

Lab and Field Instrumentation

pH · ORP · ISE · DISSOLVED OXYGEN · CONDUCTIVITY ·
MULTI-PARAMETER · BOD/RESPIRATION · PHOTOMETRY · TURBIDITY



a xylem brand

BOD/Respiration



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Applications and measuring systems

BOD and degradability measurements are methods for determining the cleaning performance of microorganisms in aqueous solutions, and in semi-solid systems such as soil samples. The basis is the respiration of organically bound carbon to carbon dioxide. The pressure drop is recorded in closed vessels with the addition of a CO₂ absorber and the oxygen consumption is determined from the known volumes. In anaerobic methods, biogas is developed in the absence of oxygen. The yield of methane is determined via the resulting overpressure.

| | Digital | | | Analogue | Respirometric systems | | | | |
|---|------------------------|------------|------------|----------|-----------------------|-----------------|------------------|----------------|-------------|
| | Oxygen benchtop meters | | | | | | | | |
| | inoLab® IDS | | | inoLab® | OxiTop® | OxiTop® Control | | | |
| | Multi 9630 | Multi 9620 | Multi 9310 | Oxi 7310 | IS | 6/12 | B6, B6M, B6M 2.5 | S6/S12, A6/A12 | AN 6, AN 12 |
| ✓ yes | | | | | | | | | |
| ● yes | | | | | | | | | |
| ✓ recommended | | | | | | | | | |
| ✓ recommended for some applications | | | | | | | | | |
| – not recommended | | | | | | | | | |
| 2 parameters simultaneously* | ✓ | ✓ | | | | | | | |
| 3 parameters simultaneously | ✓ | | | | | | | | |
| Dissolved oxygen optical | ● | ● | ● | | | | | | |
| Dissolved oxygen galvanic | | | | ● | | | | | |
| Pressure measurement | | | | | ● | ● | ● | ● | ● |
| Additional parameters | ● | ● | ● | | | | | | |
| LIMS connection | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ |
| PC connection | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ |
| Memory | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ |
| USB interface | ✓ | ✓ | ✓ | ✓ | | | | | |
| Graphic display | | | ✓ | ✓ | | | ✓ | ✓ | ✓ |
| Color graphic display | ✓ | ✓ | | | | | | | |
| Optical dissolved oxygen sensor | ✓ | ✓ | ✓ | | | | | | |
| Conventional dissolved oxygen sensors | | | | ✓ | | | | | |
| Self-stirring dissolved oxygen sensor | | | | ✓ | | | | | |
| Manual read out | | | | | ✓ | ✓ | | | |
| Read out via IR controller | | | | | | ✓ | ✓ | ✓ | ✓ |
| BOD Routine | | | | | ✓ | ✓ | | | |
| BOD Standard | | | | | | ✓ | | | |
| BOD Special | | | | | | | ✓ | ✓ | ✓ |
| Output pressure | | | | | | | ✓ | ✓ | ✓ |
| BOD measurement | | | | | ✓ | ✓ | | ✓ | ✓ |
| Soil respiration | | | | | | | ✓ | | |
| Aerobic degradation | | | | | | ✓ | | ✓ | |
| Anaerobic degradation | | | | | | | | | ✓ |
| Compatible sensors | | | | | | | | | |
| Digital IDS dissolved oxygen sensor | | | | | | | | | |
| IDS Optical dissolved oxygen sensor 33 | ✓ | ✓ | ✓ | | | | | | |
| Analogue dissolved oxygen sensors | | | | | | | | | |
| Galvanic dissolved oxygen sensors 92 | | | | ✓ | | | | | |
| Self-stirring dissolved oxygen sensors 93 | | | | ✓ | | | | | |
| | Multi 9630 | Multi 9620 | Multi 9310 | Oxi 7310 | IS | 6/12 | B6, B6M, B6M 2.5 | S6/S12, A6/A12 | AN 6, AN 12 |
| see page | 40 | 40 | 41 | 88 | 117 | 118 | 121 | 123 | 124 |

