

Pre-installation Checklist

Preparation:

1) Equipment and tools preparation

- Floor space: 1000 mm (W) × 4000 mm (L) × 700 mm (H)
- Power supply 220V/50Hz, power \geq 3KW (grounded well)
- Oxygen, purity 99.5%.
- CKIC supply two reducing regulator (Chinese standard GB 15383-2011, G5/8-RHF, Inlet thread) in the package, please confirm the adaptor of cylinder can match with the reducing regulator.

If not, please prepare the reducing regulator (gauge for cylinder is 0-25MPa, gauge for outlet is 0-1MPa) by yourself.

- Beaker 2L 1 pc Beaker 50mL 1 pc Dropper bottle brown-100ml 1 pc
- Grinding jar (brown) 500mL 1 pc Pipette 50mL 1 pc
- Graduated cylinder 500mL 1 pc Wash bottle(plastic) 1 pc
- Tube brush 1 pc Rubber pipette bulb 1 pc Volumetric flask brown-1000ml 2 pc
- Plastic bottle (1000ml) 10 pc Glass rod 2 pc
- Ultrapure Water System 1 pc
- Electric furnace 1 pc Muffle furnace 1 pc Drying Oven 1 pc
- Analytical balance 1pc Medical syringe 1 pc Glove (plastic) 1 pc

2) Chemical preparation

Chemical reagent for the fluorine experiment:

- GR NaOH 1 bottle GR HNO₃ 1 bottle

- GR Trisodium Citrate 5 bottle GR KNO₃ 5 bottle
- GR NaF 1 bottle GR Quartz Sand 25~50mesh 1 bottle

Chemical reagent for the Chlorine experiment:

- GR H₂SO₄ 1 bottle GR KNO₃ 5 bottle
- GR NaCl 1 bottle GR AgNO₃ 1 bottle
- GR KCl 1 bottle GR Quartz Sand 25~50mesh 1 bottle
- Purification Agar-agar 1 bottle

3) Solution Preparation

- NaOH Solution: 10g/L (dissolve 10g NaOH of GR grade in 1000ml water).
- Nitric Acid Solution: 1+2(V+V) (dilute 150ml GR grade HNO₃ with 300ml water, mix well)
- Total Ionic Strength Adjustment Buffer: Dissolve 294g AR(analytical pure) grade of Sodium Citrate (Na₃C₆H₅O₇·2H₂O) and 20g of Potassium Nitrate(HNO₃) in 800ml water, adjust the PH to 5.5 with Nitrite solution, dilute to 1L by adding water and stock in a plastic bottle. Either PH meter or PH potential determination function in instrument can be used to adjust the PH.

The procedures for adjusting PH with instrument are as follows:

1. Insert PH electrode and calomel electrode in solution.
2. Click System Debugging from system debugging screen, click J3, click Execute.
3. Set the potential of PH to 85mv.

Standard Fluoride Solution: Dissolve 1.1051g GR grade NaF (which has been dried previously for about 2 hours at 120℃) in a beaker with water, rinse into a 1000 ml volumetric flask to the mark, mix well, transfer to a plastic bottle for future use. The concentration of the solution is 500ug/mL.

Saturated Calomel Electrode filling solution: Saturated KCl solution

Sulfuric Acid Solution: Concentration(1+46) (V+V). Dilute 20mL GR grade pure solution in 920mL water, mix well.

KNO₃ Solution: Dissolve 200g AR (analytical pure) grade of Potassium Nitrate(KNO₃) in 1000ml water, mix

until completely dissolved.

- Saturated KNO_3 Solution: Dissolve enough AR (analytical pure) grade of Potassium Nitrate(KNO_3) in 500ml water till saturation.
- Standard NaCl solution: The concentration of Cl ion is 0.20mg/L (accurately weigh 0.3298g GR grade NaCl pre-baked at 500-600°C for 1h in 20ml water, then transfer it to 1000mL volumetric flask, dilute to the mark and mix well).
- Standard AgNO_3 Solution : 0.01411mol/L (Accurately weigh 2.3969g GR grade AgNO_3 pre-baked at 110°C for 1h in little water), transfer it to a 1000ml volumetric flask and dilute to mark, then mix well.
- Saturated Calomel Electrode filling solution: Saturated KCl solution
- Preparation of Salt Bridge: Dissolve 5g KNO_3 and 0.75g agar powder in 25mL water by heating, after boiling, remove bubbles, and immediately fill the solution to a U-shape tube(put a rubber tube to the shorter end). Cool the U-shape tube till the agar in tube changes white, and then place it in saturated KNO_3 solution (the same with the external salt bridge solution).

Note: distilled water with resistivity greater than 3 MΩ.CM must be used in solution preparation.