Osmose®

Advancing Environmental Stewardship

Osmose Utilities Services, Inc. is dedicated to the conservation of utility resources and strives to create a culture of environmental awareness both as a product developer and as a service provider. We support the research and development of products and services that extend the safe and reliable service lives of structural T&D assets for many years beyond what is typically expected.

As the world's leading manufacturer of wood preservatives designed for in-service poles, Osmose has established R&D priorities intended to maintain efficacy against decay and deterioration while optimizing the level of active ingredients, lowering the potential risks to non-target organisms and eliminating petroleum-based carriers from our product line. In addition to being environmentally preferable, Osmose preservatives and coatings increase the service lives of in-service utility infrastructure, reducing the harvest of additional trees and the subsequent environmental effects associated with the manufacture of new poles. Beginning with the requirement to harvest a mature tree, every step in the manufacture of a new pole - regardless of material choice - consumes energy and creates greenhouse gas emissions.

Optimizing Sustainability

An Effective Pole Maintenance Program is Environmentally & Financially Beneficial

It's estimated that there are approximately 150 million wood poles in service in the United States. Each year, approximately 4 million of those poles are replaced as they reach the end of their service life. Wood poles are traditionally considered to have an effective service life of 40 years; however, there is an increasing body of evidence that shows poles can last more than 80 years if they are properly inspected and remedially treated on a cyclical basis. Given that evidence, it's not unrealistic to assume that 2 million (50%) of those 4 million poles would still be in service had they been inspected and remedially treated on a regular basis*.

Save Trees

Extending pole life promotes the efficient use of trees and reduces the potential waste of this important resource. Forestalling the replacement of two million poles saves two million large trees:

- Enough lumber to build 48,780 new homes[1]
- Enough wood to heat 143,125 homes for an entire year[2]

Improve Air Quality

Avoiding the unnecessary harvest of two million trees each year means those trees are still in our forests producing oxygen and absorbing carbon dioxide (CO^2) - an estimated 96,000,000 lbs of CO^2 each year!

- Enough carbon dioxide to offset the emissions of 9,113 cars[4] or the burning of 19,468 tons of coal[5]

Reduce Chemical Use

Reducing the need for new poles also reduces the need for chemicals and petroleum carriers used in their manufacture. The typical distribution pole contains approximately 6.4 pounds of chemical/active and 128 pounds of oil. Forestalling the replacement of two million poles each year may save more than 35 million[6] gallons of fuel oil per year.

- Enough fuel oil to fuel 83,895 automobiles for an entire year[7]

Save Money

The expense associated with replacing an in-service wood utility pole is estimated at more than $3,000. The cost to replace 2,000,000 poles is approximately $6 billion dollars! Net the $6 billion figure down by the cost of inspecting and remedially treating those two million poles[8] over their useful service life of 80 years, and there is still a surplus of $5.4 billion.

Maintain & Restore versus Replace

When poles no longer meet code requirements as a result of decay or damage, steel reinforcement or composite restoration can restore bending capacity and add years of additional service life at a FRACTION of the cost of replacement.

Pole restoration programs and proper inspection and treatment programs can significantly extend the useful life of wood poles. As a result, **many utilities are presently capitalizing pole restoration and some portion of the inspection/treatment cost,** allowing them to realize substantial operating benefits and a positive impact on earnings.

Myths About Remedial Treatments Dispelled

Empire State Electric Energy Research Corporation (ESEERCO) commissioned O'Brien & Gere Engineers, Inc.^ to conduct an independent field study and associated risk assessment of remedial pole treatments and evaluate the potential ecological and human health impacts related to the application of five remedial wood preservatives to electric utility distribution poles. Among those five preservatives were four Osmose products, including an external paste, two internal void treatments, and a liquid fumigant.

The study, conducted in the Adirondack Park wetlands, demonstrated that, when applied as directed, **remedial wood preservatives have a unique affinity for wood and do not pose a significant environmental risk.** None of the compounds were found to have migrated from the treated poles in later sampling events. Soil micro-organisms were not impacted, and there was no indication that the compounds would have any impact on invertebrates.

In the more than two decades since that study was published, Osmose has continued to search for ways to increase the efficacy of its remedial wood preservatives while optimizing the level of active ingredients.