Dilution BOD according to DIN EN 1899-1

inoLab® IDS - digital



BOD measurement with the new digital multi-parameter meters inoLab® IDS:

inoLab® Multi 9630 IDS: Measure three parameters simultaneously

The digital inoLab® multi-parameter instrument for IDS sensors for parallel measurement of up to three parameters. The FDO® 925 optical dissolved oxygen sensor is compatible with the inoLab® Multi 9630 and approved for BOD measurement



inoLab® Multi 9630 IDS

see page 40

inoLab® Multi 9620 IDS: Measure two parameters simultaneously

Similar to the inoLab® Multi 9630 IDS, but up to two sensors can be connected.



inoLab® Multi 9620 IDS

see page 40

inoLab® Multi 9310 IDS: Digital single parameter solution

The new inoLab® Multi 9310 IDS is well suited for dissolved oxygen measurement in the laboratory. The IDS technology allows optimized measurements and efficient documentation in the simplest manner.



inoLab® Multi 9310 IDS

see page 41

Order information: Dilution BOD

| Model | Description | Order no. |
|---------------------------------|---|-----------|
| inoLab® Multi 9310 SET 4 | Digital multi-parameter benchtop meter with a universal measuring channel for pH/mV, dissolved oxygen and conductivity. Meter in a set of optical IDS dissolved dissolved oxygen sensor FDO® 925, accessories | 1FD354 |
| inoLab® Oxi 7310 SET 4 | Professional, menu-controlled dissolved oxygen benchtop meters in a set with self-stirring dissolved oxygen sensor StirrOx® G, accessories | 1BA304 |

For additional products, see price list or www.WTW.com

inoLab® - analogue



All benchtop meters are available in application-oriented sets with sensors and accessories.

inoLab® Oxi 7310: Reliable measurement of dissolved oxygen with documentation

The inoLab® pH 7310 is perfectly suited for precision measurement and automatic GLP/AQA compliant documentation in quality laboratories of all industries. The meter is equipped a special connector for the connection of the StirrOx® G self-stirring dissolved oxygen sensor. Also available with optional built-in printer.

see page 88



inoLab® Oxi 7310P
(with built-in printer)

Sensors

FDO® 925(-P): Optical dissolved oxygen sensor

Flexible and powerful optical dissolved oxygen sensor also for IDS meters for BOD measurement

- Calibration free through factory calibration
- Wireless module makes it well suited for BOD measurement
- Attachment stirrer for BOD measurement

see page 33



FDO® 925

StirrOx® G: Galvanic dissolved oxygen sensor

Self-stirring galvanic dissolved oxygen sensor for measurement in Karlsruher and Winkler bottles

- One-hand operation for quick series measurement
- Constant flow for high reproducibility
- Extremely low intrinsic oxygen consumption - only $0.008 \mu\text{g h}^{-1} (\text{mg/l})^{-1}$
- Membrane leakage monitoring
- Long lifetime up to 6 months

see page 93

Technical data see dissolved oxygen sensors



StirrOx® G

BOD measurement and respirometric degradation methods with OxiTop®

BOD self-check measurement with OxiTop® IS and OxiTop® Control according to DIN EN 1899-2

OxiTop® provides an easy and safe way to measure biochemical oxygen requirement in water and wastewater analysis. Both systems work mercury-free and without dilution series. Complete sets including measuring heads, bottles and necessary accessories are ready to use. In all aerobic degradation measurements, the measuring principle is based on the absorption of the carbon dioxide resulting by microbial metabolism through suitable absorbers and thus the pressure drop resulting in a closed vessel. This is recorded and used for the calculation.



