



KYORITSU

PACKTEST

INSTRUCTIONS

# BOD

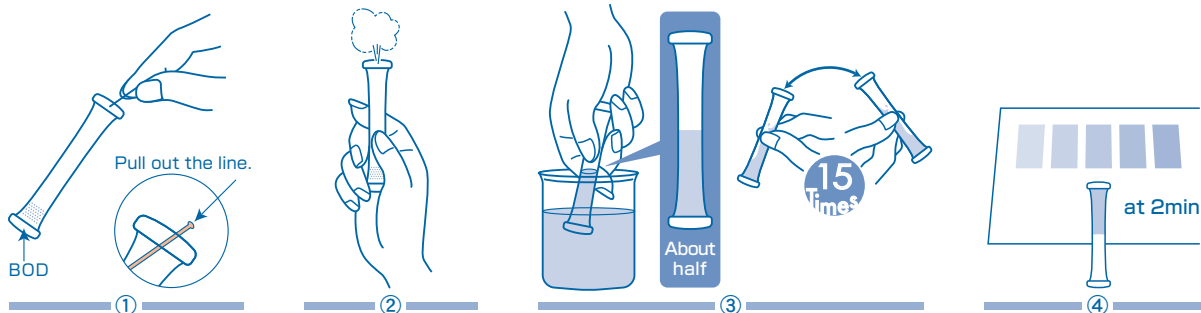
Model WAK-BOD



Estimation of BOD Value  
by Potassium Permanganate Visual Colorimetric Method  
Main Reagent: Potassium Permanganate  
Measuring Range: 0 - >500 mg/L(ppm)

## How to Use

※The result obtained by this method is an approximate value of BOD. Please be sure to confirm the correlation with the official method.



- ① Remove the colored line at the top of the tube to clear the aperture.  
② Press the tube's side wall to expel the air, and hold the tube.

- ③ Immerse the aperture of the tube into the sample, release the finger to fill the tube halfway. Invert the tube back and forth lightly for 15 times.  
④ Compare the actual color in the tube with provided Standard Color at 2min.

## How to Read the Result

At the reaction time, compare the color of the tube with Standard Color. The nearest color indicates the concentration value of the analyte in your sample. A color between two standard colors indicates the value between them.

## Handling of PACKTEST Before and After Use

The content of the tube is **Strong Alkali**. Hazardous when contacting with eyes.

**First Aid** **Eye contact** → Immediately flush eyes with water for at least 15 minutes, followed by consult with Ophthalmologist, even without any symptom.

**Skin contact** → Immediately flush contacted area with water.

**Ingestion** → Immediately rinse mouth.

If swallowed the content or any symptom appears, seek medical advice immediately. Please refer to SDS for further information.

**Storage** Keep unused PACKTEST tubes in the provided preserving bag after opening the laminated package and use them as soon as possible. Depending on the storage condition, the reagent may deteriorate in several days especially under the hot and humid weather.

**Disposal** For business use, please follow in a manner consistent with relevant laws and regulations. Otherwise, the tube can be disposed as combustible waste.



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## Feature

This product uses Potassium Permanganate Oxidation Method, which allows to measure the approximate value of BOD (Biochemical Oxygen Demand) quickly by visual colorimetry on-site. It is useful for wastewater management, screening test, estimation for the dilution while conducting the official BOD and more.

## Caution

1. The value obtained by this method is an approximate value of BOD. Please be sure to conform the correlation with official method prior to use. Depending on the sample, the correlation may fluctuate.
2. Unclean container used to collect sample or stains on hands may affect the result. Please use clean container and wash hands thoroughly prior to measure.
3. Keep temperature of the sample between 10-30°C (recommended to use at 20°C) The specified reaction time is immediately after 2 minutes. However, the sample temperature may affect the result, so please adjust reaction time to 2min and 30sec if the sample temperature is at 10°C, 1min and 30sec at 30°C for obtaining more appropriate value.
4. After passing the specified reaction time, the reaction will proceed excessively and result in false positive reading.
5. Standard Color is prepared based on JIS K0102 21 Note 3, using Glucose-Glutamic Acid Standard.
6. Using 10,000mg/L standard solution, it develops color the same as "≥500mg/L", but when the value exceeds, it may become colorless. When the result is expected to exceed 500mg/L, please dilute the sample prior to use.
7. The optimum pH upon reaction will be around 13. If the pH of the sample will be less than 5, please adjust pH 7 or higher with diluted sodium hydroxide solution prior to measurement.
8. Ensure that the PACKTEST tube is filled up to half. Larger or smaller sample volume will imply higher or lower value, respectively.
9. PACKTEST Square Cup (Model: WAK-CC10) is sold separately. It will help getting sample at 1.5mL constantly, also help drawing the sample into tube easily.
10. When comparing to the Standard Color, please be sure to read under the daylight. It may be difficult to determine the color under the direct sunlight, certain florescent lights, mercury lamp or LED.
11. You can put the line back into the aperture to seal. This will avoid possibility of spilling the content of the tube.

## About BOD

BOD is an abbreviation for Biochemical Oxygen Demand. It is defined as the amount of dissolved oxygen consumed during the process where organic substances in the sample are decomposed by aerobic microorganisms. BOD is important indicator for organic pollution of water quality, since high BOD value leads to pollution of public water bodies, causing the reduction of dissolved oxygen in water and generation of offensive odors. In Japan, the Water Pollution Prevention Act (Uniform Effluent Standard: 160mg/L) and the Sewerage Act regulate the effluent from business site.

## Estimation of BOD Value by using PACKTEST

Official method for BOD requires complicated procedure including standing at constant 20°C for 5 days. PACKTEST was developed to help getting approximate BOD value quickly, utilizing the fact that there is a correlation between the value obtained from Potassium Permanganate colorimetric method, which is a simplified method for COD (Chemical Oxygen Demand) and the value of BOD by the official method<sup>1)</sup>. However, the correlation may fluctuate depending on the sample type and properties.

1) Kasai, Sano, Iwata: Availability of the simple method for COD (II), Bulletin of Toyama Prefectural Environmental Science Research Center, **27**, 35 (1999)

## Measuring Seawater

When measuring seawater, the reaction tends to proceed faster and result in positive false reading, so reading half to one indicator below actual matching color may provide the estimated value. BOD value exceeding 500mg/L may become colorless.

## **【Caution】**

- This product is made for analyzing water quality purpose only. Do not use for any other purpose.
  - This product contains small amount of chemicals. Please read instruction manual, GHS labels, SDS, and other necessary document thoroughly prior to use.
  - Please keep this information handy for future reference.
- <Safety>
- Please wash your hands thoroughly before and after the test. Do not inhale the chemical reagents.
    - It is highly recommended to wear protective gloves, eye protection, and mask upon using this product.
    - Avoid release chemical reagents or waste solution to the environment.
- <Storage>
- Please keep this product out of reach of children. Keep it in the dry and dark place at room temperature.
- <Other>
- Please check the expiration date shown on the box, and make sure to use within the date.
    - Specifications are subject to change without notice.



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