# BOD analyzer with Biosensor, Model Quick BOD α1000

| Specifications | |
|---|---|
| **Model** | Quick BOD α1000 |
| **Measurement method** | Biosensor |
| **DO electrode** | Clark cell type oxygen electrode |
| **Measurement range** | 2 ～ 50 mg/L (basic measurement range based on trichosporon cutaneum membrane) |
| **Measurement time** | Approx. 60 minutes per measurement |
| **Measureable sample** | Liquid samples containing soluble organic |
| **Calibration** | 1 point calibration by glucose glutamic solution |
| **Repeatability** | ±5% (in case of 20-50 mg/L F.S. setting, using trichosporon cutaneum membrane and stable environment temperature) |
| **Temp. control** | 20 to 40 degree C (adjustable)<br>Automatic warming/cooling PI control function with peltiert device |
| **Output** | Print-out output<br>BOD value hold output (DC 0-5 V)<br>Probe output (DC 0-5 V) |
| **Power requirement** | 100VAC, 50/60 Hz, 3 A |
| **Dimensions** | 260(W) × 320(D) × 409(H) mm |
| **Weight** | Aprrox. 16 kg, not including reagents |
| **Optional accessories** | Microbe membrane (trichosporon cutaneum)<br>Pipettes or measuring apparatus |


| Order No. | Descriptions | Remarks | Quantity |
|---|---|---|---|
| C00018601 | BOD Analyzer Quick BOD α1000 | | |
| Standard Accessories | Printer | ● Printy 3 | 1 |
| | Microbial immobilization kit | ● Immobilization membrane kit (10 sets/pkg) ● Immobilization tool (1 pair) | 1 |
| | BOD seeds | ● 5 capsules | 1 |
| | DO probe kit | ● DO electrode (1) ● Membranes (5) ● Electrolyte (1) ● Metal polish (1) ● Syringe (1) | 1 |
| | 0.5M Phosphate buffer solution | ● 5L | 1 |
| | 5000 mg/L BOD standard solution | ● 500mL | 1 |
| | Containers | ● Plastic vial, 30 mL (1) ● Plastic bottle, PP, narrow-neck, 500 mL (1) ● Plastic bottle, PP, wide-neck, 100 mL (2) ● Plastic bottle, PP, wide-neck, 500 mL (2) ● Poly flattened container, wide-mouth, 10 L (2) ● Poly flattened container, wide-mouth, 20 L (1) | 1 |

| Optional accessories | | | |
|---|---|---|---|
| C00041303 | Microbe membranes, 5/pkg | ● Trichosporon cutaneum | 1 |

「Apparatus for the estimation of biochemical oxygen demand (BODs) with microbial sensor」

**JIS K 3602**-1990 (established Sept. 1st, 1990)

Although the BODs (JIS K 3602) microbe electrode method and BOD5 (JIS K 0102) 5-day method are different, the expected BOD5 value can be approximated from the BODs value. This enables water quality to be monitored over a short period of time in order to permit any necessary measures to be enacted quickly and effectively. It was therefore incorporated as a separate method.

☆ This analyzer complies with the JIS standard only if the optional microbe membrane (Trichosporon cutaneum)

