

Sulfate

(High Range)

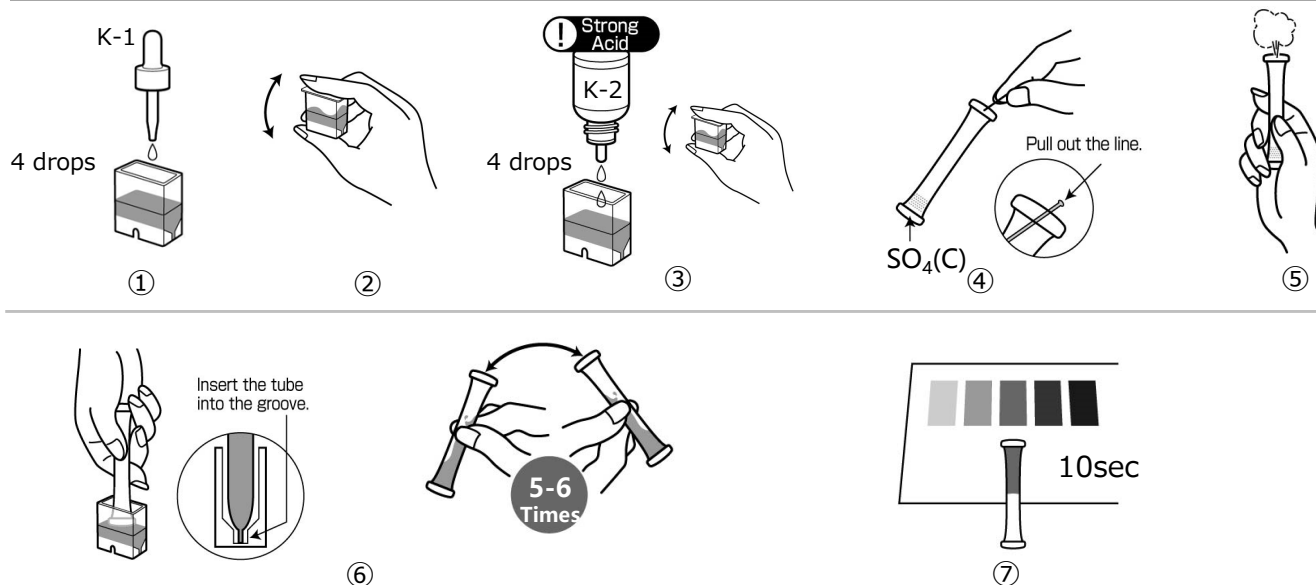
Model : WAK-SO₄(C)

Visual Colorimetric Method with Coprecipitation of Permanganate

Main Reagent: Potassium Permanganate, Barium Chloride

Measuring Range: 50 - ≥2000 mg/L (ppm)

How to Use



- ① Fill the Cell (PACKTEST Square Cup) up to the line (1.5mL) with sample and add 4 drops of K-1 Reagent (Glass bottle with dropper).
- ② Close the cap and shake the Cell for 2 to 3 times.
- ③ Add 4 drops of K-2 Reagent. Immediately place cap and shake the Cell for 5 to 6 times.
- ④ Remove the colored line at the top of the tube to clear the aperture.
- ⑤ Press the tube's side wall to expel the air and hold the tube.
- ⑥ Immerse the aperture of the tube into the Cell, pressing against the bottom and release finger to take all the sample into the tube. Invert the tube back and forth lightly for 5 to 6 times.
- ⑦ Compare the actual color in the tube with Standard Color after 10sec.

How to Read the Result

After 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 indicate the value between them.

Handling of PACKTEST Before and After Use

K-2 Reagent and content of the tube is **Strong Acid**.

First Aid

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

Skin/Cloth 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.

Disposal

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

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Caution

1. This product allows to measure only dissolved sulfate ion (SO_4^{2-}) in the sample.
2. The optimum pH upon reaction will be around 2-3. If the pH of the sample exceeds 2-9, please neutralize with dilute sodium hydroxide solution or dilute hydrochloric acid prior to measurement (Dilute sulfuric acid and dilute nitric acid cannot be used). Sample with low pH buffering properties can be measured even the pH is between 1-11.
3. If large volume of organic substances coexists in the sample, neutralize pH to around 7 prior to use.
4. Keep the sample temperature between 10-40°C.
5. Ensure that the PACKTEST tube is filled up to half.
6. 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.
7. Cell (PACKTEST Square Cup) can be used repeatedly. Reagent-derived precipitation may adhere on the inner wall of the cell, so please wash the cell as soon as possible after the measurement. If the precipitation is hard to remove, wipe it off with cotton swabs.
8. You can put the line back into the aperture to seal. This will avoid possibility of spilling the content of the tube.

Interference

Standard Color is prepared based on the standard solution. If there are some coexisting substances that may cause interference, please compare the result with official method or standard addition method for verification. Below is the list of interference data for on color development when adding each of the single substances to the standard solution.

$\leq 1000\text{mg/L}$	will not affect	... Al^{3+} , B(III), Br^- , Ca^{2+} , Cl^- , Cu^{2+} , Fe^{3+} , K^+ , Mg^{2+} , Na^+ , NH_4^+ , Zn^{2+} , Nonionic Surfactant, Glucose
$\leq 500\text{mg/L}$	"	... Ni^{2+} , PO_4^{3-} , Cationic Surfactant, Residual Chlorine
$\leq 200\text{mg/L}$	"	... Anionic Surfactant, Silica
$\leq 100\text{mg/L}$	"	... Co^{2+} , Fe^{2+} , Mn^{2+}
$\leq 50\text{mg/L}$	"	... I^- , Mo(VI), NO_2^- , Hydrazine
$\leq 20\text{mg/L}$	"	... Ag^+ , Cr^{3+} , F^- , NO_3^- , SO_3^{2-} , Phenol
$\leq 10\text{mg/L}$	"	... Cr(VI), S^{2-}

When reducing substances coexist, it may result in false negative reading.

If the sample is acidic or alkaline and large volume of organic substances coexist, it may result in false negative reading.

Seawater can be measured but may exceed upper limit (2000mg/L).

Ethanol below 20% (w/w) will not interfere.

【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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