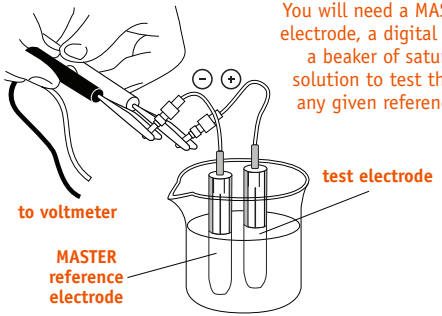
TESTING THE PERFORMANCE OF $CuSO_4$ REFERENCE ELECTRODES

If you are concerned about the viability of a particular $Cu/CuSO_4$ reference electrode, it can be tested using a voltmeter, a MASTER reference electrode (RE that is solely stored and used for this purpose), and a saturated $CuSO_4$ solution. Read the potential difference between the MASTER reference electrode and electrode under question using the voltmeter. If 2 RE's are of the same type (e.g. $Cu/CuSO_4$ vs $Cu/CuSO_4$), then the voltmeter should read 0 +/- 10 mV. If a reading is significantly different, then electrode should be rejuvenated or discarded.



You will need a MASTER reference electrode, a digital voltmeter, and a beaker of saturated $CuSO_4$ solution to test the viability of any given reference electrode.

CoralPor® is a registered trademark of Schott Glass.

BASi

$Cu/CuSO_4$ REFERENCE ELECTRODE

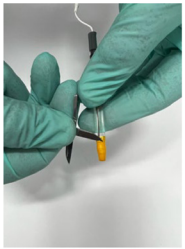
MF-2063

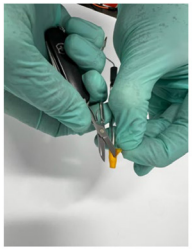
2701 Kent Ave., West Lafayette, IN, 47906, USA
www.basinc.com | 1-800-845-4246 | basi@basinc.com

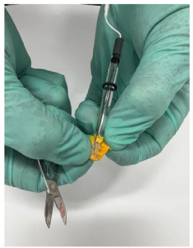
REMOVING THE SHEATH

Every $Cu/CuSO_4$ reference electrode is shipped with a yellow plastic sheath that covers the porous CoralPor® frit and slows drying. Immediately remove the sheath upon receipt and store electrode in appropriate solution.

CAUTION: Be extremely careful when removing the plastic sheath from the reference electrode. The CoralPor® frit is attached to the glass body with heat-shrink Teflon, which can be pulled off. DO NOT roll the plastic down and pull off. The best method is to cut the length of the plastic sheath with scissors and peal the sheath off the electrode. Start with a small cut at the upper edge of the sheath, pull to the side, and continue to cut and peal to the tip. A scalpel may be used, but there is greater chance of damaging the heat-shrink tubing. Instruction video link below:







Video: https://www.youtube.com/watch?v=4YFumJocOYU

DISLODGING BUBBLES

Bubbles lodged in the tip may prevent electrical contact with the electrolyte and may damage the working electrode. Bubbles can be dislodged by holding the top of the electrode with one hand and tapping the electrode near the CoralPor® tip until the bubbles rise to the top.

REGENERATING THE REFERENCE ELECTRODES

Please note: If the frit or filling solution becomes contaminated and potential drift is observed, then the CoralPor® frit can be removed and replaced with (MF-2064) and the glass body refilled with a saturated $CuSO_4$ solution.

Video: https://www.youtube.com/watch?v=Y2tU4KNktzQ

STORING REFERENCE ELECTRODES

After the sheath is removed, store the electrode tip in saturated $CuSO_4$ solution We do recommend storage vial (MR-5275) for efficient storage. Only the tip needs to be immersed in the storage solution; the connecting pin needs to be kept dry to minimize corrosion. The reference electrodes are easily ruined by drying and will naturally change with use due to the ion and solvent transport across the porous CoralPor® frit. This rate of change is a function of the difference in composition between the sample solution vs. the filling solution and the amount of time not immersed in the storage solution.