup>1,2</sup> Phenol red (tablet) <sup>5</sup>
278000		<b>MD 100 3in1</b> Chlorine LR Chlorine HR Chlorine Dioxide	0.01-6.0mg/l 5-200mg/l 0.02-11mg/l	DPD <sup>1</sup> KI / Acid <sup>5</sup> (16mm round vial) DPD/Glycine <sup>1,2</sup>
278090	2980902	<b>MD 100 6in1</b> Alkalinity-M Bromine Calcium Hardness Chlorine Cyanuric Acid pH		Acid/Indicator <sup>1,2,5</sup> DPD Murexid <sup>4</sup> DPD1 Melamine Phenol red (tablet) <sup>5</sup>

For notes and abbreviations, see page 56

## MD 100 / MD 110 Cooling / Boiler Water Photometers



### Cooling Water Photometer: Selectable Parameters

Aluminium	(0.01-0.25 mg/l Al)
Bromine	(0.05-13 mg/l Br <sub>2</sub> )
Chlorine	(0.01-6.0 mg/l Cl <sub>2</sub> ) and (5.0-200 mg/l Cl <sub>2</sub> )
Chlorine Dioxide*	(0.02-11 mg/l ClO <sub>2</sub> )
Copper	(0.3-5.0 mg/l Cu)
Iron	(0.03-2 mg/l Fe <sup>2+/3+</sup> )
Molybdenum	(0.03-3.0 mg/l Mo) and (0.6-60 mg/l Mo)
Ozone	(0.02-2 mg/l O <sub>3</sub> )
Polyacrylate	(1-30 mg/l Polyacrylate)
Sulphate	(5.0-100 mg/l SO <sub>4</sub> )
Triazole	(1-16 mg/l Benzotriazole)
Zinc	(0.1-2.5 mg/l Zn)

\*By calculation

### Boiler Water Photometer: Selectable Parameters

Aluminium	(0.01-0.25 mg/l Al)
Chloride	(0.5-20 mg/l Cl <sup>-</sup> )
Copper	(0.3-5.0 mg/l Cu)
DEHA	(20-500 µg/l DEHA)
Hydrazine	(50-500 µg/l N <sub>2</sub> H <sub>4</sub> )
Iron	(0.03-2.00 mg/l Fe <sup>2+/3+</sup> )
Oxygen	(10-800 µg/l O <sub>2</sub> )
Phosphate	(5-80 mg/l PO <sub>4</sub> )
Polyacrylate	(1-30 mg/l Polyacrylate)
Silica	(1-90 mg/l SiO <sub>2</sub> )

The bespoke industrial water photometers are designed specifically for the engineer measuring cooling water and/or boiler water. They cover all the applicable routines for these applications. The engineer can simply select and incorporate the Lovibond® reagents required for the monitoring of specific water treatment chemicals. Additional components such as pH and conductivity meters and drop test chemistries may also be added to the kit, providing a bespoke and complete analysis program.

- One instrument to carry out all the tests associated with Cooling Water
- One instrument to carry out all the tests associated with Boiler Water
- Ideal for routine, on-site system monitoring
- Photometric measurement for accurate, repeatable results
- Easy-to-use, push button technology with step by step guides
- Negates the need for up to 13 separate pieces of equipment
- Select range of required reagents to complete your kit
- Combine with pH, conductivity and drop test chemistries - complete analysis program



### MD 100 Industrial Water Series Technical Data

<b>Optics</b>	LEDs, interference filters (IF) and photo sensors in transparent sample chamber. Depending on the version, up to 3 different interference filters are used. Wavelength specifications of interference filters: 430 nm Δλ = 5 nm 530 nm Δλ = 5 nm 560 nm Δλ = 5 nm 580 nm Δλ = 5 nm 610 nm Δλ = 6 nm 660 nm Δλ = 5 nm
<b>Wavelength Accuracy</b>	± 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 batteries (AAA), capacity approx. 17 hours or 5000 tests

### MD 100 Industrial Water Series Technical Data

Auto - OFF	automatic switch-off
Display	backlit LCD (on keypress)
Storage	internal ring memory for 16 data sets
Interfaces	infrared interface for test data transfer
Additional feature	real time clock and date
Calibration	factory calibration and user calibration. Reset to factory calibration possible
Dimensions	155 x 75 x 35 mm (L x W x H)
Weight	basic unit approx. 260g

Code	Item
27 62 30	MD 100 Boiler Water Photometer
27 62 40	MD 100 Cooling Water Photometer
2962302	MD 110 Boiler Water Photometer with Bluetooth® connectivity
2962402	MD 110 Cooling Water Photometer with Bluetooth® connectivity

Photometer reagents to be requested separately. See page 53-56 for details and part numbers.

See the Portable Labs (Build Your Own) section on page 38 to combine the MD 100 / 110 Cooling Water or Boiler Water photometer with other instrumentation in a larger test kit case.

## MD 600 / MD 610 Photometer:

- High End Photometer for laboratory or field analysis
- 1 photometer: > 120 Methods
- Automatic wavelength selection
- Uses Tablet, Liquids, Powders or Vials
- Storage of up to 1000 data sets
- Data logging capabilities
- Bluetooth® data transfer (MD 610)

The MD 600 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 MD 600 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 120 programmed methods.

The modern design of the MD 600 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 MD 610 series includes a Bluetooth® interface for connection to smart phones and tablets to connect to an iOS® and Android™ app for data management and email delivery. The AquaLX® app, available free of charge, offers the possibility of transferring measurements to smart phones or tablets. The data management then enables analysis and export as a CSV file or graph via email. The app is available free of charge for iOS® and Android™. Please check Bluetooth(R) compliance with international regulations.



### MD 600 / 610 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 Δλ = 5 nm 530 nm IF Δλ = 5 nm 560 nm IF Δλ = 5 nm 580 nm IF Δλ = 5 nm 610 nm IF Δλ = 6 nm 660 nm IF Δλ = 5 nm IF = interference filter
<b>Wavelength Accuracy</b>	± 1 nm
<b>Photometric Accuracy</b>	2% FS (T = 20°C – 25°C)
<b>Photometric Resolution</b>	0.005 A

1 Option available: IRiM (Infrared Interface Module) - MD 600 only  
2 Option available: Connection cable with integrated electronics (RS232 / RJ-45 plug)

For notes and abbreviations, see page 56

### MD 600 / 610 Technical Data

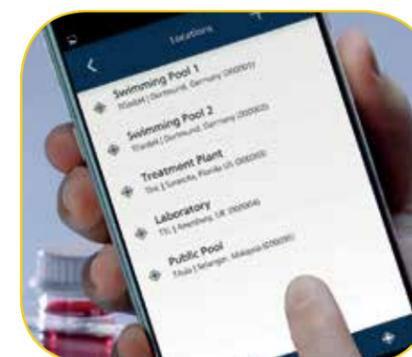
<b>Operation</b>	Acid and solvent resistant, touch-sensitive keypad with audible feedback via integrated beeper
<b>Power Supply</b>	4 batteries (Mignon AA/LR6); Operation time: approx. 26 h continuous operation or 3500 tests
<b>Auto-Off</b>	approx. 20 minutes after last keypress with audible signal
<b>Dimensions</b>	approx. 210 x 95 x 45 mm (unit) approx. 395 x 295 x 106 mm (case)
<b>Weight (unit)</b>	approx. 450g
<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

This kit may also be supplied with the MD 610 smart photometer with Bluetooth® data transfer. Please check Bluetooth compliance with international regulations.