The OxiTop® BOD measurement system is particularly suited for wastewater analysis.

| | OxiTop® IS 6/IS 12 | OxiTop® Control 100 | OxiTop® Control 110 |
|---------------------------------|----------------------|-----------------------------|--|
| Application | BOD Routine | BOD Routine BOD Standard | BOD Routine BOD Standard BOD Special Aerobic and anaerobic respiration test |
| Measuring range BOD | 0 - 4000 mg/l | 0 - 4000 mg/l | 0 - 400,000 mg/l |
| Measurement value memory | 5 days | 0.5 h - 99 days | 0.5 h - 99 days |
| Pressure mode | - | - | 500 - 1350 hPa |
| Sample volume | Fixed specifications | Fixed specifications | Freely selectable |

OxiTop® IS 6/IS 12

- **Simple operation without dilution series**
- **Data security through Measured parameter memory**
- **Coordinated set for immediate measurement**



OxiTop® IS 12

Easy to operate respirometric measuring system for BOD₅. The sets include 6 or 12 measuring units. The heads in green or yellow mark inlet or outlet measurement. The AutoTemp function ensures a correct sample start at sample temperatures between 15 and 21 °C. Inductive, wear-free operating stirring platforms with pre-programmed stirring characteristics ensure optimum mixing of the sample. The data can be entered in a prepared diagram and give an immediate overview of the course of the measurement.

Technical specifications: OxiTop® Measuring head

| | Technical specifications |
|------------------------------|--|
| Measurement principle | Manometric with pressure sensor |
| Measured parameter | BOD _n |
| Measuring range | 0 ... 40 digit (display units) corresponds to 0 ... 40 / 80 / 200 / 400 / 800 / 2000 / 4000 mg/l BOD |
| Display accuracy | ±1 (± 3.55 hPa) |
| Pressure range | 500 - 1100 hPa |
| Memory | For BOD ₅ : 1 per day |
| Ambient temperature | Storage: -25 °C ... +65 °C Operation: +5 °C ... +50 °C |
| Dimensions | H: 69 mm, Ø 70 mm |

Order information: OxiTop® IS6/IS12

| Model | Description | Order no. |
|----------------------|--|-----------|
| OxiTop® IS 6 | BOD measuring system for self-check measurement with 6 measuring units including accessories, universal power supply, 100 - 240 VAC, 50/60 Hz | 208210 |
| OxiTop® IS 12 | BOD measuring system for self-check measurement with 12 measuring units including accessories, universal power supply, 100 - 240 VAC, 50/60 Hz | 208211 |

For further products, see price list or www.WTW.com

OxiTop® Control 6/Control 12 System

- **Convenient and easy operation by the controller**
- **Suitable for large sample volumes - Up to 100 parallel samples**
- **Time-saving and error-avoiding with automatic statistical evaluation**
- **Easy assignment through automatic sample ID**

The OxiTop® Control System is perfect for processing large BOD samples. With the infrared interfaces, the OC 100 controller communicates with up to 100 measuring heads. OxiTop®-C measuring heads record up to 360 data points over the measurement period, and thus provide a complete representation of the measurement. The curve representation is also possible on the controller display. The controller provides both routine and standard measurements with statistical calculations. The sets contain all necessary parts for immediate measurement. The controller OC 110 is available for further examinations. Available with 6 or 12 measuring units.



OxiTop® Box with OxiTop® Control 12

Application areas and technical specifications: OxiTop® Controller

| | OxiTop® Control OC 100 | OxiTop® Control OC 110 |
|-----------------------------------|--|---|
| BOD Routine | Individual samples up to 4000 mg/l | Individual samples up to 4000 mg/l |
| BOD Standard | Parallel samples with statistical evaluation up to 4000 mg/l | Parallel samples with statistical evaluation up to 4000 mg/l |
| BOD Special | – | Freely definable volumes, 0.5 h - 99 days, up to 400,000 mg/l BOD |
| Soil respiration | – | free volume determination |
| OECD/Aerobic application | – | free volume determination |
| Biogas determination | – | Pressure mode p 500 - 1350 hPa; 10 intermediate values |
| Data sets per measurement | 180 ... 360 (depending on runtime) | 180 ... 360 (depending on runtime) |
| Runtime of the measurement | 0.5 hours ... 99 days | 0.5 hours ... 99 days |
| Power supply | 3 Mignon (type AA); alkaline 1.5 V | 3 Mignon (type AA); alkaline 1.5 V |
| Interface | IR (Infrared); RS 232 for PC communication | IR (Infrared); RS 232 for PC communication |
| Ambient temperature | Storage: -25 °C ... +65 °C, operation: +5 °C ... +40 °C | Storage: -25 °C ... +65 °C, operation: +5 °C ... +40 °C |
| Dimensions | 45 x 100 x 200 mm (H x W x D) | 45 x 100 x 200 mm (H x W x D) |
| Weight | approx. 390 g | approx. 390 g |

