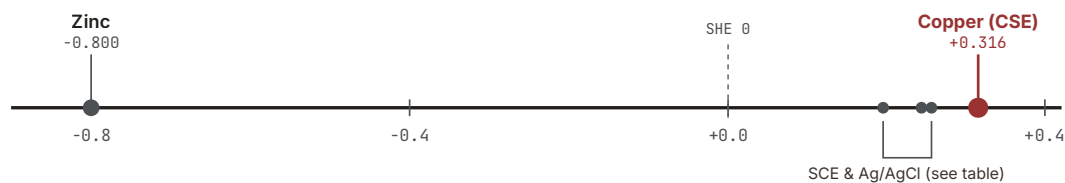




# Reference-Cell Conversion – Field Card

RCS TRAINING · EC-013



zinc to copper ≈ 1.1 V — the gap you subtract

## Carry any reading back to copper

| From this cell     | do this          |
|--------------------|------------------|
| Zinc               | subtract ~1.1 V  |
| Ag/AgCl (sat KCl)  | subtract ~0.12 V |
| SCE (calomel)      | subtract ~0.07 V |
| Ag/AgCl (seawater) | subtract ~0.06 V |

### FULL FORM (ANY CELL TO ANY CELL)

$$X = E(m)_1 + E(s)_1 - E(s)_2$$

reading + its cell's SHE value - target cell's SHE value

## Cell potentials (vs SHE)

| Cell                               | V vs SHE      |
|------------------------------------|---------------|
| <b>Copper-copper sulfate (CSE)</b> | <b>+0.316</b> |
| Ag/AgCl (seawater)                 | +0.256        |
| Saturated calomel (SCE)            | +0.244        |
| Ag/AgCl (sat KCl)                  | +0.196        |
| Zinc (soil)                        | -0.800        |

## Keep the stick honest

**Check** two cells (or against a clean office master) on DC mV — within your company spec (often 5–10 mV), not a perfect zero.

**Cover** a CSE's clear window with tape in sun.

**Match** the cell to the ground: copper in soil, silver-chloride in salt water/concrete.

**Never** trust one cell alone.