

8. Measurement Methods

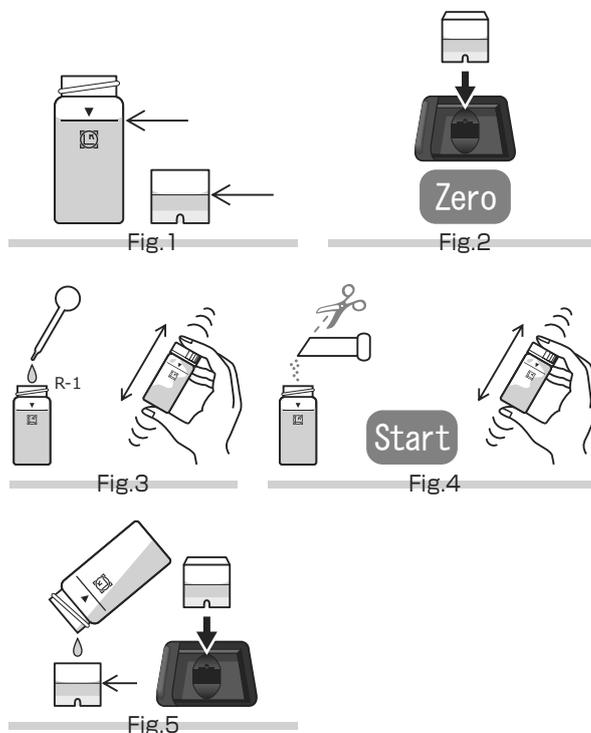
Al Aluminum

Color development : Yellow → Orange → Red
Method : ECR
Range : 0.05 — 0.40 mg/L (ppm)
Reagent : LR-Al No.24 R-1 (Liquid) , R-2 (Pack)
Reaction time : 5 min. after R-2 reagent is added.

Cell : PACKTEST Square Cup
Wavelength : 533 nm, 560 nm

Procedure

1. Press **[Al]**.
2. Press **[OK]** to switch to the photometry window.
3. Fill the Cell with the sample for 1.5 mL (up to line) and fill the Round Cell with the sample for 25 mL (up to white line). (Fig.1)
4. Put the Cell in the cell box and press **[Zero]** . Discard the sample in the Cell. (Fig.2)
5. Add 2 mL of R-1 reagent into the Round Cell using the supplied pipette, tightly attach the cap, and shake the Round Cell 5 to 6 times. (Fig.3)
6. Add the R-2 reagent, press **[Start]** , tightly attach the cap, and intensely shake the Round Cell for approx. 10 seconds. (Fig.4)
7. Within 5 minutes, pour the solution in the Round Cell for 1.5 mL into the Cell that has gone through zero adjustment (up to line) and put the Cell in the cell box. (Fig.5)
8. After 5 minutes have elapsed, the concentration will be automatically displayed.



Caution

1. In this method, the concentration of ionized aluminum (Al^{3+}) in the sample is measured. If result of Aluminum concentration including suspension and precipitate is required, dissolve Aluminum in advance and then perform measurement.
2. The dissolved state of aluminum greatly varies depending on the pH of the sample, and aluminum could exist in the form of suspended solid or precipitate. Perform measurement after pretreatment according to the measurement purpose.
3. The optimum pH during color development is 6. If this pH cannot be achieved, neutralize the sample as necessary.
A sample with a small buffering capacity can be measured even if its pH is around 2.
4. Perform measurement with the sample temperature set to 15 to 30°C .
5. Use of a measuring pipette or the like instead of the supplied pipette enables more accurate measurement.

Influence of coexisting substance

The stored calibration curve has been created by using the standard solution. If the influence of other substance is considered, check the measurement value by comparing it with the official method or by standard addition method.

The right chart is the list of interference data for acceptable level by adding each of the single substances to the standard solution.

It is not possible to measure seawater.

Except for Heavy metal ions:

≤ 100mg/L.: B (III) , Ca^{2+} , Cl^- , I^- , K^+ , Mg^{2+} , Na^+ , NH_4^+ , NO_2^- , NO_3^- , SO_4^{2-} , Anionic Surfactant , Phenol , Residual Chlorine
≤ 10mg/L.: PO_4^{3-}
< 1mg/L.: F^-

Heavy metal ions:

≤ 10mg/L.: Ba^{2+} , CN^- , Co^{2+} , Cu^{2+} , Fe^{2+} , Fe^{3+} , Mn^{2+} , Mo (VI) , Ni^{2+} , Zn^{2+}
≤ 1mg/L.: Cr^{3+}
< 1mg/L.: Cr (VI)

Information on reagent

Refer to the enclosed paper to the reagent.
The pH of the solution is about 6.