



CCA-PA

Wood Preservative for Utility Poles

Hydro-Québec's research institute, IREQ, has developed a polymer-based additive that is injected into poles treated with chromated copper arsenate (CCA) to make them as easy to climb as poles treated with pentachlorophenol (PCP) or other preservatives. The new additive permanently reduces the hardness of CCA-treated poles. An agreement has been reached with Arch Wood Protection, a U.S. company specialized in preservatives, for industrial production and marketing of poles treated with the polymer additive (PA).

Hydro-Québec and Bell Canada have decided to benefit from this breakthrough by using CCA-PA for the nearly 50,000 wood poles added or replaced each year on the power distribution system and the communication network.

There are more than 1.7 million poles in the Hydro-Québec distribution system. Since 2002, poles treated with CCA have been replacing brown PCP-treated poles that are damaged or at the end of their service life.

CCA-treated poles: Combining durability and reliability

Hydro-Québec previously used PCP-treated poles even though they smell, bleed and have a rather limited service life. Looking for an alternative, Hydro-Québec switched to CCA-treated poles in the early 1980s.

CCA is a preservative containing arsenic, chromium and copper dissolved in water. The chemicals in CCA occur naturally in the earth's crust and in the atmosphere. Their combined action makes wood poles used by utilities like Hydro-Québec very durable by protecting them against their natural enemies, fungi and wood-eating termites. CCA-treated poles last at least 50 years.

The CCA solution is injected under pressure into the wood. By getting the preservative to penetrate deep inside the wood's cellular structure, the process ensures long pole life.

CCA preserves wood poles but has a major drawback for line workers since it tends to cause the wood to harden over time, even with other additives.

Polymer additive: Keeping wood from hardening

IREQ partnered with Arch Wood Protection to solve the wood hardening problem by developing a polymer additive (PA) that permanently reduces the hardness of CCA-treated poles. Initially water-soluble, the PA developed is included in a mixture that is injected under pressure into the wood to be treated. The wood is then heated and the additive polymerizes, taking on an insoluble three-dimensional molecular structure. The PA keeps the wood moisture content at a slightly higher level than other additives on the market, permanently reducing its hardness.

The additive enables the gaffs on the line worker's climbers to penetrate the wood for a better hold, facilitating work without in the least affecting the preservative properties of the CCA.

Key advantages

Three distinct advantages make CCA PA-treated poles a good alternative to PCP treated poles: their service life is decidedly longer, they do not smell and they do not bleed. The polymer is a water-based product that is clean, odorless and oil-free (no dark ring around the foot of the pole). Furthermore, using longer-lasting poles reduces the environmental impact.

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