

RE-7N and RE-7SN

Internal solution preparation

The internal solution of an Ag/Ag⁺ reference electrode used in a non aqueous solvent system consists mainly of a salt containing Ag⁺ ions and a supporting electrolyte added to the same non aqueous solvent as the solution sample to be measured.

Here, as an example, an acetonitrile (ACN) solution containing 0.01 mol/L silver(I) nitrate (AgNO₃) and 0.1 mol/L tetrabutylammonium perchlorate (TBAP) is prepared.

The reagents used for preparation are not available at our company. Please prepare commercially available special grade reagents separately.

Please use acetonitrile that has been dried and dehydrated in advance. Be sure to wear protective equipment while working, and be careful when handling chemical substances.

The amount of solution to be prepared is only a guide, so please consider it according to your experimental plan.

1. Preparation procedure

What is required:

- (1) Volumetric flask (25 mL, 50 mL)
- (2) Spatula
- (3) Medicine wrapping paper
- (4) Beaker 50 mL (2 pcs)
- (5) Pipette 1 mL
- (6) Glass rod (stirring rod)
- (7) Light shielding bottle



Weigh 1.71 g of tetrabutylammonium perchlorate (TBAP) using an analytical digital balance and medicine wrapping paper.

The TBAP is then transferred from the medicine wrapping paper to a 50 mL beaker, and a small amount of acetonitrile (ACN) solution is added to the beaker to dissolve the TBAP.



Transfer the solution from the beaker to a 50 mL volumetric flask using a glass rod or similar to prevent spillage.

Using a 1 mL pipette, adjust the volume of the volumetric flask to 50 mL while adding ACN solution to prepare a 0.1 mol/L TBAP/ACN solution.



Weigh 0.043 g silver(I) nitrate (AgNO_3) using an analytical digital balance and medicine wrapping paper.

After weighing, transfer AgNO_3 from the medicine wrapping paper to another 50 mL beaker and add a small amount of the 0.1 mol/L TBAP/ACN solution prepared earlier to dissolve the AgNO_3 .



Transfer the solution from the beaker to a 25 mL volumetric flask using a glass rod or similar through the solution.

Rinse the beaker further with acetonitrile (ACN) and repeat the process of transferring to a volumetric flask several times.

Then, using a 1 mL pipette, add 0.1 mol/L TBAP/ACN solution while adjusting the volume of the volumetric flask to 25 mL.



Transfer the 0.01 mol/L AgNO_3 / 0.1 mol/L TBAP/ACN solution prepared in the previous section from a 25 mL volumetric flask to a light-shielded glass bottle for storage.

The approximate storage time is about 1 month in a cool, dark place.

Attach a label stating the composition and date of preparation or a toxicology-related label to the light-shielded glass bottle before storing.

