Working on the railroad? Using concrete could help environment

May 7 2009

Concrete railway cross ties could be an eco-friendly alternative to those made of wood, scientists report. Credit: Tomasz Sienicki

Wood or concrete? Railroads around the world face that decision as they replace millions of deteriorating cross ties, also known as railway sleepers, those rectangular objects used as a base for railroad tracks. A new report concludes that emissions of carbon dioxide — one of the main greenhouse gases contributing to global warming -- from production of concrete sleepers are up to six times less than emissions associated with timber sleepers. The study is scheduled for the June 1 issue of ACS' *Environmental Science & Technology*.

In the study, Robert Crawford points out that there have been long-standing concerns about environmental consequences of manufacturing railway sleepers because it involves harvesting large amounts of timber.

Reinforced concrete sleepers are an alternative that offer greater strength, durability and long-term cost savings, he said. Critics of using concrete sleepers have charged that their manufacture increases greenhouse gas emissions as it involves higher consumption of fuel when compared to production of wood sleepers.

Crawford studied the greenhouse gas emissions of wooden and reinforced concrete sleepers based on one kilometer (0.62 miles) length of track over a 100-year life cycle. He found that emissions from reinforced concrete sleepers can be from two to six times lower than those from timber. “The results suggest strongly that reinforced concrete sleepers result in lower life cycle greenhouse emissions than timber sleepers,” the report states.

More information: “Greenhouse Gas Emissions Embodied in Reinforced Concrete and Timber Railway Sleepers”, *Environmental Science & Technology*

Provided by American Chemical Society (news : web)

Citation: Working on the railroad? Using concrete could help environment (2009, May 7) retrieved 19 April 2024 from https://phys.org/news/2009-05-railroad-concrete-environment.html

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