Technical specifications: OxiTop®-C and OxiTop -C/B measuring heads

| | |
|------------------------------|--|
| Measurement principle | manometric with pressure sensor |
| Measured parameter | BOD _n (theoretically for up to 99 days) |
| Pressure range | 500 - 1350 hPa |
| Accuracy | ±1 % of measured parameter ±1 hPa |
| Resolution | 1 hPa (corresponds to 0,7 % of the BOD _n measuring range) |
| Power supply | 2 x CR2430 Lithium battery (280 mAh) |
| Ambient temperature | Storage: -25 °C ... +65 °C Operation: +5 °C ... +50 °C |
| Dimensions | H: 70 mm, Ø 70 mm |

OxiTop® Controller OC 100/OC110

- Convenient sample management and grouping of up to 100 OxiTop®-C measuring heads
- On request sample statistics or individual measurement
- Automatic BOD calculation and curve representation for optimal measuring control
- Readout possibility via PC program Achat OC for processing in spreadsheet programs
- BOD special mode with free temperature and volume selection and pressure mode (OC 110 only)
- Measuring intervals between 0.5 h and 99 days



1 year warranty

OxiTop® OC 100

OxiTop®-C and -C/B: Measuring heads for standard and biogas applications

- Infrared communication between OxiTop®-C and controller OC 100 or OC 110 for programming and data acquisition
- Automatic assignment of a sample ID for unambiguous identification and statistical evaluation
- AutoTemp function for correct measuring start at sample temperatures between 15 and 21 °C
- Up to 360 measuring units per measuring cycle for precise determination of the measuring process
- OxiTop® C/B: through H₂S-resistant pressure sensor particularly suitable for biogas applications



OxiTop®-C/B



OxiTop®-C

1 year warranty



OxiTop® Control 12

Order information: OxiTop controller and measuring heads

| Model | Description | Order no. |
|-----------------------|---|-----------|
| OxiTop® OC 110 | OxiTop® controller OC 110 for controlling BOD and special applications of OxiTop®-Control measuring systems | 208207 |
| OxiTop®-C | OxiTop®-C replacement measuring head (can only be used in conjunction with OxiTop® controller OC 100 / OC 110) | 208830 |
| OxiTop®-C/B | OxiTop®-C / B replacement measuring head (can only be used in conjunction with OxiTop® controller OC 100/OC 110. Corrosion-resistant version for anaerobic / biogas applications) | 208831 |