Code	Details
<b>214020</b> <b>214025</b>	MD 600 Standard Pack Delivery Content MD 610 Standard Pack Delivery Content - 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 53-56)

### 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>19802190</b>	Adapter for round vials ø 16 mm
<b>19802192</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>214030</b>	Cable for update for connection to a PC
<b>215640</b>	<b>Verification Standard Kit:</b>  The Verification standard kit for the MD 600 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 for MD 600:</b>  The IRiM is delivered ready for use, with the following accessories:  USB cable, 4 batteries, screwdriver, CD-ROM, operating instructions and guarantee certificate



### AquaLX®

The MD 110, MD 610 and MD 640 series include a Bluetooth® interface for connection to smart phones and tablets to connect to an iOS® and Android™ app for data management and email delivery. The AquaLX® app, available free of charge, offers the possibility of transferring measurements to smart phones or tablets. The data management then enables analysis and export as a CSV file or graph via email. The app is available for iOS® and Android™.

For notes and abbreviations, see page 56

### Membrane filter set

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

### Order code: 36 61 50

See Page 47 for further details.

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Android™ is a trademark of Google Inc.

# MD 640 Photometer with PTSA

## Photometer & Fluorometer in one Instrument

- Inbuilt PTSA & Fluorescein measurement - no adapter required
- High quality results due to interference filters and long-life LEDs
- Automatic wavelength selection
- Bluetooth® data transmittance to Lovibond® AqualX® App
- Covers more than 120 important methods for water analysis such as aluminium, chlorine, COD, bromine, chlorine dioxide, copper, iron, molybdate and phosphate
- Advanced data management via AqualX® App
- Portable and easy handling
- Robust and water proof



The Lovibond® MD 640 is an enhanced version of the MD 610 photometer, offering additional fluorescence capability for the determination of PTSA and fluorescein in water systems. PTSA (1,3,6,8 pyrenetetrakisulfonic acid, sodium salt) and fluorescein are fluorescent materials that are increasingly being added to speciality water treatment products to enable real time product dose analysis. Both materials are detectable at ppb levels, are non-toxic and chemically stable, all of which make them ideal tracer additives throughout complex water systems. Accurately measuring product dose levels helps the water treatment specialist to control water chemistry; prevent corrosion, scale and biological fouling; increase system efficiency and, ultimately, save energy and costs.



Code	Details
214140	MD 640 Instrument in carrying case <ul style="list-style-type: none"> <li>• 4 batteries</li> <li>• 3 round vials each 24 and 16 mm ø (black lid)</li> <li>• 1 adapter each for 16 mm and 13 mm vials</li> <li>• Plastic stirring rod 13 cm, Brush 11 cm, syringe 5 ml, screw driver</li> <li>• Warranty information</li> <li>• Certificate of Compliance</li> <li>• Instruction Manual</li> </ul>

MD 640 Technical Data	
<b>Display</b>	Backlit graphic-display
<b>Interface</b>	Bluetooth® 4.0 RJ45 socket for Internet updates <sup>1</sup>
<b>Optics</b>	LEDs, interference filters (IF) and photo sensor in transparent sample chamber Wavelength range: 430 nm IF Δλ = 5 nm 530 nm IF Δλ = 5 nm 560 nm IF Δλ = 5 nm 580 nm IF Δλ = 5 nm 610 nm IF Δλ = 6 nm 660 nm IF Δλ = 5 nm IF = interference filter
<b>UV excitation</b>	375nm
<b>Measurement ranges</b>	PTSA 10 - 1000 ppb Fluorescein 10 - 400 ppb (see MD 600 pages for full test listings)
<b>Wavelegnth accuracy</b>	±1nm
<b>Photometric accuracy</b>	2% FS (T=20°C - 25°C)

MD 640 Technical Data	
<b>Photometric resolution</b>	0.005A
<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</b>	Approx. 450 g
<b>Ambient Conditions</b>	5–40 °C at max. 30–90 % rel. Humidity (non condensing)
<b>Memory Capacity</b>	Approx. 500 data sets
<b>EC Conformity</b>	CE

## MD 640 Accessories:

Code	Item
461240	Fluorescein calibration set
461245	PTSA calibration set
461230	Fluorescein standard addition solution (400ppb)
461210	PTSA standard addition solution (1000ppb)
197657	Round vials with black cap for MD 640

## MD 100/110 and MD 600/610/640 Ordering Information

### Test Pack

Reagent packs are common to the MD 600/610/640. Select from the Reagent Pack column in the table below. Reagent pack codes should be used to "Build Your Own Test Kit", see page 38.

**Check out the Portable Labs (Build Your Own Test Kit) section on page 38 to combine the MD series with other Instrumentation.**



Test	Range	Wavelength	Method	Reagent Pack	Tests/ Pack
<b>Alkalinity-M HR</b>	5-500mg/l	610	Acid/Indicator <sup>1,2</sup>	513240 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	610	Indophenole blue <sup>2,3</sup>	517611 BT	100
<b>Ammonia VARIO</b>	0.01-0.8mg/l	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	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	517900	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>Chlorine <sup>a)</sup></b>	0.02-6mg/l	530	DPD <sup>1</sup>	517711 BT	100
<b>Chlorine HR DPD <sup>a)</sup></b>	0.1-10mg/l		DPD <sup>1,2</sup>	517791 BT	100
<b>Chlorine <sup>a)</sup></b>	0.02-4mg/l	530	DPD <sup>1,2</sup> (Liquid Reagent Set)	471056	100
<b>Chlorine VARIO <sup>a)</sup></b>	0.02-2mg/l	530	VARIO DPD <sup>1,2</sup>	537700	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	530	DPD/Glycine <sup>1,2</sup>	517731 BT	100
<b>Chlorine dioxide VARIO</b>	0.02-3.8mg/l		VARIO DPD <sup>1,2</sup>	530100	100

For notes and abbreviations, see page 56

## MD 100/110 and MD 600/610/640 Ordering Information



Test	Range	Wavelength	Method	Reagent Pack	Tests/Pack
<b>COD LR**<sup>(b)</sup></b> <b>ISO 15705:2002<sup>(b)</sup></b>	0-150mg/l	430	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	2420720	25
				2420710 (Hg free)	25
<b>COD MR**</b> <b>ISO 15705:2002<sup>(b)</sup></b>	0-1500mg/l	610	Dichromate / H <sub>2</sub> SO <sub>4</sub> <sup>1,2</sup>	2420721	25
				2420711 (Hg free)	25
<b>COD HR**<sup>(b)</sup></b>	0-15000mg/l	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	560	Biquinoline <sup>4</sup>	517691 BT	100
<b>Copper, free VARIO</b>	0.05-5mg/l	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>	536000	100
<b>Fluoride</b>	0.05-2mg/l	580	SPADNS	467481	125
<b>Fluorescein</b>	0-400µg/l	375	Fluorescence	No reagents required	
<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 BT	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>d)</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 BT	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	560	PPST	515370 BT	100
<b>Iron VARIO (II, III)</b>	0.02-3mg/l	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	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>Iron in Molybdate</b>	0-1.8mg/l	580	Fe in Mo	536010	100
<b>Manganese</b>	0.2-4mg/l	530	Formaloxime	517621 BT	100
<b>Manganese VARIO LR</b>	0.01-0.7mg/l	560	VARIO PAN	535090	100
<b>Manganese VARIO HR</b>	0.1-18mg/l	530	VARIO Periodate oxidation <sup>2</sup>	535100	100
<b>Molybdenum LR VARIO</b>	0.03-3mg/l	430	VARIO Mercaptoacetic acid	535450	100
<b>Molybdate</b>	1-50mg/l	430	Thioglycolate <sup>4</sup>	517631 BT	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

