

Application Note

Fill Solutions and ISA

For Denver Ion Selective Electrodes

Potassium Ion Selective Electrode

- Potassium Filling Solution, 0.1 M NaCl
Prepare by adding 0.5844 grams of NaCl into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Potassium ISA, 1 M NaCl
Prepare by adding 5.844 grams of NaCl into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.

Silver/Sulfide Ion Selective Electrode

- Silver/Sulfide Filling Solution, 10% KNO₃
Prepare by adding 10.0 grams of KNO₃ into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Silver ISA, 5 M NaNO₃
Prepare by adding 42.497 grams of NaNO₃ into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Sulfide ISA, SOAB

Nitrate Ion Selective Electrode

- Nitrate Filling Solution, 0.04 M (NH₄)₂SO₄
Prepare by adding 0.5286 grams of (NH₄)₂SO₄ into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Nitrate ISA, 2 M (NH₄)₂SO₄
Prepare by adding 26.428 grams of (NH₄)₂SO₄ into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.

Calcium Ion Selective Electrode

- Calcium Filling Solution, 0.1 M KCl
Prepare by adding 0.7455 grams of KCl into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Calcium ISA, 1 M KCl
Prepare by adding 7.455 grams of KCl into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.

Chloride Ion Selective Electrode

- Chloride Filling Solution, 10% KNO_3 w/v
Prepare by adding 10.0 grams of KNO_3 into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Chloride ISA, 5 M NaNO_3
Prepare by adding 42.497 grams of NaNO_3 into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.

Fluoride Ion Selective Electrode

- Fluoride Filling Solution, 10% KNO_3
Prepare by adding 10.0 grams of KNO_3 into a volumetric flask and then bring the volume to 100 ml with deionized or distilled water.
- Fluoride TISAB (Total Ionic Strength Adjusting Buffer)
Place 500 mL deionized or distilled water in a 1 L beaker and add 57 mL glacial acetic acid, 58.0 g NaCl and 4.0 g CDTA (cyclohexylenediaminetetraacetic acid). Stir to dissolve. Add slowly 6M NaOH (about 125 mL) with stirring until the pH is 5.0 to 5.5. Transfer to a 1 L volumetric flask and dilute to the mark with deionized or distilled water.

Sodium Ion Selective Electrode

- Filling Solution, 10% KNO_3
Prepare by adding 10.0 grams of KNO_3 into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Sodium ISA, 1 M NH_4OH
Prepare by adding 3.505 grams of NH_4OH into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.

Ammonia Ion Selective Electrode

- Ammonia Filling Solution, 0.1 M NH_4Cl
Prepare by adding 0.5349 grams of NH_4Cl into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.
- Ammonia ISA, 10 M NaOH
Prepare by adding 40.00 grams of NaOH into a volumetric flask and then bring the volume to 100 mL with deionized or distilled water.