



Zinc Electrodes - Models UC-ZIN and UD

This information applies to EDI products UC-ZIN and UD which contain gelled zinc elements.

Potential Differences

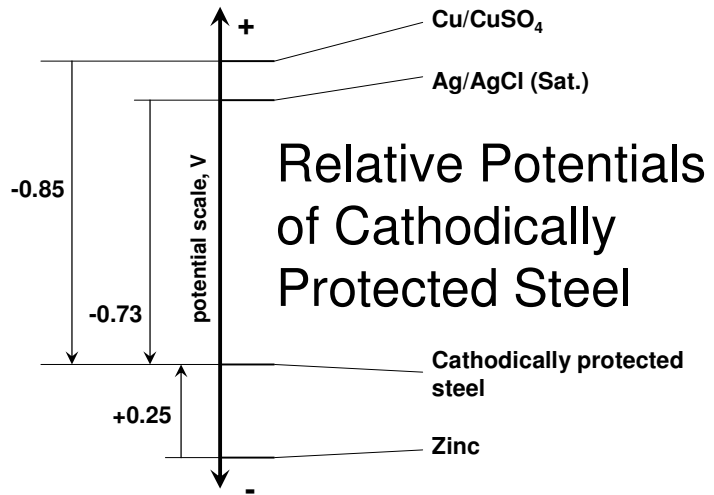
The potential of zinc is dependent on both temperature and the surrounding electrolyte. Packaging zinc in a gypsum-bentonite backfill mix provides a constant electrolyte composition. That, coupled with the relatively constant temperature of underground environments, makes the potential of zinc sufficiently stable for use as a reference. This configuration is sometimes referred to as a Zn/ZnSO₄ electrode.

Zinc is typically 1.10 V more negative than a Cu/CuSO₄ electrode and 0.98 V more negative than Ag/AgCl/sat. KCl electrode. To convert a zinc reading to the equivalent Cu/CuSO₄ reading, subtract 1.10:

$$\text{Zn reading} - 1.10 = \text{Cu/CuSO}_4 \text{ reading}$$

$$0.25 \text{ V} - 1.10 = -0.85 \text{ V}$$

To convert a zinc reading to the equivalent Ag/AgCl/sat. KCl reading, subtract 0.98. The polarities in these examples presume the electrode is connected to negative or common terminal of the meter.



Calibration

The potentials of zinc listed above are typical values. Because the actual potential of zinc is dependent upon its environment, it is recommended that each zinc electrode be calibrated against a Cu/CuSO₄ or Ag/AgCl/sat. KCl reference electrode. This calibration value should then be used when converting measurements made with the zinc electrode.

Model UC-ZIN – The zinc electrode in coupons attached to a test station riser can be calibrated at any time using a reference electrode placed in the riser. To calibrate the zinc electrode in stand alone coupons (Style B), install the coupon and cover it with about a foot (30 cm) backfill. Place the reference electrode on the backfill when making measurements.

Model UD – Calibration should be done after the unit has been installed but before the CP system is energized.

Permanent Underground Reference Electrodes



- Featuring Cu/CuSO_4 or Ag/AgCl reference elements
- Available with **30 year** or **50 year** design lives
- Special dual element version available with packaged zinc plus a Cu/CuSO_4 or Ag/AgCl reference element
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- Eliminates need for hazardous liquid waste disposal
- End-grain wood membrane resists clogging and dry-out.
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Linear anodes for cathodic protection of aboveground storage tank bottoms

EDI's Model AT Linear Anode System consists of copper-cored titanium flat wire coated with platinum or mixed-metal oxide and a parallel shunt wire encased in a flexible plastic mesh. Its unique connector system allows modular sections to be easily joined in the field.

Model AT – Linear Anode System



- Installs quickly
- Less material to handle
- Highly Redundant
- Safe

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