For notes and abbreviations, see page 56

Test	Range	Wavelength	Method	Reagent Pack	Tests/Pack
<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 BT	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**<sup>(c)</sup></b>	10-800µg/l	530	Rhodazine D <sup>TM</sup> Vacu-vial <sup>®</sup> (i)	380450	30
<b>PHMB</b> (Biguanide)	2-60mg/l	560	Buffer/Indicator (PHMB Tablet)	516100	100
<b>Phosphate LR, ortho</b>	0.05-4mg/l	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	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 BT	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>PTSA</b>	0-1000µg/l	375	Fluorescence	No reagents required	
<b>Silica</b>	0.05-4mg/l	660	Silicomolybdate <sup>2,3</sup> Silica PR tablets (in presence of PO <sub>4</sub> )	517671	100
				513150	100

For notes and abbreviations, see page 56

Test	Range	Wavelength	Method	Reagent Pack	Tests/Pack
<b>Silica LR VARIO</b>	0.1-1.6mg/l	660	VARIO Heteropolyblue <sup>2</sup>	535690	100
<b>Silica HR VARIO</b>	1-90mg/l	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 BT	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 BT	100
<b>Suspended solids</b>	5-750mg/l	660	Turbidity/attenuated radiation (no reagents required)		
<b>Tolytriazole</b>	1-16mg/l as Benzotriazole	430	Catalysed UV photolysis	532200	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	517920 BT	100

## MD 100 Series and MD 600 Series 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).

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





Lovibond® Comparator Solutions

## Lovibond® Comparator 2000+

- Visual comparison method
- High precision: High accuracy
- Fade-free glass standards – guaranteed consistency
- > 400 different 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 38).



### 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 70 conductivity or SD 80 TDS unit can be added to complete the kit – simply choose reagent packs and discs from the appropriate tables.

### 142020:

Lovibond® Comparator 2000+ and two cells.



Test	Disc No. / Range	Chemistry	Test Kit	Disc	Reagent Pack	Test / Pack
Aluminium	3/127A 0-0.5mg/l	Solochrome Cyanine R	56K013001	230205	517601 BT	100
Amine	3/58 1.0-10mg/l	Bromocresol Green	56K013101	235800	511010	100
Amine	3/64 0-2mg/l	Methyl Orange	56K013201	236400	56R013290	100
Ammonia**	3/112 0-0.4mg/l NH <sub>4</sub>	Alkaline Salicylate	56K013301	230060	517611 BT	100
Ammonia	3/113 0-1.0mg/l N	Alkaline Salicylate	56K013401	230070	517611 BT	100
Bromine	3/53A 0.2-2.0mg/l	Buffered DPD	56K013501	235310	511050 BT	100
Bromine	3/53B 1.0-10mg/l	Buffered DPD	56K013601	235320	511050 BT	100
Bromine	3/53C 0.5-6mg/l	Buffered DPD	56K013701	235330	511050 BT	100
Chlorine** free, combined, total	3/40E 0.02-0.3mg/l	Buffered DPD/KI	56K013801	234060	517711 BT	100
Chlorine free, combined, total	3/40A 0.1-1.0mg/l	Buffered DPD/KI	56K013901	234010	517711 BT	100
Chlorine free, combined, total	3/40B 0.2-4.0mg/l	Buffered DPD/KI	56K014001	234020	517711 BT	100
Chlorine free, combined, total	3/40K 0.5-6.0mg/l	Buffered DPD/KI	56K014101	233930	517711 BT	100

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

For further options, please view the Lovibond® General Catalogue or visit [www.lovibond.com](http://www.lovibond.com)

# Lovibond® Comparator 2000+



Test	Disc No. / Range	Chemistry	Test Kit	Disc	Reagent Pack	Test / Pack
<b>Chlorine HR**</b> total chlorine only	3/2APH 2-10mg/l	Potassium Iodide	56K014201	232060	517721 BT	100
<b>Chlorine HR</b> total chlorine only	3/2ARP 5.0-50mg/l	Potassium Iodide	56K014301	232070	517721 BT	100
<b>Chlorine HR</b> total chlorine only	3/2IOD 0-250mg/l	Potassium Iodide	56K014401	232090	517721 BT	100
<b>Chlorine dioxide</b>	3/40A 0.19-1.9mg/l	DPD/Glycine	56K014501	292260	517731 BT	100
<b>Chlorine dioxide**</b>	3/40ED 0.04-0.57mg/l	DPD/Glycine	56K014601	297970	517731 BT	100
<b>Copper</b>	3/106 0-1.0mg/l	Zincon	56K014701	230050	512620 BT	100
<b>Copper</b>	3/110 0-4.0mg/l	Zincon	56K014801	230040	512340 BT	100
<b>DEHA**</b>	3/150 16-160µg	DEHA	56K014901	230460	536000	100
<b>Hydrazine</b>	3/126 0-0.5mg	p-dimethylaminobenzaldehyde	56K015001	230190	462910	100
<b>Hydrazine**</b>	3/135 0.02-0.2mg/l	p-dimethylaminobenzaldehyde	56K015101	230290	462910	100
<b>Hydrogen peroxide</b>	3/50A 0.05-0.5mg/l	DPD/Catalyst	56K015201	235000	512380 BT	100
<b>Hydrogen peroxide</b>	3/50B 0.1-3mg/l	DPD/Catalyst	56K015301	235010	512380 BT	100
<b>Iron, total</b>	3/116 0.1-1.0mg/l	Ferrozine/Thioglycolate	56K015401	230100	515370 BT	100
<b>Iron, total</b>	3/117 1.0-10mg/l	Thioglycolate	56K015501	230110	515380	100
<b>Manganese</b>	3/169 0-4.0mg/l	PAN	56K015601	230690	517621	100
<b>Molybdate**</b>	3/162 0-10mg/l MoO <sub>4</sub>	8-hydroxybenzoic acid	56K015701	230620	56R015750	100
<b>Molybdate**</b>	3/137 5-50mg/l MoO <sub>4</sub>	Thioglycolic acid	56K015801	230320	517631	100
<b>Molybdate</b>	3/138 10-150mg/l MoO <sub>4</sub>	Thioglycolic acid	56K015901	230330	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	230170	517910	100
<b>Nitrate</b>	3/142 10-100mg/l NO <sub>3</sub>	Chromotropic Acid	56K016101	230360	517641	100
<b>Nitrite</b>	3/103 0.05-0.5mg/l N	NO <sub>3</sub> Diazotisation	56K016201	230030	512310 BT	100
<b>Oxygen</b>	3/165 2.0-12mg/l	Sodium azide	56K016301	230650	461140	100
<b>Ozone</b>	3/67 0.1-1.0mg/l	Buffered DPD	56K016401	236700	511220 BT	100
<b>Ozone**</b>	3/67A 0.01-0.1mg/l	Buffered DPD	56K016501	236710	511220 BT	100
<b>Ozone**</b>	3/148 0-0.5mg/l	Ozone-Indigo	56K016601	230440	513170	100
<b>pH</b>	2/1G 5.2-6.8 pH	Bromocresol purple	56K016701	221100	511730	100
<b>pH</b>	2/1H 6.0-7.6 pH	Bromothymol blue	56K016801	221110	511640 BT	100
<b>pH</b>	2/1J 6.8-8.4 pH	Phenol red	56K016901	221130	511750 BT	100
<b>pH</b>	2/1P 4.0-11 pH	Universal (mixed)	56K017001	221220	451771	100