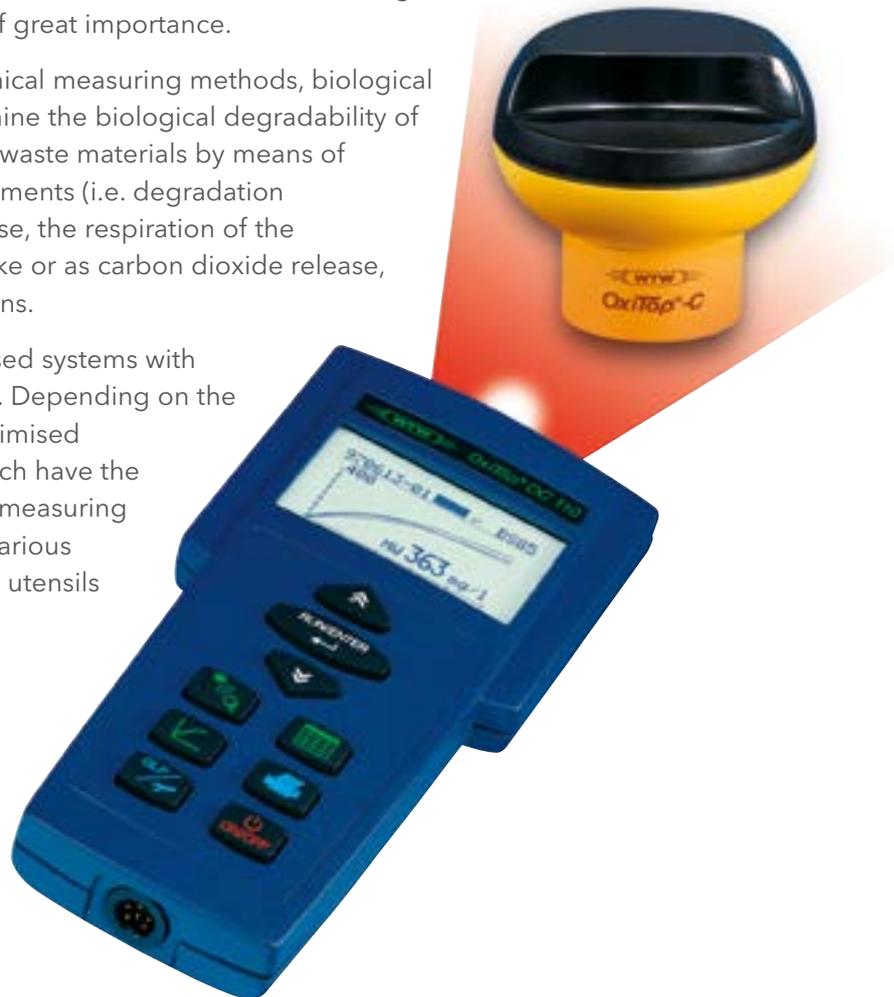
For additional products, see price list or www.WTW.com

Degradation/respiration measurement with OxiTop® Control OC 110

For environmental tasks, such as wastewater treatment, soil decontamination and waste treatment, the examination and monitoring of biological treatment processes is of great importance.

In addition to the usual physical-chemical measuring methods, biological tests are in the foreground. To determine the biological degradability of nutrients, contaminants, pollutants or waste materials by means of microbial activity, respiration measurements (i.e. degradation measurements) are carried out. In these, the respiration of the organisms, measured as oxygen uptake or as carbon dioxide release, is determined under defined conditions.

The measurements take place via closed systems with OxiTop®-C and the controller OC 110. Depending on the application area, correspondingly optimised measuring vessels are used, all of which have the necessary connection threads for the measuring head and are partially autoclavable. Various complete packages with all necessary utensils are available for this.



OxiTop® Controller

| | Application and method | Measurement principle |
|--|--|---|
| Measurement of soil respiration Page 121 | Soil analysis, remedial action of contaminated sites, DIN ISO 16072, AT4 | Aerobic under CO ₂ absorption, also quantitative CO ₂ determination |
| Measurement of biological degradability Page 122 | Determination per OECD 301F, ISO 9408 | Aerobic under CO ₂ absorption |
| Biogas measurement Page 124 | Anaerobic degradability tests (e.g., VDI 4630, GB 21) | Anaerobic, determination CO ₂ , methane; warning pressure possible |
| Microbiological measurement Page 124 | Growth and stress tests, determination of the respiration rate | Aerobic; warning pressure possible |

Measurement of microbial soil respiration per DIN ISO 16072

- **Various vessels for optimal adaptation to the application**
- **Measurements up to 99 days for special applications**
- **Also suitable for AT4 measurement**

Soil respiration measurement serves for the prognosis, survey and control of remedial action, for biochemical degradation measurements of pesticides, fungicides, insecticides, fertilizers, etc., as well as for performing toxicity tests.

