KYORITSU **PACKTEST** INSTRUCTIONS

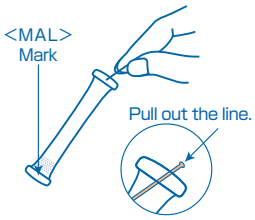
M-Alkalinity

Model WAK–MAL

Visual Colorimetric Method with pH Indicator for Buffering Capacity
Main reagent: Bromocresol Green(BCG)
Range: $CaCO_3$ 0 - 100以上 mg/L(ppm)

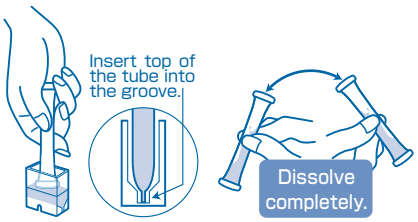
How to Use

①Fill the Cell (PACKTEST Square Cup) up to the line (1.5mL) with sample.

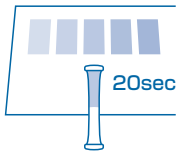


②Remove the colored line at the top of the tube to clear the aperture.

③Press tube's side wall to expel air and hold the tube.



④Immerse the aperture of the tube into the Cell, pressing it against the bottom, and release to take all the sample from the Cell into the tube. Shake the tube lightly for 15 times and dissolve reagent completely.



⑤After 20sec, compare the actual color in the tube with provided Standard Color.

How to Read the Test

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 indicates the value between them.

Handling of PACKTEST Before and After Use

First Aid

Eye contact → Immediately flush eyes with plenty of water.
Skin contact → Immediately flush contacted area with water.
Ingestion → Immediately rinse mouth.

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

Storage Use PACKTEST tubes as soon as possible after opening the laminated package.

Disposal For business use, please follow in a manner consistent with Federal, State, and Local Regulations. Otherwise, the tube can be disposed as combustible waste.

PACKTEST M-Alkalinity

Feature

This product utilizes pH indicator, Bromocrezole Green, as a main reagent, and allows to measure M-Alikalinity (Total Alkalinity) in the sample without titration, easily and rapidly. It will be useful for boiler water monitoring for scale prevention, monitoring for neutralizeing coagulation process, environmental research, and more.
M-Alkalinity is also known as following:
Total Alkalinity, Acid Consumption, Methyl Red Alkalinity, Methyl Orange Alkalinity.

Caution

1. This product measures M-Alkalinity (Total Alkalinity of acid consuming component, such as OH^- · HCO_3^- · CO_3^{2-}).
2. Any contamination, including sweat and dirty hands, will affect the result. Wash hands thoroughly before use.
3. The Cell (PACKTEST Square Cup) is reusable. To avoid contamination, make sure to wash with pure water or rinse with the same sample for the measurement just before use. Please note, tap water itself contains several tens mg/L of Alkaline component.
4. By difinition, M-Alkalinity will be equal to zero with sample with pH 4.8 or below. When the sample is highly acidic, it may develop dark yellow to orange color.
5. Keep temperature of the sample between 15—40℃.
6. Ensure that the PACKTEST tube is filled up to the half. When the sample volume is too much, it will result in false positive reading, and when the sample volume is too little, it will result in false negative reading. For better accuracy, measure 1.5mL use measuring pipette.
7. When comparing to the Standard Color, please be sure to read under the daylight or equivalent light source. It may be difficult to determine the closest color under the direct sunlight, certain florescent lights, mercury lamp, or LED.
8. You can put the line back into the tube to seal. This will avoid possibility of spilling the content of the tube.

Conversion

This product expresses the result in Calcium Carbonate ($CaCO_3$ mg/L).
Use the conversion formula below to calculate the equivalent concentration (Normality, Unit meq/L) .

Equivalent Concentration (meq/L) = PACKTEST Result ($CaCO_3$ mg/L) × 0.020

Natural water (pH6—8) without any mixture from industrial wastewater, M-Alkalinity derived almost all from HCO_3^- (Hydrogen Carbonate Ion · Bicarbonate Ion) and can be calculated using the formula below.

Hydrogen Carbonate Ion (HCO_3^- mg/L) = Measured Result ($CaCO_3$ mg/L) × 1.22

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 acceptable level by adding each of the single substances to the standard solution.

≤1000mg/L : H_3BO_3(Boric acid), Ba^{2+}, Br^-, Ca^{2+}, Cl^-, I^-, K^+, Mg^{2+}, Mn^{2+}, Na^+, NH_4^+, $N_2H_5^+$ (Hydrazinium), NO_3^-, SO_4^{2-}, Glucose, Phenol
≤500mg/L : Anionic Surfactant
≤200mg/L : $H_2PO_4^-$
≤20mg/L : Non-ionic Surfactant
≤10mg/L : F^-, NO_2^-
≤5mg/L : Residual Chlorine, Cationic Surfactant

It can be used for Seawater, but it may exceed the measuring range.
Ethanol less than 10% (w/w) will not affect the result.
Alkalinity derived from Phosphate (HPO_4^{2-}, PO_4^{3-}), Borate (BO_2^-, $B_4O_7^{2-}$), Ammonia (NH_3) will reflect on the result.
High concentration of Phosphate, in the form of PO_4^{3-}, more than 200mg/L will cause reading error.

【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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