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

Test	Disc No. / Range	Chemistry	Test Kit	Disc	Reagent Pack	Test / Pack
<b>Phosphate</b>	3/133 0-4.0mg/l PO <sub>4</sub>	Molybdenum blue	56K017101	230270	517651 BT	100
<b>Phosphate</b>	3/136 0-40mg/l PO <sub>4</sub>	Molybdenum blue	56K017201	230310	511980	100
<b>Phosphate</b>	3/70 0-100mg/l PO <sub>4</sub>	Phospho-molybdate	56K017301	237000	511980	100
<b>Phosphate</b>	3/60 10-100mg/l PO <sub>4</sub>	Vanadomolybdate	56K017401	236000	56R017490	100
<b>Phosphate</b>	NMD 10-100mg/l PO <sub>4</sub>	Molybdenum blue	56K017501	283950	56R017590	100
<b>QAC (Quaternary** Ammonia Compounds)</b>	3/118 0-20mg/l	Sulphonaphthalein dye	56K017601	230120	515390 BT	100
<b>QAC (Quaternary Ammonia Compounds)</b>	3/119 0-200mg/l	Sulphonaphthalein dye	56K017701	230130	515400	100
<b>Silica</b>	3/139 0.4-4.0mg/l SiO <sub>2</sub>	Molybdenum blue	56K017801	230340	517671	100
<b>Silica</b>	3/147 1.0-10mg/l SiO <sub>2</sub>	Molybdenum blue	56K017901	230420	517671	100
<b>Silica**</b>	3/13 2.5-25mg/l SiO <sub>2</sub>	Silico-Molybdate	56K018001	231300	460241	100
<b>Sodiumhypochlorite</b>	3/2 Hypo 2-16%	Acidified KI	56K018101	232110	517721 BT	100
<b>Zinc</b>	3/151 0-1.0mg/l	Zincon	56K018201	230470	56R018290	100
<b>Zinc</b>	3/102 0-4.0mg/l	Zincon	56K018301	230020	56R018390	100

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

#### Ordering Information:

Code	Item
<b>142000</b>	Lovibond® Comparator 2000+
<b>142050</b>	Portable lighting unit, battery operated
<b>171010</b>	Daylight Unit for Comparator 2000+, mains operated
<b>170500</b>	Water sampler with two 500 ml bottles and one lid
<b>418957</b>	Cell stand for 10 cells-13.5/16 mm, path length
<b>364110</b>	Glass stirring rod, 12 cm length
<b>364100</b>	Plastic stirring rod, 13 cm length
<b>380230</b>	Brush, 11 cm length
<b>Glass Cells</b>	
<b>354243</b>	5 cells, 13.5 mm path length, calibrated at 2 – 12 ml, with lids (DB424/S)
<b>606890</b>	Cell 40 mm path length, calibrated at 20ml (W 680/40)
<b>Plastic Cells</b>	
<b>145505</b>	5 cells, frosted on two sides, with lid, 13.5mm / 10ml
<b>145500</b>	10 cells, frosted on two sides, with lid, 13.5mm / 10ml
<b>145510</b>	100 cells, frosted on two sides, with lid, 13.5mm / 10ml

# 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 for 30 tests
- Replacement packs are supplied with 100+ tests

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, mostly 30 tests per 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, typically 100 tests per pack

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: 56A00601:

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 70 conductivity or SD 80 TDS unit can be added to complete the kit – simply choose reagent packs from the appropriate tables.

### Code: 145560:

CHECKIT® Comparator with two cells

### Code: 145500:

CHECKIT® Comparator Replacement cells (set of 10)

See our Portable Laboratory (Build Your Own Test Kit) section on page 38 for additional case/kit options.



Test	Range	Chemistry	Test Kit	Disc	Reagent Pack	Test / Pack
<b>Aluminium</b>	0-0.3mg/l Al	Solochrome cyanine R	147200	146200	517601 BT	100
<b>Ammonia</b>	0-1mg/l N	Alkaline salicylate	147210	146210	517611 BT	100
<b>Ammonia VARIO</b>	0-0.5mg/l N	Alkaline Salicylate	147211	146211	535500	100
<b>Bromine</b>	0-5mg/l Br	Buffered DPD	147280	146280	511310 BT	100
<b>Chlorine</b> free, combined**, total	0-1mg/l Cl <sub>2</sub>	Buffered DPD/KI	147010	146010	511310 BT + 511290 BT	100
<b>Chlorine</b> free, combined**, total	0-2mg/l Cl <sub>2</sub>	Buffered DPD/KI	147040	146040	511310 BT + 511290 BT	100
<b>Chlorine</b> free, combined**, total	0-4mg/l Cl <sub>2</sub>	Buffered DPD/KI	147020	146020	511310 BT + 511290 BT	100
<b>Chlorine</b> free, combined**, total	0-3.5mg/l Cl <sub>2</sub>	VARIO Buffered DPD/KI	147052	146050	537710	100
<b>Chlorine<sup>1</sup></b> free, combined**, total	0.02-0.3mg/l Cl <sub>2</sub>	Buffered DPD/KI	147000	146000	517711 BT	100
<b>Chlorine KI, total only</b>	10-300mg/l Cl <sub>2</sub>	Potassium Iodide	147030	146030	517721 BT	100
<b>Chlorine dioxide<sup>1</sup></b>	0.01-0.2mg/l ClO <sub>2</sub>	Buffered DPD/Glycine	147330	146330	517731 BT	100
<b>Copper, free (Cu<sup>2+</sup>)</b>	0-1mg/l Cu	Zincon	147230	146230	512620 BT	100
<b>Copper HR</b> free and total	0-5mg/l Cu	Coppercol	147430	146430	517691 BT	100
<b>Copper HR,</b> free only	0-5mg/l Cu	VARIO Coppercol	147431	146431	530300	100
<b>Copper LR<sup>1</sup></b>	0-1mg/l Cu	Coppercol	147440	146440	517691 BT	100
<b>Copper LR<sup>1</sup></b> free only	0-1mg/l Cu	VARIO Coppercol	147441	146441	530300	100
<b>DEHA</b>	0-0.5mg/l DEHA	Iron reduction/H <sup>+</sup>	147370	146370	536000	100
<b>Fluoride</b>	0.2-2mg/l F	SPADNS Reagent	56K020901	146390	467481	62
<b>Iron LR</b>	0-1mg/l Fe	Ferrozine/Thioglycolate	56K020701	146220	56R020790	250
<b>Iron HR</b>	1-10mg/l Fe	Thioglycolate	147320	146320	515380	100
<b>Iron (TPTZ)</b>	0-1.8mg/l Fe	TPTZ	147470	146470	530550	100
<b>Manganese LR</b>	0.1-0.7mg/l Mn	PAN	56K021001	146410	535090	100