For soils with greater CO₂ development, the measuring vessel MG 1.0 is available, through whose large opening (diameter approx. 100 mm) large-volume CO₂absorber vessels fit.

To measure the respiration of the AT4 guideline of residues of biomechanical waste treatment, a special kit is available containing 2.5 liter measuring vessels and a special CO₂-absorber with indicator.

OxiTop® Control B6

Set for general application with soils with low and medium respiratory activity, consisting of 6 bottles with GL 45 thread and 500 ml volume. Including 6 OxiTop®-C measuring heads and controller OC 110.



OxiTop® Control B6M

OxiTop® Control B6M

Set for respiratory active soils with six 1 litre vessels. The vessels feature large openings for convenient sample preparation.

OxiTop® Control B6M-2.5

Special set for the determination of respiration according to the AT4 guideline. The set features 2.5 l vessels and special soda lime absorber to ensure the moisture content of the sample. Including 6 OxiTop®-C measuring heads, controller OC 110 and accessories.



OxiTop® Control B6M 2.5

Order information soil respiration

| Model | Description | Order no. |
|---------------------------------|--|-----------|
| OxiTop® Control B 6M-2.5 | Measuring systems for determining AT4 soil respiration (aerobic), with controller OC 110 and 6 measuring units with 2.5 l measuring vessels. | 208231 |
| OxiTop® Control B 6M | Measuring system for determining the soil respiration (aerobic) with controller OC 110 and 6 measuring units; | 208232 |

For additional products, see price list or www.WTW.com

Measurement of biological degradability per ISO 9408 / OECD 301 F

- **Easy handling for safe results**
- **Flexible use for different volumes and temperatures**
- **Graphical evaluation in the controller for process monitoring**

OxiTop® Control measuring system for determining biodegradability per DIN EN ISO 9408 / OECD 301 F.

The determination of the biological degradability must be ensured before the first use of “new” chemicals; not only for environmental reasons, but also to minimise disposal costs.

The prepared sample and a blank are stirred for 28 days at a constant temperature in a closed bottle.

The resulting CO₂ is removed from the gas chamber by means of an absorber, so that the resulting underpressure represents a measure for the biological degradability.

Due to the continuous recording of the measured parameters in the OxiTop®-C, the required documentation is fully guaranteed. The measuring bottles and the adapter are autoclavable at 121 °C.

There are a total of four sets available for this application, which are adapted to different tasks.



OxiTop® Box
OxiTop® Control A6

OxiTop® Control A6

Set with six 1 liter wide-neck bottles and autoclavable adapter AD/SK, including controller OC 110 and stirring platform IS-6-Var. For example for samples that require high dilution.

OxiTop® Control A12

Set with twelve 250 ml wide-neck bottles and autoclavable adapter AD/SK, including controller OC 110 and stirring platform IS 12.



OxiTop® Control A6

OxiTop® Control S6

Set of six 510 ml sample bottles PF 600 including controller OC 110 and stirring platform IS 6. Well suited for samples where there is a risk of algae growth

OxiTop® Control S12

Set with twelve 510 ml sample bottles PF 600 including controller OC 110 and stirring platform IS 12. Well suited for samples where there is a risk of algae growth



OxiTop® Control IS6

Order information: Systems for determining the aerobic degradability

| Model | Description | Order no. |
|----------------------------|---|-----------|
| OxiTop® Control S 6 | BOD measuring system for aerobic measuring operation, with controller OC 110 and 6 measuring units, (also for BOD self-check) | 208196 |
| OxiTop® Control A 6 | BOD measuring system for aerobic measuring operation, with controller OC 110 and 6 measuring units. | 208220 |

For additional products, see price list or www.WTW.com

Biogas and microbiological determinations (aerobic/anaerobic measuring operation)

- **Convenient and accurate measurement of the biogas rate**
- **Targeted manipulation possible with special measuring bottles**
- **Safety through warning pressure function**

A major application is the verification of fermentable substrates for biogas plants for the estimation of gas yield. Anaerobic degradation processes take place under exclusion of oxygen. So that the gas space above the sample can be filled with inert gas, the measuring bottle has lateral connection pieces. These are closed with septa, so that carbon dioxide can be withdrawn at the end of the trial by adding a CO₂-absorber. The resulting pressure difference is proportional to the CO₂-concentration, the remaining overpressure is proportional to the methane concentration.

