

Hapco recommends that a powder coated pole be used when embedded in concrete that uses calcium chloride as a hardening agent.

From Aluminum Design Manual

If the cement used has a cured pH value less than 8.5 pH, then unprotected aluminum can be used.

The big contributor to high pH values in cured concrete is the use of calcium chloride. If concrete is to be used with bare (satin finish) aluminum poles the calcium chloride additions should be avoided.

The Aluminum Design Manual has studied many cases in which aluminum has corroded severely in concrete, in all cases there was the use of steel, concrete, and aluminum. It appears that all three materials are needed to cause severe corrosion to aluminum. AND, the concrete usually has free chloride ions i.e. via the use of calcium chloride.

As background, CaCl₂ is used as an accelerator in the curing of concrete in cold weather. If concrete is poured in cold weather, a NCA (Non-chloride Containing Admixture) should be used instead of CaCl₂.