\*\* May be calculated by deducting free from total chlorine

<sup>1</sup> Only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)

For further options, please view the Lovibond® General Catalogue or visit [www.lovibond.com](http://www.lovibond.com)

## Lovibond® CHECKIT® Comparator (continued)



Test	Range	Chemistry	Test Kit	Disc	Reagent Pack	Test / Pack
<b>Manganese VLR<sup>1</sup></b>	0.02-0.2mg/l Mn	PAN	56K021101	146420	535090	100
<b>Molybdate HR</b>	0-100mg/l MoO <sub>4</sub>	Thioglycolate	147290	146290	517631 BT	100
<b>Molybdate HR</b>	50-500mg/l MoO <sub>4</sub>	Thioglycolate	147295	146295	517631 BT	100
<b>Molybdate LR<sup>1</sup></b>	0-10mg/l MoO <sub>4</sub>	Thioglycolate	147291	146291	517631	100
<b>Nitrate LR</b>	0-1mg/l N	NO <sub>3</sub> > NO <sub>2</sub> + Diazotisation	56K021201	146310	517910	100
<b>Nitrite</b>	0-0.3mg/l N	VARIO NO <sub>3</sub> > NO <sub>2</sub> + Diazotisation	147301	146301	530980	100
<b>Ozone (DPD) in the presence of chlorine</b>	0-1.0mg/l O <sub>3</sub>	Buffered DPD	147270	146270	517731	100
<b>pH</b>	5.2-6.8 pH	Bromocresol purple	147110	146110	511730	100
<b>pH</b>	6.0-7.6 pH	Bromothymol blue	147120	146120	511640 BT	100
<b>pH</b>	6.5-8.4 pH	Phenol red (Rapid)*	147100	146100	511790 BT	100
<b>pH-Universal</b>	4-10 pH	Universal (Mixed)	147130	146130	515440	100
<b>Phosphate HR</b>	0-80mg/l PO <sub>4</sub>	Phospho-Molybdate	147250	146250	511980	100
<b>Phosphate LR</b>	0-4mg/l PO <sub>4</sub>	Molybdenum blue	147240	146240	517651 BT	100
<b>Phosphate</b>	0-2.5mg/l PO <sub>4</sub>	VARIO Molybdenum blue	147480	146480	531550	100
<b>Silica LR</b>	0.25-4mg/l SiO <sub>2</sub>	Molybdenum blue	147350	146350	517671	100
<b>Silica HR VARIO</b>	0-100mg/l SiO <sub>2</sub>	VARIO Silico-molybdate	147351	146351	535700	100
<b>Silica VLR</b>	0-1mg/l SiO <sub>2</sub>	Molybdenum blue	147360	146360	517671	100
<b>Sodiumhypochlorite</b>	2-18%	Acidified potassium iodide	147490	146490	517721 BT	100
<b>Sulfite LR</b>	0.5-10mg/l SO <sub>3</sub>	DTNB	147380	146380	518020 BT	100
<b>Total Alkalinity</b>	20-240mg/l CaCO <sub>3</sub>	Alkacheck	147450	146450	513200 BT	100
<b>Zinc LR</b>	0-1mg/l Zn	Zincon	147340	146340	517920 BT	100

\* RAPID: fast dissolving tablet

<sup>1</sup> Only with CHECKIT® Comparator D55 with mirror optics (path length 55 mm)

For further options, please view the Lovibond® General Catalogue or visit [www.lovibond.com](http://www.lovibond.com)





Lovibond® Electrochemistry Systems

## SD Hand-held Series

- Quick, accurate measurements of pH, ORP, Conductivity (EC), TDS and Salt
- 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 pH	SD 60 ORP	SD 70 Con	SD 80 TDS	SD 90
<b>Order Code</b>	194800-16	194801-16	194802-16	194803-16	194804-16
<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	0-2000ppm 2.00-20.00ppt 0-60° C
<b>Resolution</b>	0.01 pH 0.1°C	0.1mV (up to ±1000mV) 1mV (over ±1000mV) 0.1°C	1µS (<=1999µS) 0.01mS (2-20mS) 0.1°C	0.1 mg/l (<=999mg/l) 0.01ppt (1-10ppt) 0.1°C	1ppm (<2000ppm) 0.01ppt (2.0-20.00ppt) 0.1°C
<b>Accuracy</b>	± 0.05 pH, ± 1°C	± 2mV, ± 1°C	± 1% FS, ± 1°C	± 1% FS, ± 1°C	±3% FS, ±1°C
<b>Calibration</b>	1, 2 or 3 point (NIST/IUPAC)	1 point (±150mV adjust)	1413µS 12.88mS	1 or 2 point	Up to 2 Points
<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 backlight				
<b>Compensation</b>	Automatic				
<b>Operation Temp.</b>	0-60°C				
<b>Battery Capacity</b>	> 350hr (SD 50 / SD 60) or > 100 hr (SD 70 / SD 80 / SD 90)				
<b>Auto Off</b>	8 minutes non-use				
<b>Size/Weight</b>	approx. 16.5cm x 3.8cm, 100g				

### Conversion table

- 1) 0-20,00 mS/cm = 0-20000µS
- 2) 0-10,00 ppt TDS = 0-10000 mg/l TDS
- 3) 0-10,00 ppt NaCl = 0-10000 mg/l NaCl

- 4) mg/l = Parts per Million (ppm)
- 5) ppt = Parts per Thousand (g/l)
- 6) FS = 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.

