



KYORITSU

PACKTEST

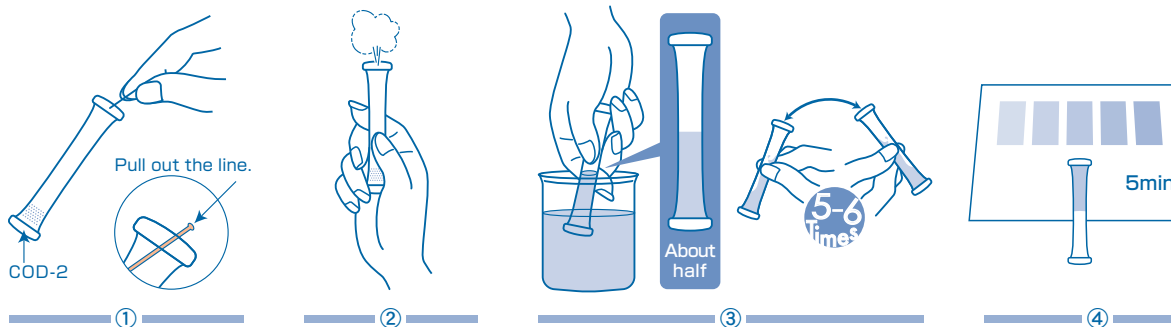
INSTRUCTIONS

## COD

Model WAK-COD-2  
KR-COD-2Oxidation with Potassium Permanganate  
in Alkalinity and Visual Colorimetric Method  
Main Reagent: Potassium Permanganate  
Measuring Range: 0 - 100 mg/L(ppm)

Danger

## How to Use



- 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 5 to 6 times.
- ④ Compare the actual color in the tube with provided Standard Color after 5 min, when sample temperature is at 20°C (invert the tube 1 to 2 times halfway through).

## 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.

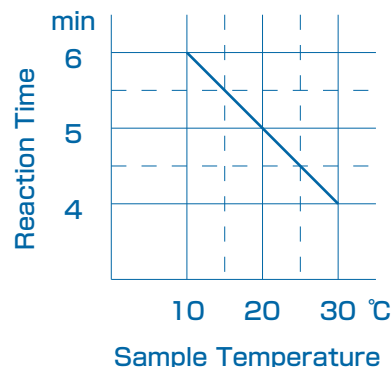
**Storage** Keep unused PACKTEST tubes in the provided preserving bag after opening the laminated package and use them as soon as possible. Depending on the storage condition, the reagent may deteriorate in several days especially under the hot and humid weather.

**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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## Caution

1. 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.
2. Keep the sample temperature at 20°C. If the sample temperature is different, determine the reaction time from the graph on the right. After the specified time passes, the value will be higher.
3. Using Glucose standard solution, it develops color as light brown at 1,000mg/L, and it becomes colorless when it is more than 1,000mg/L. When the result is expected to exceed 100mg/L, please dilute the sample prior to use.
4. It is hard to determine the value between 50 and 100mg/L, it is recommended to dilute the sample to be under 50mg/L for better readability.
5. 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.
6. Ensure that the PACKTEST tube is filled up to half. Larger or smaller sample volume will imply higher or lower value, respectively.
7. 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.
8. 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.
9. You can put the line back into the aperture to seal. This will avoid possibility of spilling the content of the tube.



## About COD

COD is an abbreviation for Chemical Oxygen Demand. There are various methods for measuring COD, that differ in oxidizing agent, reaction time, and reaction temperature; and each method has different oxidizing ratio depending on the type and concentration volume of oxidizable substances. In Japan, standard procedure for using the potassium permanganate method (COD-Mn) indicated in JIS K 0102 17. carried out in acidic medium for 30 min in water bath (100°C) is generally used, but PACKTEST COD utilizes JIS K 0102 19. using the alkaline medium (COD-OH) for presenting the advantage of fast and simple method. Alkaline medium method for JIS, the amount of potassium permanganate consumed in a boiling water bath for 20 min is determined by titration. On the other hand, PACKTEST COD determines the value by change of colors which potassium permanganate is consumed at ordinary temperature. The standard protocol uses glucose for standard solution. Water from the river may have good correlation with official COD-Mn method, but most of the oil, detergents, and other solids do not. When using PACKTEST for wastewater, please check correlation with official method, like JIS in Japan, for better reading.

## Measuring Seawater

When measuring seawater, the reaction tends to proceed faster and result in positive false reading, so reading half to one indicator below matching color may provide the estimated value. When COD value is more than 20mg/L, it 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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