

BIOCHEMICAL OXYGEN DEMAND (BOD)

WHAT IS BOD?

BOD (Biochemical Oxygen Demand) is a chemical procedure for determining the amount of dissolved oxygen consumed by aerobic biological microorganisms in water.

The analysis is carried out on a given water sample at certain temperature over a specific period.

The results are most commonly expressed in milligrams of oxygen consumed per liter of sample at a constant temperature of 20 °C over a 5 day incubation period (BOD_5), or during complete oxidation obtained after a maximum period of 30 days ($BOD_{ultimate}$).

BOD determination is widely used as an indication of the organic quality of water and the degree of organic pollution of water.

BOD ANALYSIS

In conformity with International safety regulations for safeguarding workers and the environment, VELP Scientifica has developed an innovative ecological (mercury-free) system for BOD determination using a microprocessor and manometric technology.

Different solutions are available to suit different needs.

BOD CONTROL TESTS

Water quality analysis calls for systematic research using instruments of guaranteed accuracy and precision.

VELP offers two accessories to test the accuracy of BOD instruments:

- **BOD Sensor Check** (Code No A00000135); performs a quick test to check if the BOD Sensor is operating properly.
- **Control Test Tablets** (Code No A00000136); check both the correct functioning of the system and the calibration of the pressure sensor through a 5-day test.

GLP Good Laboratory Practice

EPA • APHA • AWWA • WEF

BMS 6

The **BMS 6** for BOD determination uses the traditional manometric technique for concentrations of up to 1000 mg/l (ppm); higher concentrations must be diluted before analysis.

The instrument houses 6 bottles each with manometer and 4 scales for concentrations of up to 90, 250, 600 and 999 ppm BOD.

The 500ml bottle can take sample quantities of from 100 to 400 ml.

The 6-position magnetic stirrer incorporated in the base of the instrument ensures **continuous stirring** of the samples.

INSTRUMENT	POWER SUPPLY	CODE No
BMS 6	230 V / 50 Hz	F10220131
BMS 6	230 V / 60 Hz	F10230131
BMS 6	115 V / 60 Hz	F10240131



BOD SENSOR AND BOD SENSOR SYSTEM



The **BOD Sensor Set** is a ready-to-use solution consisting of a BOD Sensor, a dark glass bottle, an alkali holder to absorb the carbon dioxide and a stirring bar.

This simple configuration was designed to meet the demands of those laboratories that carry out **individual BOD analysis only**.

The BOD Sensor Set is designed for use with the VELP MST stirrer (Code No F203A0160).

It can also come as a package in the **BOD Sensor System 6 or 10** configuration, including a 6- or 10-position stirring station with BOD Sensors, dark glass bottles, alkali holders for absorbing the carbon dioxide and stirring bars.

The **6-position Stirring Station** is extremely **simple to handle** and the VELP stirring quality is guaranteed. The **space saving footprint** means that up to 5 stirring stations for a total of 30 samples can be placed in a VELP incubator (FOC 215E) simultaneously.

Measurement is available on 4 different scales - 90, 250, 600 and 999 ppm BOD. Higher values can be measured by diluting the sample.

INSTRUMENT	POWER SUPPLY	CODE No
BOD Sensor	-	F102B0133
BOD Sensor Set	-	F102B0134
BOD Sensor System 6	230 V / 50 Hz	S10220136
BOD Sensor System 6	230 V / 60 Hz	S10230136
BOD Sensor System 6	115 V / 60 Hz	S10240136
BOD Sensor System 10	230 V / 50 Hz	S10220137
BOD Sensor System 10	230 V / 60 Hz	S10230137
BOD Sensor System 10	115 V / 60 Hz	S10240137



The **BOD Sensor** is the **mercury-free** and **reliable** solution for BOD determination.

Easy to handle, quick and easy to read. A microprocessor-controlled pressure transducer transfers the BOD value directly to the display: results are displayed **directly in mg/l** with **no need for further calculation** and are stored automatically in the BOD Sensor. Manufactured with premium materials, it automatically stores 5 BOD measurements at 24-hour intervals meaning that analysis can continue over the weekend.

The **BOD value** can also be obtained directly from the **display at any time**, even after five days.



BOD EVO SENSOR SYSTEM 6

The **BOD EVO Sensor** is the **unique** and **revolutionary wireless sensor**, able to transfer data to the dedicated software **BODSoft™**.

Mercury-free and intuitive, BOD EVO Sensor ensures an **outstanding reliability** as there is **no need to open the door of the incubator** thus eliminating the risk of internal temperature variations. BOD EVO Sensor has an **extremely compact** profile and is **easy to handle**. The sensor measures the BOD value **directly in mg/l** with no need of further calculation and the results are immediately sent to the PC. Real time monitoring on the sensor display is still possible. Manufactured using the most modern and advanced construction techniques, the BOD EVO Sensor fits directly on the bottle containing the sample.

