

Accurate and direct display of BOD values in mg/l

- Direct sample selection
- Simple handling
- Automatic memory for all measurement values
- Environmentally friendly, as mercury-free
- RS 232 interface

Principle

During the determination of the Biochemical Oxygen Demand (BOD), the bacteria in a waste water sample consume the oxygen dissolved in the sample. This oxygen is then replaced by atmospheric oxygen present in the sample flask. The carbon dioxide, which is created at the same time, is chemically bound by the potassium hydroxide solution in a rubber gasket.

The resulting pressure drop is directly proportional to the BOD value and is measured by BOD DIRECT. The BOD value is displayed directly in mg/l.

All BOD measuring values are stored and can be recalled at any time on a large display. A time-consuming conversion using factors is not necessary. As such, a series of measurements ending on a Sunday, for example, can also be evaluated the following week without difficulty.



A measuring period of anywhere between one and twenty eight days can be selected for different applications. While short measurement periods are useful for scientific applications, regular BOD measurement takes place over a period of five days. However, a respirometric measurement in line with OECD requirements takes twenty eight days.

The biochemical oxygen demand (BOD)

BOD determination is an important tool in the analysis of domestic and industrial waste waters. In contrast to COD, BOD measures biodegradable organic matter in the water.

Respirometric BOD

The BOD DIRECT for six measurement points facilitates the precise and easy determination of BOD in accordance with the respirometric principle. Modern pressure sensors have completely replaced the use of harmful mercury.

Measurement ranges and sample volume

The BOD value of a sample may strongly vary. BOD DIRECT works with different sample volumes depending on the measurement range. This results in a total measurement range of 0–4000 mg/l.

Measurement evaluation

The BOD DIRECT system records the measurement values from every hour to every day depending on the selected measurement duration. Current values as well as stored values can be recalled at any time.

Autostart function

Different sample temperatures at the start cause pressure changes in the measurement system during tempering. These changes result in errors during respirometric measurement. In order to prevent these errors, BOD DIRECT is equipped with an autostart function:

Measurement only begins once the temperature in the samples matches the temperature in the thermostat cabinet.

The complete BOD Direct measurement system

- BOD measurement unit
- Sample flasks
- Measurement heads
- Inductive stirring system
- Overflow measuring flask for measuring sample volumes
- Nitrification inhibitor
- Potassium hydroxide absorber

Specifications

Measuring principle	Respirometric; mercury-free; electronic pressure sensor
Measurement ranges [mg/l O₂]	0 - 40, 0 - 80, 0 - 200, 0 - 400, 0 - 800, 0 - 2000, 0 - 4000 mg/l
Accuracy*	0.5 % of measurement range end value at 20°C
Areas of applications	BOD ₅ , BOD ₇ , OECD 301 F etc.
Display	BOD [mg/l]; 4 - digits ; 7 - segment LED measurement range, volume, duration, measurement point
Measurement duration	Selectable – between 1 and 28 days
Automatic measurement value memory	Up to 28 measurement values depending on measurement duration
Memory interval	– Hourly (1 day); – Every 2 hours (2 days); – Daily (3-28 days)
Autostart	– Following sample tempering – Can be switched off
Power supply	3 alkaline manganese batteries (round cell R14/size C)
Battery service life	1 year when used regularly with a BOD ₅ measurement device (max. of 1 reading a day), early warning when reaching end of service life
Interface	RS 232 for printer/PC connection
Clock	Real-time clock
Protection class	IP 54 (sensor head)
Dimensions: (L x W x H)	375 x 195 x 230 mm including stirring unit
Weight	Approx. 3850 g, device with flasks Approx. 5750 g, complete with stirring unit
Housing	ABS
Quality mark	CE

* Standard solutions for determining the accuracy of respirometric oxygen consumption measurement are not available. Test measurements with a glucose-glutamic acid standard solution and a known theoretical BOD may demonstrate deviations of approximately 5% in the 50–100 mg/l BOD measurement range and approximately 3% for higher measurement ranges. The respirometric system's lower determination limit is approximately 0.05–1 mg/l BOD.



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