- In 2013, Osmose released Hollow Heart® CB, the first and only liquid internal treatment to receive an Environmental Claim Validation from UL Environment.
- In 2014, Osmose released MP500-EXT® preservative paste. MP500-EXT has the lowest toxicity profile of all registered external remedial preservative coatings for wood poles. It carries an Environmental Claim Validation from UL Environment and is the only 100% solvent-free remedial preservative paste on the market.

UL VALIDATED
• VOC CONTENT LEVELS IN HOLLOW HEART CB ARE BELOW THE LIMITS SET BY SCAQMD RULE 1113
UL.COM/ECV

UL VALIDATED
• VOC CONTENT LEVELS IN MP500-EXT ARE BELOW THE LIMITS SET BY SCAQMD RULE 1113
UL.COM/ECV

Extending the Life of Wood Poles with Environmentally-Responsible Products

MP500-EXT®
Preservative Paste

MP500-EXT delivers broad-spectrum control of wood-destroying decay fungi.

- Controlled-release copper offers long-lasting protection
- Water-based, solvent-free formulation has non-detectable VOC emission
- Holds an Environmental Claim Validation from UL Environment

Hollow Heart® CB
Liquid Internal Treatment

Hollow Heart CB (copper and boron) provides deep, long-lasting protection against decay.

- Cobiocides offer improved efficacy
- Water-based formulation has low VOC emission
- Holds an Environmental Claim Validation from UL Environment

Osmose Trusses
Pole Restoration Systems

Osmose trusses restore original strength and add years of service life to wood poles. Osmose trussing systems are engineered for safety and reliability, and have been thoroughly tested and proven throughout their 50-year history.

- Avoid the hassle of change-outs and service interruptions
- Save money - restoring a reject pole is often 1/3 or less than the cost of a replacement

Pole Topper®
Pole Top Protection

Combat pole top decay and deterioration with the Osmose Pole Topper.

- Highly resistant to UV degradation and weathering
- Easy to install, no metal fasteners required, form easily around existing hardware
- Clean and dry to touch
- Available in 3 sizes and conveniently packaged

Osmose®

Providing Today's Practical Solutions

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*Assumptions regarding the remaining 50% (2 million) poles: Assume 1 million did have an inspection and treatment program in place; they had simply reached the end of their useful life (60-80 years) despite maintenance efforts. Assume that the remaining 1 million were replaced due to circumstances beyond the control of treatment (storm damage, automobile damage, etc).

1 Building a 2,000 square foot home requires approximately 11,120 board feet of lumber according to Penn State's Sustainable Forestry Department. A 42' X 20" tree can produce 274 board feet of lumber. You would need approximately 41 42' X20" trees to build a 2,000 square foot home.

2 The average home burns 2.5 cords of wood per year. One cord of wood contains 128 cubic feet of wood. Three cords of wood contains 320 cubic feet. There are 22.9 cubic feet of wood in one 42' X 20" tree. Therefore, it takes 14 trees to produce 2.5 cords of wood.

3 A single large tree absorbs approximately 48 lbs of CO_2 each year.

4 According to figures obtained from the Environmental Protection Agency (EPA) and the Federal Highway Administration (FHWA), the average automobile (mid-size sedan) emits 10,534 lbs of carbon each year.

5 According to the U.S. Energy Information Administration (EIA), one ton (2,000 lbs) of bituminous coal produces 4,931 lbs of carbon.

6 A gallon of fuel oil weighs approximately 7 pounds. The fuel oil used in the manufacture of utility poles is most similar to diesel oil. A pound of diesel oil weighs 7.3 pounds.

7 According to the FHWA, the average automobile gets 22.1 miles per gallon of gasoline. The number of miles driven per year is assumed to be 12,000 miles for all passenger vehicles. Therefore, the average automobile uses 418 gallons of gasoline per year. The FHWA gives an average value of 22.1 MPG for passenger cars. Since diesel cars are considered to be 30-35% more fuel efficient than gasoline-fueled cars, we used 28.73 as the average MPG for diesel vehicles.

8 The average cost for inspection and remedial treatment is $40 per pole. Assuming the pole is treated 7 times (once every 10 years, beginning at 10 years) over its useful life of 80 years, the lifetime cost for inspection and maintenance would be $280 per pole.

^To request a copy of the complete study by O'Brien & Gere Engineers, Inc., please email poleinfo@osmose.com.