Measurement is available on 4 different scales - 90, 250, 600 and 999 ppm BOD. Higher values can be measured by diluting the sample.

It comes as a package in the **BOD EVO Sensor System 6** configuration, including the 6-position stirring station with BOD EVO Sensors, dark glass bottles, alkali holders for absorbing carbon dioxide and stirring bars.

The **Stirring Station** is extremely **simple to handle** and the VELP stirring quality is guaranteed. The **space saving footprint** means that up to 5 stirring stations for a total of 30 samples can be placed in a VELP incubator (FOC 215E) simultaneously.

INSTRUMENT	POWER SUPPLY	CODE No
------------	--------------	---------

BOD EVO Sensor System 6	230 V / 50 Hz	S10220156
-------------------------	---------------	-----------

BOD EVO Sensor System 6	230 V / 60 Hz	S10230156
-------------------------	---------------	-----------

BOD EVO Sensor System 6	115 V / 60 Hz	S10240156
-------------------------	---------------	-----------

BOD EVO Sensor System 6*	230 V / 50 Hz	S10220146
--------------------------	---------------	-----------

BOD EVO Sensor System 6*	230 V / 60 Hz	S10230146
--------------------------	---------------	-----------

BOD EVO Sensor System 6*	115 V / 60 Hz	S10240146
--------------------------	---------------	-----------

* including BOD Wireless Databox™, BODSoft™ and cable



BOD EVO transfers the BOD value to the **BOD Wireless Databox™** automatically.

The results are shown through the user friendly **BODSoft™**.

An innovative solution to simplify BOD investigations!



BOD Wireless DataBox™

The **exclusive wireless data transmission** from the BOD EVO Sensor to the **BOD Wireless DataBox™** can be set at selected intervals ranging from 30 minutes to 24 hours in the case of BOD₅ (5-day test); for longer analyses the sampling time period range goes from 2 to 24 hours. The BOD EVO Sensor automatically stores the most recent values.

Data transmission is ensured even when the BOD Wireless DataBox™ is not connected to the PC. The BOD Wireless DataBox™ can store unlimited results for up to 80 samples.



BODSoft™



The **BODSoft™** is **extremely intuitive and easy to use** right from the start.

1...BEFORE AND DURING THE ANALYSIS

All the most important info is **clearly displayed** during analysis, including the status of the sensor battery. An **unlimited database** shows all the completed and active analyses, with a **real time graph**.

2...AFTER THE ANALYSIS

At the end of the analysis, **customized test reports** can be created along with **results comparison**. Results are stored into databases and can be exported in .xls, .txt and .csv format to PC or LIMS.



GENERAL FEATURES AND PERFORMANCE

	Traditional with mercury	Innovative, mercury-free manometric with pressure sensor		
	BMS 6	BOD Sensor Set	BOD Sensor System 6 and 10	BOD EVO Sensor System 6
REAL TIME DATA READING mg/l (ppm)	On board	On display	On display	On display
PC DATA READING mg/l (ppm)				•
DATA STORAGE	BOD ₅	Every 24 hours	Every 24 hours	Every 30 min / 1/2/4/6/8/12/24 hours
	BOD _{ultimate}	-	-	Every 2/4/6/8/12/24 hours
SCALES	ppm BOD	90, 250, 600, 999	90, 250, 600, 999	90, 250, 600, 999
SUPPLIED WITH	SENSOR	1	6	10
	DARK GLASS BOTTLE	6	6	10
	ALKALI HOLDER	6	6	10
	STIRRING BAR	6	6	10
	STIRRING STATION	6-place	6-place	10-place
DIMENSIONS (WxHxD) mm	350x360x210	75x230x75	270x300x175	432x300x165
	(13.8x14.2x8.3)	(3.0x9.3x3.0)	(10.6x11.8x7.3)	(17.0x11.8x6.5)
WEIGHT Kg (lb)	7 (15.4)	0.4 (0.9)	2.3 (5.1)	3 (6.6)
POWER SUPPLY	115 or 230V	-	115 or 230V	115 or 230V
POWER	2W	2x3V batteries	2W	2W

OPTIONAL ACCESSORIES

CODE No

BOD Sensor Check

A00000135 *

Control Test Tablets, 8 pcs/box

A00000136

* for BOD Sensor Set, BOD Sensor Systems 6 and 10 and BOD EVO Sensor System 6

OPTIONAL ACCESSORIES

CODE No

Multi-socket extension cable

A00000221