



KYORITSU

**PACKTEST**  
ION SELECTIVE

INSTRUCTIONS

# Iron (Low range)

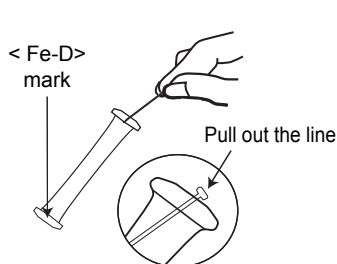
Model WAK-Fe(D)

Reduction and Bathophenanthroline  
color comparison Method

Main reagent : Bathophenanthroline

Range: Fe 0.05 - 2 mg/L (ppm)

## How to use



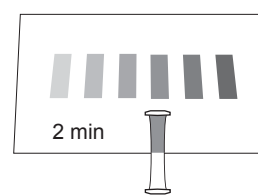
(1) Remove the line to clear the aperture from the top of the tube.



(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 5-6 times.



(4) After 2 minutes, put the tube on the color chart as shown and compare with the standard colors.

## 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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## PACKTEST Iron (Low range)

### Features

The Iron (Low range) PACKTEST uses a reagent similar to phenanthroline which forms a complex with iron ion. The Iron (Low range) PACKTEST is suitable for various samples like drinking water or environmental water.

For higher iron concentration, we recommend to use the Iron PACKTEST, ref: WAK-Fe (range: Fe 0.2 - 10 mg/L). For divalent ions  $Fe^{2+}$ , we recommend to use the Iron (Divalent) PACKTEST, ref: WAK- $Fe^{2+}$  (range: Fe 0.2 - 10 mg/L) or the Iron (Divalent) (Low Range) PACKTEST, ref: WAK- $Fe^{2+}$  (D) (range: Fe 0.1 - 2.5 mg/L).

### Cautions

1. The Iron (Low range) PACKTEST allows to measure dissolved  $Fe^{2+}$  and  $Fe^{3+}$  ions. If you wish to measure total iron concentration including suspended particles, for example: "rusty water", refer to the following section "Measuring of Total Iron" .
2. The Iron (Low range) PACKTEST can also measure iron ions chelated EDTA.
3. The normal pH range is 2 - 9. If necessary, adjust the pH with diluted sulfuric acid or sodium hydroxide solution.
4. The reaction color becomes stronger than 2mg/L of standard color when the iron ion standard solution is 100mg/L.  
A sample water which is expected high concentration, should be diluted in advance.
5. Ensure that PACKTEST tube is filled up to the half.
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. Put the line back into the aperture after use to prevent reagent spilt.

### Total iron measuring method (including rusty water)

Adjust the pH of the sample below 2 with diluted sulfuric acid. Heat the sample up to boiling and cool down it to ambient temperature. Finally, adjust the pH in the range 2 - 7 and process the sample as describe in the section "How to use".

### Interferences

Standard colors were determined from standard solutions. However, coexisting substances will cause inaccurate results. The list below reports ion concentrations under which ones interferences are insignificant:

< 1000 mg/L :  $B^{3+}$ ,  $Ba^{2+}$ ,  $Ca^{2+}$ , Cl<sup>-</sup>, F<sup>-</sup>, I<sup>-</sup>, K<sup>+</sup>,  $Mg^{2+}$ ,  $Mn^{2+}$ , Na<sup>+</sup>,  $NH_4^+$ ,  $NO_3^-$ ,  $SO_4^{2-}$   
< 500 mg/L : Phenol  
< 100 mg/L :  $NO_2^-$   
< 50 mg/L :  $Cr^{6+}$ ,  $Mo^{6+}$ ,  $Ni^{2+}$ ,  
< 10 mg/L :  $PO_4^{3-}$ ,  $Zn^{2+}$   
< 3 mg/L :  $Cr^{3+}$   
< 2 mg/L :  $Co^{2+}$ , Residual chlorine  
< 1 mg/L : CN<sup>-</sup>  
sub-ppm level:  $Al^{3+}$ ,  $Cu^{2+}$

The Iron (Low range) PACKTEST is not suitable for sea water samples.  
Oxidizing chemical can interfere with the reaction