

Ag/AgCl reference electrode *No. 04-00001*

Thank you for choosing a Sensolytics miniaturized Ag/AgCl reference electrode.

The purpose of the reference electrode is to complete the measuring circuit and to provide a stable and reproducible potential against which the working electrode is polarized. The contact is made through a liquid junction of porous ceramic frit that allows the reference electrolyte to contact the measuring solution. A salt bridge is formed from the sample through the electrolyte to the silver-silver chloride reference element. A direct contact of the reference element to the solution would also complete the circuit, but we recommend this only for very small currents.

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Preparation

Prior to its first use, the reference electrode needs to be filled with electrolyte. We recommend the use of a 3 M KCl solution. However, if perchlorate-containing solutions are to be studied, KClO_4 may precipitate in the pores of the liquid junction. For these measurements, NaCl (3 M) is the preferred electrolyte for filling the reference. Remove the reference electrode element (it is a screw cap) and use a syringe to fill the glass body of the reference electrode up to the Ag/AgCl-coil. Avoid leaving bubbles in the capillary and immersion of the electrical contact. Let the electrode equilibrate (e.g. overnight) to ensure a stable potential and a complete wetting of the frit.

Storage

The filling electrolytes can form a crusty layer of solid salt where the solution is exposed to the air. This can occur likewise at the liquid junction, where it would affect the work capability of the reference. We recommend storing the reference electrode in a repository containing the electrolyte which has been used for filling.