※ Subject to change


**ISO 9001 certified**

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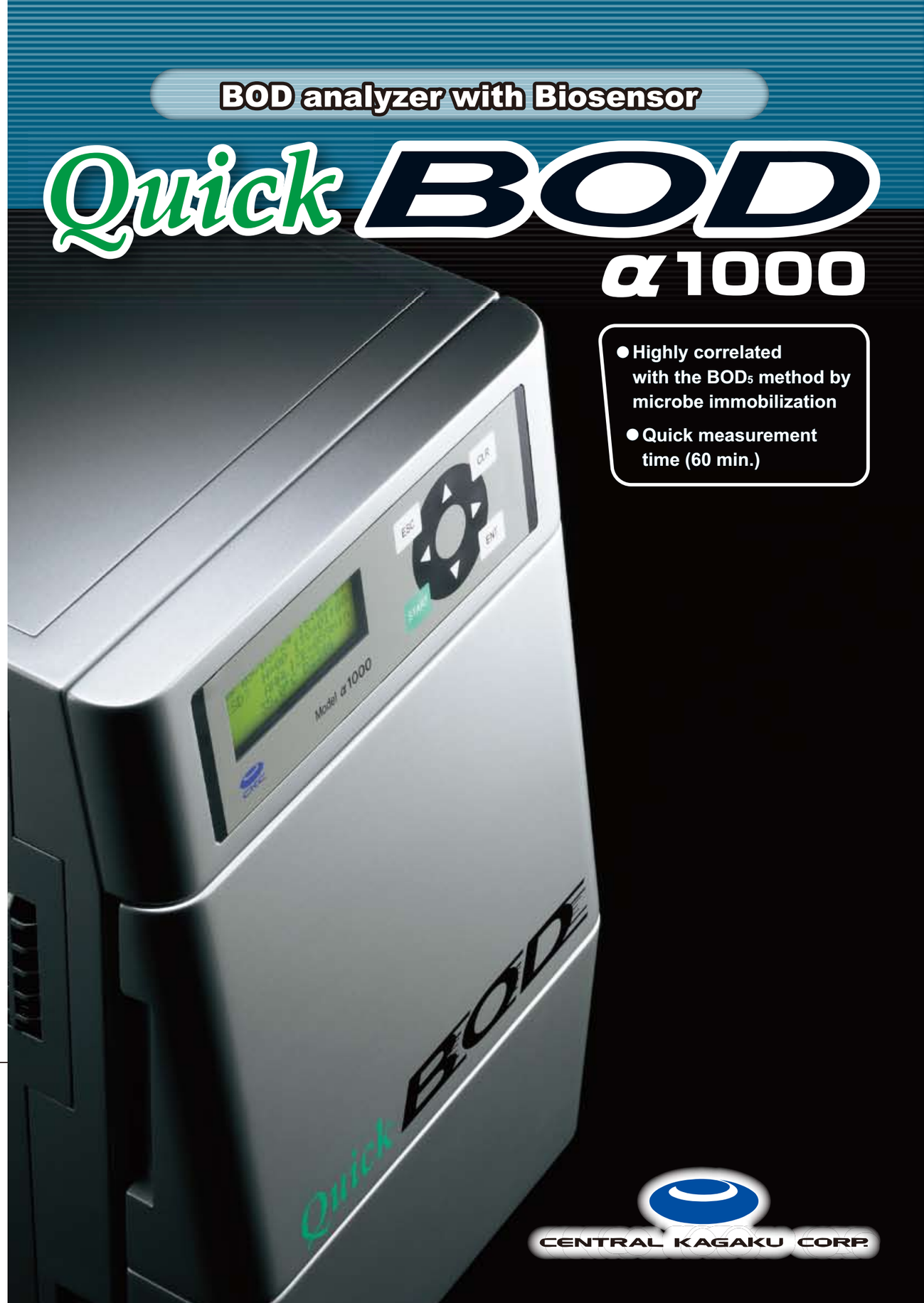
## BOD analyzer with Biosensor

# Quick BOD α1000

- Highly correlated with the $BOD_5$ method by microbe immobilization
- Quick measurement time (60 min.)



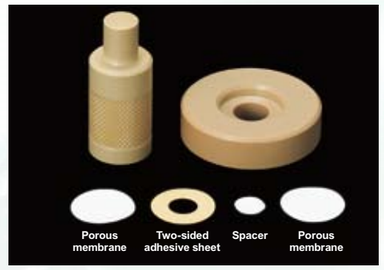
# BOD analyzer with biosensor by using microbes in activated sludge

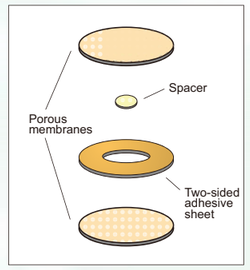
# Quick BOD α1000

**Quick BOD α 1000 is a BOD analyzer with biosensor for BOD measurement equipping a high precise liquid transition, temperature control and detection. Microbe immobilization kit enables to measure BOD values by using microbes in customer's activated sludge optimized for customer's sample in addition to normal microbes. Furthermore the detection by Clark cell type DO probe provides long stable measurements.**

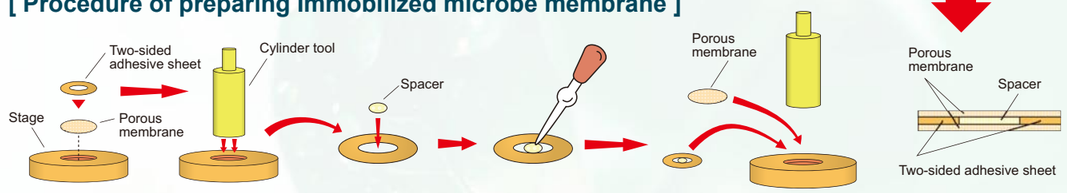

## Highly correlated with the $BOD_5$ method

By using the membrane on which microbe was immobilized with microbe immobilization kit as standard accessory, you can get a high correlation with the $BOD_5$ method.
See the figures below.