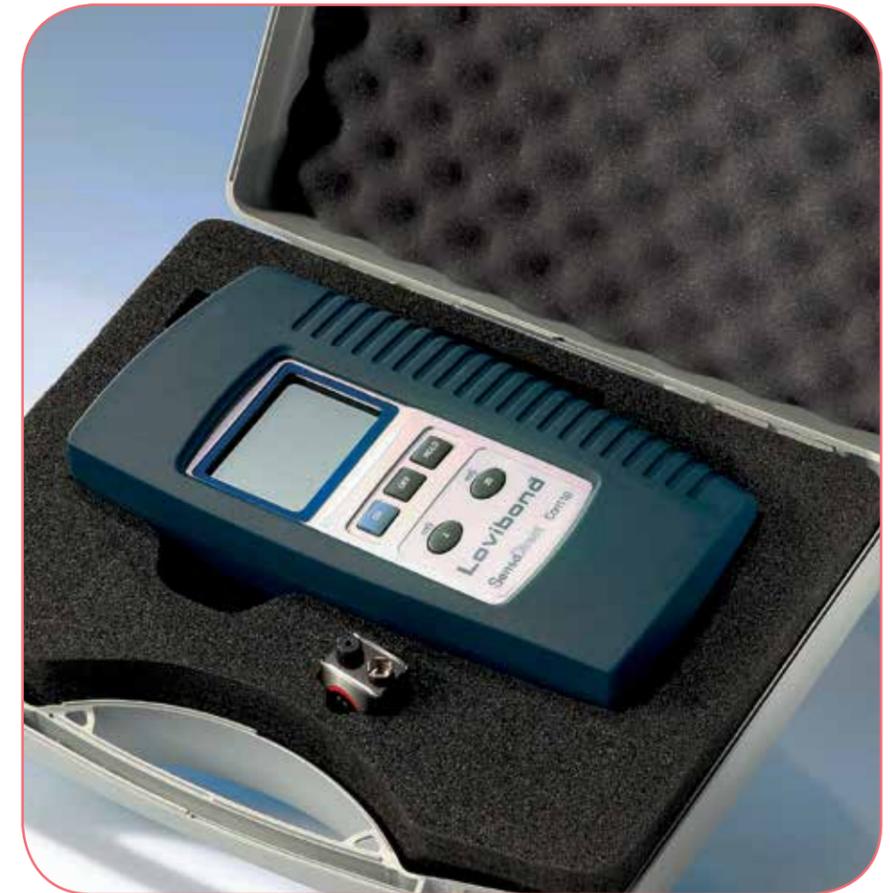
## SensoDirect 110 Series

- 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 pH 110 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 Con 110 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 Con 110 includes an automatic temperature compensation feature. The SensoDirect Con 110 can be calibrated and adjusted using a potentiometer.



### pH 110 Technical Data

<b>Range</b>	0 - 14 pH
<b>Resolution</b>	0.01 pH
<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) Calibrated at 23°C (± 5°C)
<b>Ambient conditions</b>	0-50°C 0-80% rel. humidity (non condensing)
<b>Battery</b>	9 V
<b>Dimensions</b>	208 x 110 x 34 mm (L x W x H)
<b>Weight</b>	approx. 380g
<b>EC-Conformity</b>	CE

### Con 110 Technical Data

<b>Range</b>	0.001 - 1.999mS 0.01 - 19.99mS
<b>Resolution</b>	0.001 / 0.01mS
<b>Temperature compensation</b>	0-100°C automatically 2%/K, 25°C
<b>Accuracy</b>	± 3% Full Scale: ± 1 Digit Calibrated at 23°C (± 5°C)
<b>Ambient conditions</b>	0-50°C 0-80% rel. humidity (non condensing)
<b>Battery</b>	9 V
<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
721300	SensoDirect pH 110	SensoDirect pH 110 Battery pH-buffer (4.0 / 7.0) pH plastic electrode-type 110 Case, instruction manual Guarantee sheet
722300	SensoDirect Con 110	SensoDirect Con 110 Battery Conductivity sensor Case, instruction manual Guarantee sheet



### SensoDirect Con110 Accessories:

Code	Description
722320	Conductivity sensor
56L002297	Conductivity calibration solution, 50µS, 500ml
56L001697	Conductivity calibration solution, 1413µS, 500ml
56L049497	Conductivity calibration solution, 2765µS, 500ml
56L001997	Conductivity calibration solution, 12.88mS, 500ml
722250*	Calibration solution, 1413µS, 500ml

\* NIST Traceable

### SensoDirect pH110 Accessories:

Code	Description
721330*	pH electrode plastic/gel, type pH110
721247*	pH buffer, 4.00 (25°C), 90ml
721248*	pH buffer, 7.00 (25°C), 90ml
721249*	pH buffer, 10.00 (25°C), 90ml
721252	pH buffer, 4.00 (25°C), 1L
721254	pH buffer, 7.00 (25°C), 1L
721256	pH buffer, 10.00 (25°C), 1L

\* NIST Traceable

## 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/Temperature
- pH/ORP/Temperature



Technical Data SensoDirect 150	
<b>Display</b>	Large LCD display with contrast adjustment
<b>Measurement</b>	pH: 0 – 14.00 pH ORP: ± 1999mV Conductivity: 200µS / 2mS / 20mS / 200mS TDS (Total Dissolved Solids): 132ppm / 1320ppm / 13200 ppm / 132000ppm Dissolved Oxygen: 0 to 20.0mg/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. 625g (unit incl. batteries)
<b>Software</b>	Data acquisition software Data logger software
<b>EC-Conformity</b>	CE
PH/REDOX	
<b>Range</b>	pH 0 – 14 pH mV -1999mV to 1999mV
<b>Resolution</b>	0 - 14 pH, 0.01 pH, 0 - 1999mV, 1mV
<b>Accuracy</b>	0 - 14 pH, ± 0.02 pH + 2 digits 0 - 1999mV, ± 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 point calibration

Technical Data SensoDirect 150	
DISSOLVED OXYGEN	
<b>Range</b>	Dissolved Oxygen 0 to 20.0 mg/l Oxygen in Air 0 to 100.0% Temperature 0 to 50°C
<b>Resolution</b>	Dissolved Oxygen 0.1mg/l 0.1% O <sub>2</sub> Temperature 0.1°C
<b>Accuracy (23± 5 °C)</b>	Dissolved Oxygen ± 0.4mg/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 - 200.0µS / 0.1µS 0.2 - 2.000mS / 0.001mS 2 - 20.00mS / 0.01mS 20 - 200.00mS / 0.1mS <b>TDS (Total Dissolved Solids)</b> 0 - 132mg/l / 0.1mg/l 132 - 1,320mg/l / 1mg/l 1,320 - 13,200mg/l / 10mg/l 13,200 - 132,000mg/l / 100mg/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
724200	<b>SensoDirect 150 Set</b> pH / Con / TDS / Oxygen	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
724210	<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 and case
724220	<b>SensoDirect 150 Set</b> pH / Oxygen	Instrument, pH electrode, Temperature probe, Oxygen sensor pH buffer set 4.00 / 7.00, Electrolyte, Membrane heads Instruction manual, Guarantee sheet, batteries and case
724230	<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 and 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), 3 x 90ml
721247*	pH buffer, 4.00 (25°C), 90ml
721248*	pH buffer, 7.00 (25°C), 90ml
721249*	pH buffer, 10.00 (25°C), 90ml
721252	pH buffer 4.00 (25°C) 1L
721254	pH buffer 7.00 (25°C) 1L
721256	pH buffer 10.00 (25°C) 1L
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 1413µS, 500ml
724410	Oxygen sensor, (approx. 4m cable)
724460	Spare membrane for oxygen sensor

\* NIST Traceable

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 (SD 150)
725050	Case with foam insert
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)

## SD 300 Series (pH, Conductivity and DO)

- Rugged, water resistant (IP67) design for field use
- Robust testing for on-site applications
- Automatic buffer detection for calibration
- Automatic freezing of measured value
- Data logger and alarm function for Good Laboratory Practice (GLP)
- Clear, concise result reading: easy-to-read backlit LCD display
- Automatic temperature compensation
- PC interface for data download

The SD 300 series provides an alternative, high accuracy choice for the water Testing Engineer. Built to last – these compact, IP67 rated instruments are housed in rubberised shock proof armouring with additional probe housing. Standard features include data storage (1000 sets), Automatic Temperature Compensation (ATC), large backlit display plus additional features such as data logging (automatic storage every time cycle) and enhanced automatic buffer recognition for calibration. PC interface options (USB, serial or analogue).

SD 300 pH delivers accuracy to +/- 0.005, two options for Redox reading and additional rH value calculation.

