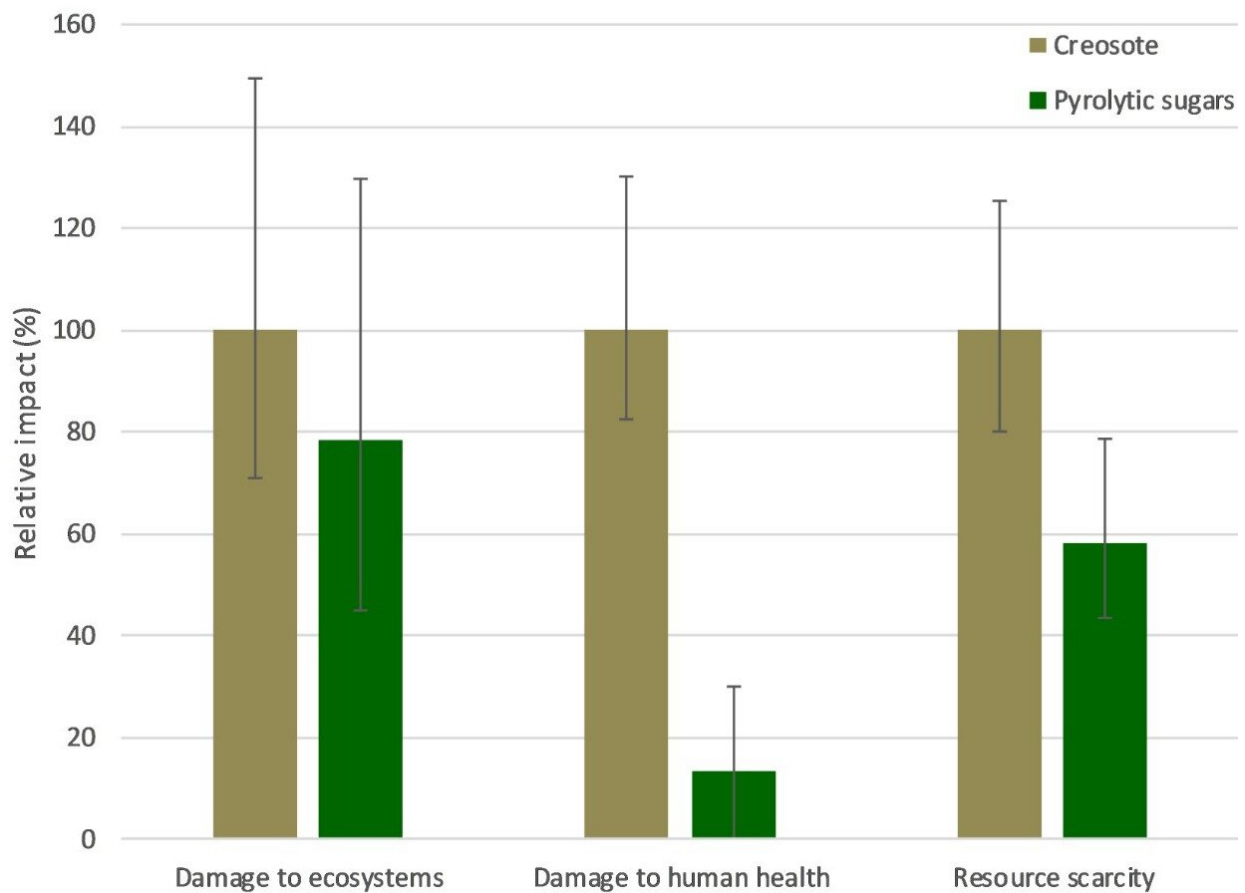


Sustainability of new creosote alternative confirmed

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Credit: BTG Biomass Technology Group

A recently published study has confirmed the sustainability credentials

of a new biobased alternative to creosote that is being developed in the Bio4Products project. The use of wood modification based on pyrolysis oil was shown to contribute 82% less greenhouse gas emissions compared to fossil-based creosotes. Due to lower toxicity it is also 7.4 times less damaging to human health.

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The peer-reviewed scientific publication showed the use of [wood](#) modification based on pyrolysis oil contributes 82% less greenhouse gas emissions compared to fossil-based creosotes. Due to lower toxicity it is also 7.4 times less damaging to [human health](#).

Lead author Jurjen Spekreijse, "Our study shows that pyrolysis-based wood modification is a good alternative for fossil-based creosotes. This is further evidence that in addition to [energy production](#), pyrolysis oil can be applied as biobased chemicals and materials, developing a sustainable platform based on pyrolysis oil."

Bio-based wood modification treatment

More sustainable wood modification treatments are being sought with some urgency to replace the highly toxic [creosote](#), which is still predominant for certain heavy duty applications such as railway sleepers and fencing.

The bio-based alternative is based on a cooperation between TransFurans Chemicals and Dutch timber company Foreco, who will market the product.

The raw material is provided by BTG Biomass Technology Group, who are developing a technology to divide pyrolysis oil into multiple fractions

for use in material applications, including resins and wood modification.

Sustainability of pyrolysis oil applications

The authors performed a Life Cycle Assessment (LCA) to better understand the sustainability of the new solution. The LCA contained an analysis of 17 different environmental impacts clustered around three end points: damage to human health, damage to ecosystems and damage to resources.

They found that the sustainability of this and other pyrolysis-based applications will depend to a large extent on the type of biomass feedstock used. For example, there was a significantly larger impact on human health and resource scarcity when maize digestate was used over forestry residues.

The impact of the pyrolysis-based [modification](#) treatment compared to creosotes was calculated based on the production, use and end of life of one cubic meter of treated wooden poles for one year.

More information: undefined Spekrijse et al. Life Cycle Assessment on a Biorefinery Approach to Pyrolysis Oil for Wood Modification Treatment, *Applied Sciences* (2019). [DOI: 10.3390/app9204233](https://doi.org/10.3390/app9204233)

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