



## Instructions for Using the Cell

The patterned electrode cell cap fits on to standard 20 mL scintillation vials (24-400 thread) found in most chemistry labs. These disposable vials are low-cost and readily available from Pine and most major laboratory supply companies, and they allow patterned electrode cards to be used with ~10 mL solution volumes.

If a larger cell volume is needed, the cap also fits on to a larger cell with a GL45 thread. This cell, with a sturdy hex base, holds a 30–40 mL volume.

The plastic grip assembly which extends up out of the cell cap has two USB Mini-B connector ports on top and a blue card connector on bottom. This assembly is designed to be easily removed from the cap to facilitate mounting the patterned electrode card in the blue card connector.

Some patterned electrode cards are double sided, and **some cards are so thin that two of them can (and should) be mounted back-to-back in the card connector.** One USB Mini-B port addresses the electrodes on one side, and the other port addresses the opposite side. A potential source of confusion is determining which port goes with which side, so keep in mind that when looking at the electrodes on a given side, it is the port to the left which addresses those electrodes.

There are four banana plugs on the cell cable to be connected to the potentiostat. The color coding on these plugs is as follows:

WHITE	= Reference Electrode	RED	= Counter Electrode
BLUE	= Working Electrode	YELLOW	= 2 <sup>nd</sup> Working Electrode

When working with thin cards that have been mounted back-to-back, there may be a problem with wicking of the solution up into the gap between the two cards. If this problem persists, the best solution is to simply cut off the bottom of one of the cards, leaving about ~1/3 of its length mounted in the connector. This "stub" acts as a mounting spacer, allowing (only) the second card to be used.

For air-sensitive applications, the grip assembly may be permanently glued to the cap with epoxy, and the cap can be sealed against the scintillation vial with an o-ring. The o-ring (size 2-117, 1.0"OD x 13/16"ID x 3/32"W) should be placed up inside the cap, just beyond the threads. When working with the larger volume cell, the GL45 thread can be sealed against the cell using a bigger o-ring (size 2-126, 1-9/16"OD x 1-3/8"ID x 3/32"W).

If control of the atmosphere inside the cell is required, the four small holes in the cap will accept 1/16"OD Teflon tubing for passing purging gases through the cell. These holes have a diameter slightly smaller than 1/16" so that the tubing can be tightly drawn through the holes.

The largest hole in the cell cap (4.0 mm OD) may be used to mount a traditional reference electrode if desired. Pine offers a small Ag/AgCl reference electrode that fits into this hole.

A water jacket assembly for controlling cell temperature is available. This assembly uses a GL45 thread to mount the water jacket around the scintillation vial cell. This configuration requires two o-rings. One o-ring seals the scintillation vial to the inside of the cap, and the other o-ring seals the water jacket to the outside of the cap.

## Part Numbers

AKSPEGRP1	Plastic Grip Assembly	RRPECAP1	Cell Cap (fabricated from PEEK)
AKSPEJAR	GL45 Cell with Hex Base	RRPECBL1	Cable (USB mini-B to Banana)
AKSPEJKT	GL45 Water Jacket with Hex Base	RRPG020	Scintillation Vial (20 mL)

**Note:** Part number AKSPEKIT is a "Starter Kit" which includes RRPECAP1, AKSPEGRP1, RRPECBL1 along with several screen printed patterned electrodes and scintillation vials. Contact Pine for more details.