The SD 310 Oxi is a portable meter to address the demand for sturdy and reliable measurement of dissolved oxygen with O<sub>2</sub> concentration of 0.0-70.0mg/l.

SD 320 Con is supplied with a 4 pole conductivity cell for enhanced accuracy, repeatability and response. Automatic Temperature Compensation (ATC) via Pt1000 or NTC (10K) probe. User defined cell constants for TDS and salinity measurement. Readings referenced to either 20°C or 25°C.



### Delivery Content

#### 724611: SD 300 pH

Instrument with batteries, pH / temperature with plastic electrode type 225, temperature sensor Pt1000, manual and guarantee sheet, supplied in a plastic carry case.

#### 724650: SD 310 Oxi

Instrument with batteries, oxygen sensor with 1.5m cable (10m and 30m cables are also available), electrolyte solution (KOH), 30ml and 2pcs. spare membrane heads, manual and warranty supplied in a plastic carry case.

#### 724700: SD 320 Con

Instrument with batteries, conductivity cell LC12 (up to 200mS), manual and guarantee sheet, supplied in a plastic carry case.

Instrument	SD 300 pH	SD 310 Oxi	SD 320 Con
<b>Order Code</b>	<b>724611</b>	<b>724650</b>	<b>724700</b>
pH Redox rH Conductivity TDS Salinity	-2.000 – 16.000 pH -2000.0 – 2000.0mV 0.0 – 70.0rH	0.0-70mg/l 0 ... 1200 hPa O2 0.0 ... 427.5mm Hg 0-600%	0 - 200mS, up to 1000mS with optional LC 16 cell 0 – 5000mg/l (depends on cell constant) 0.0 – 70.0 (g salt / kg water equals PSU*)
Temperature	-5.0 - +150°C (Pt1000) +23.0 - +302.0°F	-5.0-+150°C 23-122°F	-5.0 - +100°C Pt1000 or NTC (10K)
Accuracy	± 0.005 pH ± 0.05% FS (mV or mVH) ± 0.2°C (-5.0 to +100.0°C) ±0.1 rH	0 . 25 mg/l ± 1.5 % ± 0.2 mg/l 25 ... 70 mg/l ± 2.5 % ± 0.3 mg/l ± 0.1 °C	± 0.5% MV. ± 0.1% FS ± 0.2°C (-5.0 to +100.0°C)
Calibration	1, 2 or 3 point (automatic) 1, 2 or 3 point (manual)	Calibration Against Air	1, 2 or 3 point (automatic) 1, 2 or 3 point (manual)
Memory	1000 sets manual, 10,000 cyclical	1000 sets manual, 8,000 cyclical	1000 sets manual, 10,000 cyclical
Display	2 x 4.5 digit, seven segment display (15mm and 12mm)	2 x 4.5 digit, seven segment display (15mm and 12mm)	2 x 4.5 digit, seven segment display (15mm and 12mm)
Compensation	Automatic	Automatic	Automatic
Battery Capacity	500 hours	1000 hours	160 hours
Auto Off	Selectable (0 to 120 min) or deactivated	0-120min	Selectable (0 to 120 min) or deactivated
Size	160 x 86 x 37mm (H x W x D)	164 x 98 x 37 (H x W x D)	160 x 86 x 37mm (H x W x D)
Weight	250g	287g	250g

\* PSU = Practical Salinity Unit

**Accessories: SD 300**

Code	Description
721226	pH electrode plastic/gel-type 226
721240BNC	Redox electrode plastic –type 240
721245	Pt1000 temperature sensor
418609	KCl solution, 3 molar saturated with AgCl, 100ml
721250	pH buffer set 4.00/7.00/10.00 (25°C)
721252	pH buffer 4.00 (25°C) 1L
721254	pH buffer 7.00 (25°C) 1L
721256	pH buffer 10.00 (25°C) 1L
195070	Redox calibration solution, 470mV, 100ml

**Redox Measurement (ORP)**

mV: Standard Redox or mV measurement

mVH: Conversion to hydrogen system according to DIN38404 Part 6

**rH Measurement**

rH: Calculated from a measured Redox value and a manually input pH value.

**Accessories: SD 310**

Code	Description
19805050	Oxygen Sensor with 1.5m cable, platinum cathode lead anode
19805055	Protection cap for oxygen sensor for depth measurement (pvc)
19805056	Protection cap for oxygen sensor for depth measurement (brass)
724620	USB Cable
725060	Case with foam

**Accessories: SD 320**

Code	Description
19805040	Conductivity cell LC 12, up to 200mS
19805045	Conductivity cell LC 16, up to 1000mS
722250	Calibration solution 1413µS
724620	USB 300 cable
724625	GSOFT 3050 data transmission software with logger for setting, reading and printing of data





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.

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

### Additional Equipment:

Code	Description	Qty/Pack
<b>56A006301</b>	10ml Burette including reservoir, jet and valve	1
<b>56A006401</b>	150ml flask	1
<b>56A006501</b>	Syringe, 20ml, plastic	1
<b>56A006601</b>	Stirring/crushing rod, plastic	1
<b>56A006701</b>	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 38 for case/kit options.

### Code: 56A003901

Digital Titrator and set of 8 syringettes



### Reagent Packs

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



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

### Ordering Information & Accessories:

Code	Description	Qty/Pack
<b>56A006801</b>	DIGI Titrator	1
<b>56A006972</b>	3 way valves for DIGI Titrator	5
<b>56A007072</b>	2mm Polypropylene Titrator Dispensing Tube	5
<b>56A007101</b>	Tip / Syringe for DIGI Brand Titrator	1
<b>56A006501</b>	Syringe, 20ml, plastic	1
<b>56A006601</b>	Stirring/crushing rod – plastic	1
<b>56A006701</b>	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 38 for additional case/kit options.



Test Kit Code	Reagent Pack	Description	Range	Tests/Pack
56K003501	56R003590	Acidity (P) Drop Test	0-7.5% H <sub>2</sub> SO <sub>4</sub>	100+
56K003601	56R003690	Alkalinity (M) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
56K003701	56R003790	Alkalinity (M) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K003801	56R003890	Alkalinity (P + M) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K003901	56R003990	Alkalinity (P + OH) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
56K004001	56R004090	Alkalinity (P) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
56K004101	56R004190	Alkalinity (P) HR Drop Test	0.25-6.0% NaOH	100+
56K004201	56R004290	Alkalinity (P) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K004301	56R004390	Alkalinity (P) LR Drop Test	250-6000mg/l NaOH	100+
56K004401	56R004490	Alkalinity (P, M + OH) HR Drop Test	200-2400mg/l CaCO <sub>3</sub>	100+
56K004501	56R004594	Alkalinity (P, M + OH) LR + HR Drop Test	50-2400mg/l CaCO <sub>3</sub>	200+
56K004601	56R004690	Alkalinity (P, M + OH) LR Drop Test	50-600mg/l CaCO <sub>3</sub>	100+
56K004701	--	Alkalinity Total (Disposable)	9-540mg/l CaCO <sub>3</sub>	50+
56K025401	56R025490	Carbon Dioxide Drop Test	10-300mg/l CO <sub>2</sub>	100+
56K004801	56R004890	Chloride HR Drop Test	200-12,000mg/l Cl <sup>-</sup>	100+
56K004901	56R004990	Chloride LR + HR Drop Test	20-12,000mg/l Cl <sup>-</sup>	100+
56K005001	56R005090	Chloride LR Drop Test	20-400mg/l Cl <sup>-</sup>	100+
56K005101	56R005190	Chlorine (Free) HR Drop Test	15-300mg/l Cl <sub>2</sub>	100+
56K005201	56R005290	Chlorine (Free) LR Drop Test	1-30mg/l Cl <sub>2</sub>	100+
56K005301	--	Chlorine Spot Tester Kit (Disposable)	Trace Cl <sub>2</sub>	500+
56K005401	56R005450	Chlorine (Semi-quantitative) Test	0.1-50mg/l Cl <sub>2</sub>	50
56K005501	56R005590	Chlorine (Total Available) HR Drop Test	0.2-15% Cl <sub>2</sub>	100+
56K005601	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	25-350mg/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>	250
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 HEDP	50+
56K008401	56R008490	Phosphonate Drop Test	4-20mg/l HEDP	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 (Chlorine Dioxide)	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