### [ Procedure of preparing Immobilized microbe membrane ]




Put a porous membrane on the stage. Peel off the one side of the two-side adhesive sheet and put it on the porous membrane. Press it into place with the cylinder tool to adhere enough.

Take out the assembled sheet and membrane. Peel off the other side of the two-sided adhesive sheet and then put the spacer in the center of the sheet. Put a drop of activated sludge bacteria on the spacer with the dropper.

Put the membrane on the stage. Put an another porous membrane on it and press with the cylinder tool to fix.

**Complete membrane**

## The biosensor method is the fastest!!

Normally BOD measurements require 5 days. The analyzer can measure BOD in 60 minutes due to Biosensor technique and the incubation under 20 degree C temperature for 5 days periods according to the standard method, No. JIS K 0102, is not required.

## Touch key pads easy to operate, compact size for the minimum space.

The analyzer features a simple menu structure and easy touch keys to operate. The analyzer has a slim and compact body which stands upright and does not require large space to install.


Easily viewable display (20 digits x 4 lines, back-light LCD).
Simple operating keys.

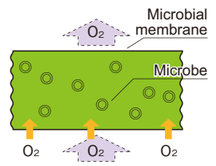
## Basic measurement range 2-50 mg/L Up to 100 mg/L available

The basic measurement range is 2 mg/L to 50 mg/L. The maximum measurement range is expandable up to 100 mg/L. It is adaptable for monitoring or controlling the water quality of not only effluent but also influent or treated sewage in the process.

## [ Principle of measurement ]

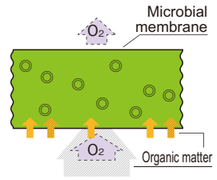
The change in respiratory action caused by the consuming of organic matter by bacteria is monitored by an oxygen electrode. This bacteria is incorporated into the oxygen electrode. When a solution containing organic matter is fed to the microbe electrode sensor, the microbes ingest the organic matter increasing respiratory action and then consuming oxygen. The amount of oxygen passing through the microbe membrane decreases, resulting in a change in the current which is output by dissolved oxygen electrode. This change corresponds to the concentration of organic matter.

### [ Sample water not containing organic matter ]




When sample water not containing organic matter (e.g. tapped water or pure water) flows to the microbe membrane, the amount of oxygen which goes through the microbe membrane changes little due to the low oxygen consumption.

### [ Sample water containing organic matter ]




When sample water containing organic matter (e.g. wastewater) is fed to the microbe membrane, the microbes ingest the organic compounds and increase the consumption of oxygen resulting in the less amount of oxygen passing through the microbe membrane.

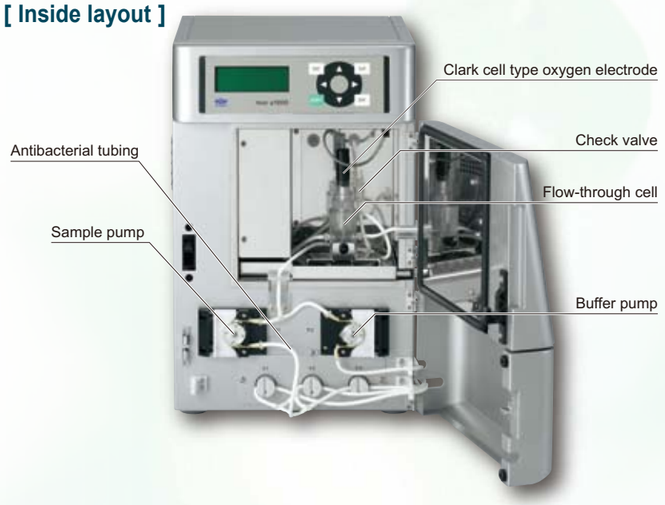
## Continuous measurement available

The high-precision auto temperature control function equipped newly supports the stable operation. The continuous measurement for waster water monitoring is available.

## Low and easy maintenance

The newly equipped components such as Clark cell type oxygen electrode, antibacterial tubing and check valve provide stable measurement and low maintenance.

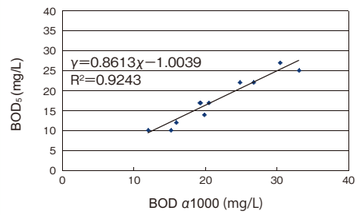
### [ Inside layout ]




## [ Comparison between the biosensor method and the $BOD_5$ method ]

**Example 1**

### Effluent from a chemical plant




**Example 2**

### Wastewater from an electric components manufacturer