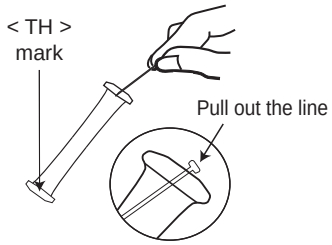
KYORITSU **PACK TEST** ION SELECTIVE **INSTRUCTIONS**

Total Hardness

Model WAK-TH

PC color comparison Method
Main reagent: Phthalein Complexone
Range: $CaCO_3$ 0-200 mg/L (ppm)

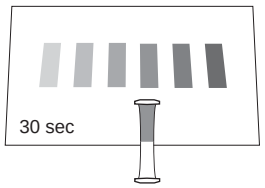
How to use



(1) Remove the line to clear the aperture from the top of the tube.

(2) Press the sides of the tube to expel approximately half of volume. Maintain pressed.

(3) Immerse the tube in the sample. Release the sides to fill the tube up to the half. Shake the tube lightly ten times.



(4) After 30 secondes, put the tube on the color chart as shown and compare with the standard color.

How to read the test

After the reaction time, compare the color of the tube with the standard colors. The nearest color indicates the measured value of the sample. A color between two standard colors indicates a value between the two standard values.

Care in handling of PACKTEST before and after use

Keep PACKTEST out of the reach of children.
Keep PACKTEST in a cool, dry and dark place.
PACKTEST should be thrown with burnable garbage. Conform to the legislation of waste management.
Use a package as soon as possible after opening.
The PACKTEST tube must not be opened before and after use.

First Aid Measures

Eye contact ⟶ Immediately rinse eyes with water for at least 15 minutes. Consult a physician.
Skin contact ⟶ Immediately flush skin with water.
Ingestion ⟶ Immediately rinse mouth. Consult a physician.
In case of doubt, consult a physician.

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J6080 - E6080

PACKTEST Total Hardness

Cautions

1. The Total Hardness PACKTEST allows to measure calcium and magnesium in ion state (Ca^{2+}, Mg^{2+}).
2. This PACKTEST measures the total hardness ($CaCO_3$ mg/L) as the sum of calcium hardness and magnesium hardness.

Total hardness = Calcium hardness + Magnesium hardness

3. The normal pH range is 6 - 10. If necessary, adjust the pH with diluted sulfuric acid or sodium hydroxide solution.
4. Ensure that PACKTEST tube is filled up to the half. An incorrect volume would give an under or over estimated value.
5. The color comparison should be made just after 30 seconds. This time must be respect strictly, especially in case of interfering substances (see below).
6. Partially undissolved reagent will not affect the measurement.
7. Keep sample temperature in the range 15°C - 40°C. Lower temperature necessitates longer reaction time.
8. Read the test under a daylight type lamp.
9. The reagent which is slightly purple will not offect the measurement.
10. Put the line back into the aperture after use to prevent reagent spilt.

Interferences

Standard colors were determined from standard solutions. However, coexisting ions can modify reaction color. The list below reports ion concentrations under which ones interferences are insignificant:

≤ 1000 mg/L : Ba^{+}, Cl^{-}, CN^{-}, F^{-}, I^{-}, K^{+}, Mo^{6+}, Na^{+}, NH_4^{+}, NO_2^{-}, NO_3^{-}, PO_4^{3-}, SO_4^{2-}, Anionic surfactant, Phenol
≤ 100 mg/L : B^{3+}
≤ 5 mg/L : Al^{3+}
≤ 1 mg/L : Co^{2+}, Cr^{6+}, Mn^{2+}, Ni^{2+}, Residual Chlorine
sub-ppm level: Cr^{3+}, Cu^{2+}, Fe^{2+}, Fe^{3+}, Zn^{2+}

The Total Hardness PACKTEST is not suitable for sea water samples.

About "Hardness"

Total hardness is the sum of the calcium hardness(CaH) and magnesium hardness(MgH) which express the calcium and magnesium ions as calcium carbonate($CaCO_3$).

This method is suitable for a sample of which the ratio CaH/ MgH ranges from 2:1 to 3:1. A TH ≥ 60 mg/L and a CaH/MgH ratio out of this range will induce a relative large measurement error.