## 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>	10 - 10000mg/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 Powder, 20g Calcium Hardness Buffer (NaOH), 65ml	56R020150	50

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

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



### Titration Reagents

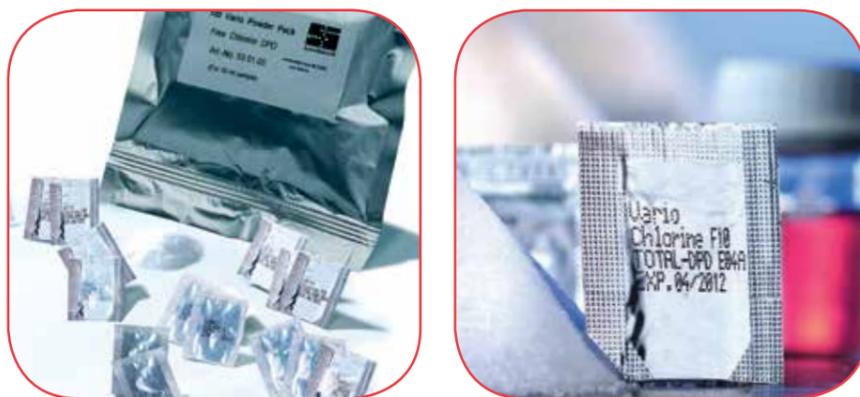
Test	As	Range	Specification	Code	Tests/Pack
<b>Hardness (Total) Pack</b>	CaCO <sub>3</sub>	10 - 4000mg/l	EDTA 0.8M 13ml EDTA 0.08M 13ml Total Hardness Indicator Powder, 20g Total Hardness Buffer, 65ml	56R020250	50
<b>Nitrite Pack</b>	NaNO <sub>2</sub>	20 - 2500mg/l	Ceric Sulphate 0.5M 13ml Ferroin Indicator, 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 <sup>2+</sup>	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.

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### 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® MD 600 photometer series.



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

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

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>Iron (Molybdate), 10ml</b>	0.01-1.8mg/l	Iron in the presence of Molybdate	100	536010
<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>536010</b>				
<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

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## Test Strips

- 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	Chlorine (Starch Iodide)	Presence/Absence	100	Q
56S000301	Chlorine (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	0.5-100mg/l H <sub>2</sub> O <sub>2</sub>	50	SQ
56S000950	Hardness Total	40-1000mg/l CaCO <sub>3</sub>	50	SQ
56S001890	Nitrate/Nitrite	10-500mg/l NO <sub>3</sub> <sup>-</sup> : 1-80mg/l NO <sub>2</sub> <sup>-</sup>	100	SQ
56S001990	Nitrite 3000	100-3000mg/l NO <sub>2</sub> <sup>-</sup>	100	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
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.



## Accessories

### Photometers

Code	Description	Qty/Pack
214050	Infra-red data transfer module IRiM	1
197620	Round vials with grey cap Height 48mm, ø 24mm	12
197626	Sealing ring for round vial ø 24mm	12
197665	Round vials with cap Height 90mm, ø 16mm	10
19802190	Adapter for round vials ø 16mm	1
418951	Vial Stand for 6 round cells	1
197635	Cleaning Cloth for Vials	10
364100	Plastic stirring rod, 13cm length	1
364109	Plastic stirring rod, 10cm length	1
1950026	Batteries (AAA)	4
380230	Cleaning brush, 10cm	1
N/A	AquaLX® App available for download to Android™ and IOS®	

### MD 100 / 110

Code	Description	Qty/Pack
215670	Verification Standard Kit	1
197600	Plastic vials (PC), with lid "Multi"-Type 2, ø 10mm	12

### MD 600 / 610 / 640

Code	Description	Qty/Pack
215640	Verification Standard Kit	1
214030	Cable for update for connection to a PC	1
19802192	Adapter for round vials ø 13mm	1
471007	Plastic funnel with handle	1
197657	Round vials with black cap for MD 640	1

### Comparator

Code	Description	Qty/Pack
142000	Lovibond® 2000+ Comparator	1
142050	Portable Lighting Unit, Battery Operated	1
606890	40mm (20ml) Glass Cell (for Lovibond® 2000+)	1
354253	13.5mm (10ml) Glass Cells (with lids)	5
418957	Vial Stand (for 10 x 13.5mm cells)	1
145000	Lovibond® CHECKIT Comparator	1
145010	Lovibond® CHECKIT Comparator, D55	1
145500	10ml Plastic Cells (with lids)	10

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## Accessories

### Titration

Code	Description	Qty/Pack
56A006801	Digital Titrator	1
56A007872	Syringette Assembly (Complete)	5

### Test Kit Ancillaries

Code	Description	Qty/Pack
56L004291	Buffer Solution - pH 4 (KS6)	125ml
56L000991	Buffer Solution - pH7 (KS9)	125ml
56L000391	Buffer Solution - pH10 (KS3)	125ml
56X000101	Clipboard (A5)	1
56L001691	Conductivity Standard, 1413µS (KS16)	125ml
56A006401	Conical Flask, 150ml	1
56A022901	Container Hinged, Plastic, 100ml	1
385130	Dilution Tube, 100ml	1
385132	Dilution tube, 30ml	1
56A020050	Filter Membranes, 0.45µ, ø 25mm	50
56A019950	Filter Papers, GF/C, ø 25mm	50
56A009101	Filter Holder, ø 25mm	1
145860	Plastic Box For Reagents	1
56A012501	Sample Containers, 250ml, Wide Neck	1
56A006501	Syringe, 20ml	1
56A008601	Syringe, 10ml	1
56A008501	Syringe, 5ml	1
56A008401	Syringe, 2ml	1
56A013501	Syringe, 1ml	1
56A006601	Stirring/crushing rod – plastic	1
56A008101	Titration Jar, Glass, 60ml	1
56A006701	Titration Jar, Plastic, 60ml	1
56A010501	Titration Jar, Plastic, 250ml	1
56A004401	Thermometer (Spirit), 5-105°C	1
AS-K21440	Tube and cap, plastic, graduated, 10ml	1
56A009401	Universal Container, 30ml + Cap	1
56A009001	Wash Bottle	1

# 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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