The degradation process can be conveniently tracked with the "pressure" operating mode. Since the production of methane gas under anaerobic processes leads to an increase in pressure, it can happen that the measuring range can be exceeded. For these cases, it is possible to specify a "warning pressure" or pressure limit value, so that the user can manipulate the system.

OxiTop® Control AN6

Set of six 1 l bottles with nozzles and autoclavable adapter AD/SK, including six corrosion-resistant special measuring heads OxiTop® C/B, controller OC 110 and stirring platform IS-6-Var as well as additional accessories. For anaerobic and aerobic measurements.



OxiTop® Control AN 6

OxiTop® Control AN12

Set of six 250 ml bottles with nozzles and autoclavable adapter AD/SK, including twelve corrosion-resistant special measuring heads OxiTop® C/B, controller OC 110 and stirring platform IS 12 as well as accessories. For anaerobic and aerobic measurements.

Order information: OxiTop® Control systems

| Model | Description | Order no. |
|------------------------------|---|-----------|
| OxiTop® Control AN 6 | BOD measuring system for anaerobic measuring operation, with 6 measuring units and controller OC 110, | 208225 |
| OxiTop® Control AN 12 | BOD measuring system for aerobic measuring operation, with 12 measuring units and controller OC 110, | 208227 |

For additional products, see price list or www.WTW.com

System extensions and accessories for OxiTop® measuring systems

System extensions and accessories are available to meet additional needs, including:

- Individual measuring heads OxiTop®, OxiTop®-C and OxiTop®-C/B
- Sets of OxiTop®- and OxiTop®-C measuring heads
- Complete measuring units expansion sets including heads, stirring platforms and accessories
- Stirring platforms
- Sample bottles and vessels

Stirring platforms for all liquid samples

The inductive maintenance and wear-free stirring platforms IS 6 and IS 12 are specially optimised for BOD measurement and have 6 or 12 stirring locations respectively. A program-controlled stirring process ensures optimum mixing between the liquid and the gas phase and prevents that the stirring bar is getting caught. With the IS 6-Var platform, stirring in large vessels is also possible, and there are two speed levels.



Stirring platforms IS 6 and IS 12



OxiTop® system function testers

The test for functionality of OxiTop® measuring heads and systems can be carried out with two test equipment, when using controllers even in defined intervals.

OxiTop® PT

With the OxiTop® PT, single heads are tested for tightness and correct function in a simple test. For this, an under pressured is simulated, which is tabulated accordingly. The default values are automatically stored in the controller of the OxiTop®-C.



Test means PT and PM

OxiTop® PM

These special calibration tablets simulate a BOD of approx. 300 mg/l (batch-dependent). Thus, complete measuring systems can be tested for the function of the measuring heads or the tightness.

Further accessories



Storage rack and marking rings



Overflow flasks

Storage rack

Safe storage of up to 6 OxiTop® or OxiTop®-C measuring heads

Marking rings

Labelling and identification of the BOD bottles

Overflow flasks

In addition to the standard measuring bottles, 164 ml and 432 ml available in the set. Further volumes are available including: 22.7 ml, 43.5 ml, 97 ml, 250 ml and 365 ml.

Incubator OxiTop® Box

- **Space saving and compact**
- **Air circulation cooling for uniform temperature distribution**
- **Automatically preset to 20 °C**

Thermo boxes for incubating BOD samples (dilution samples or respirometric samples) at constant temperature for easy requirements

Thermostat box with air circulation cooling for BOD OxiTop® measuring systems with a maximum of 12 measuring units or 20 Karlsruher bottles for easy requirements. Comes factory set to 20 °C. Low maintenance with automatic condensate evaporation.



