



SUSTAINABILITY VERIFICATION CERTIFICATE

Preservative treated wooden railway ties are produced in North America by Railway Tie Association (RTA) Members and used by North American Railroads, contractors, and industry. After their intended useful purpose, these ties are recycled or disposed of in ways that are environmentally and economically sustainable. Sustainable means that recent and current production, use, and disposition of ties does not reduce or otherwise negatively impact the capacity to continue production, use, and disposition into the future. The primary aspects of railway tie sustainability in North America include the following:

PRODUCTION

Ties are sustainable forest products. Most are manufactured from hardwoods, although softwoods are also used for bridge timbers and some ties. Both hardwood and softwood forest wood volume and land coverage are increasing even as harvesting continues.¹ Co-production of ties and lumber from logs maximizes wood utilization. Market value of wood ties and timbers enables profitable management of land as forest, thus supporting forestland use rather than subdivisions or other crops.

Production of preservative treated wooden railway ties require less fossil fuel and energy and result in less environmental impact than ties made of alternative materials such as concrete or plastic-composite. Trees grow using photosynthesis to remove carbon dioxide from the air to make wood. Dry wood is approximately 50% carbon.²

USE

Preserved wooden ties continue to be the material of choice for railroads for over 95% of new tie installations due to the performance advantages they provide.³ Carbon is stored (sequestered) in the wood for the average 35 years of tie service.⁴ While typical service life of preserved wooden ties in the warm, wet southeastern U.S. has been less than the average, recent acceptance of borate dual treatment of ties is expected to increase average service life of wooden ties by two to three times even in this severe environment.⁵ Wood tie systems provide a shock absorbing cushion that reduces wear on train components and allow use of less ballast rock compared to concrete tie systems.

Preserved railway ties support the railroads that provide the most sustainable, cost and energy effective, least polluting means of transportation available. The fuel efficiency of U.S. freight railroads has approximately doubled from 1980 to 2012. Railroads are, on average, approximately four times more fuel efficient in freight transport than trucks. The fuel use and associated greenhouse gas emissions per ton-mile of freight transport by train are approximately ¼ of those for equal transport by truck. Each freight train may replace transport by several hundred trucks, thus reducing emissions and fuel use, highway wear and maintenance costs, and traffic congestion.⁶

FINAL DISPOSITION

Following use by railroads, worn ties are typically either recycled for energy use or are disposed in landfills. If recycled, the solar energy originally stored through photosynthesis is beneficially recovered as heat that can be used for industrial processes or electricity production that replaces an equivalent use of fossil fuel, thus reducing overall greenhouse gas emissions. If disposed in landfills, approximately half of the carbon in the wood does not decay, but rather is sequestered for 100 or more years while half the wood carbon is biologically decayed to carbon dioxide and methane. In most modern landfills, that methane is captured and used to replace natural gas fuel.

Utilization of used ties as fuel results in a net reduction of GHG levels in the atmosphere. Thus, while use of concrete, steel, or plastic-composite ties increases atmospheric GHG levels, use of preserved wood ties reduces those levels. Environmental impacts including acid rain, smog, eutrophication, and ecotoxicity due to the life cycle of preserved wooden ties are much less than for the alternate materials.⁷

YOUR COMPANY NAME

Is a Railway Tie Association Member

James C. Gauntt
Executive Director, RTA

RTA Member Number:

Valid through:

¹ USDA Forest Service, August 2014. U.S. Forest Resource Facts and Historical Trends. http://www.fia.fs.fed.us/library/brochures/docs/2012/ForestFacts_1952-2012_English.pdf.

² Treated Wood Council (TWC), 2013. Conclusions and Summary Report Environmental Life Cycle Assessment of Railroad Ties.

³ Gauntt, 2014. Hate It When That Happens. Crossties, Sep/Oct 2014. Pp. 9-12.

⁴ Bolin and Smith, 2013. Life Cycle Assessment of Creosote-Treated Wooden Railroad Crossties in the US with Comparisons to Concrete and Plastic Composite Railroad Crossties. Journal of Transportation Technologies, Vol. 3, pp 149-161.

⁵ Crossties, 2010. Norfolk Southern, TRA showcase Long-Term Research. Volume 88, Number 1, March/April 2010, Covey Communications Corp.

⁶ Association of American Railroads, April 2013. The Environmental Benefits of Moving Freight by Rail.

⁷ TWC, 2013.