OxiTop® Box

18 months warranty

The OxiTop® Control allows to read out the measured values without opening the incubator box.



Technical specifications: OxiTop® Box

| Model | OxiTop® Box |
|------------------------|--|
| Temperature control | 20 °C ±0,5 °C |
| Ambient temperature | Storage: -25 °C ... +50 °C Operation: +10 °C ... +32 °C |
| Power input | 200 W |
| Dimensions (H x W x D) | 375 x 425 x 600 mm |
| Weight | Approx. 30 kg |

Order information: OxiTop® Box

| Model | Description | Order no. |
|-------------|---|-----------|
| OxiTop® Box | BOD OxiTop® thermostat box with temperature-controlled air circulation, for mains operation 230 V/50 Hz | 208432 |

For the 115v/60 Hz version, see price list or www.WTW.com

Thermostat cabinets TS

- **Cost-effective solution for respirometric test procedures**
- **Models with glass doors for OxiTop® Control applications**
- **Energy-efficient thermal insulation**

Thermostat cabinets for the incubation of respirometric samples at constant temperatures between 10 and 40 °C - cost-effective and energy-efficient.

WTW Thermostat cabinets are adapted to respirometric measurements with OxiTop® systems. The temperature can be set in increments of 1 °C, which is maintained within ± 0.5 °C. The thermal insert with the radial fan for the constant temperature control has sockets for the agitating platforms. The thermo cabinets are available in three sizes.

Technical specifications: Thermostat cabinets

| Model | TS 606/2-i | TS 606/4-i | TS 1006-i |
|---------------------------------|---|--------------------------------------|--|
| Shelves | 2 | 4 | 4 with further distance |
| Number of samples | 2 x 12 BOD Standard | 4 x 12 BOD Standard | 4 x 12 BOD standard 4 x 6 Special vessels |
| Glass door | Optional | Optional | – |
| Temperature control range | +10 °C ... +40 °C ±1 °C; setting interval: 1 °C | | |
| Ambient temperature | Operation: +10 °C ... +32 °C (climate class SN); storage: -25 °C ... +65 °C | | |
| Gross content | 180 l | 360 l | 500 l |
| Dimensions (H x B x T in mm) | Outside: 850 x 600 x 600 Inside: 702 x 513 x 441 | 1640 x 600 x 610 1452 x 470 x 440 | 1640 x 750 x 730 1452 x 600 x 560 |
| Weight | 34 kg | 53 kg | 69 kg |

TS 606/2-i and TS 606-G/2i

Thermostat cabinet for two OxiTop® measurement systems with maximally twelve measuring stations each. For 230 VAC, 50 Hz.

The model TS 606-G/2i has a door with insulated glass for OxiTop®-C operation.



TS 606-G/2-i





TS 606/4-i

TS 606/4-i and TS 606-G/4i

Thermostat cabinet for four OxiTop® measurement systems with a maximum of twelve measuring units each. For 230 VAC, 50 Hz.

The model TS 606-G/4i has a door with insulated glass for OxiTop®-C operation.

TS 1006-i

Thermostat cabinet for four OxiTop® measurement systems with maximally twelve measuring units each. Also suitable for special applications due to the high compartment height. For 230 VAC, 50 Hz.



Order information: Thermostat cabinets

| Model | Description | Order no. |
|---------------------|--|-----------|
| TS 606/2-i | Thermostat cabinet for 2 BOD-OxiTop® measurement systems | 208380 |
| TS 606/4-i | Thermostat cabinet for 4 BOD-OxiTop® measurement systems | 208383 |
| TS 1006-i | Thermostat cabinet for 4 BOD-OxiTop® measurement systems | 208385 |
| TS 606-G/2-i | Thermostat cabinet for 2 BOD Oxitop® measurement systems with glass door | 208381 |
| TS 606-G/4-i | Thermostat cabinet for 4 BOD Oxitop® measurement systems with glass door | 208384 |

Additional accessories see price list or www.WTW.com