

Press release

Renewable Carbon Initiative (RCI)

www.renewable-carbon-initiative.com

2023-11-27



Renewable Carbon-based Materials Show Significant Lower CO₂ Footprint Than Fossil Counterparts

The Renewable Carbon Initiative (RCI) published their latest report “Case Studies Based on Peer-reviewed Life Cycle Assessments – Carbon Footprints of Different Renewable Carbon-based Chemicals and Materials”. The brochure-style report was put together by sustainability experts from nova-Institute.

In the report, the RCI summarises and presents five peer-reviewed LCA case studies – representing the highest possible scientific standard – that examine the **carbon footprint of materials and products made from renewable carbon**. These five products and the respective LCAs are from the RCI members **Avantium (NL)**, **BASF (DE)**, **IFF (US)**, **Lenzing (AT)** and **Neste (FI)**, and have all been peer-reviewed by external, independent experts.

In times of “Code Red” warnings by the UN on climate change, the carbon footprint of chemical and materials is one of the most crucial indicators. Fossil resources are the main cause of human-made climate change, responsible for more than 70% of global warming. Where feasible, like in the energy sector, decarbonisation reduces the dependence on carbon as a feedstock. But for carbon-dependent industries, **defossilisation is the right strategy** to eliminate additional influx of fossil carbon into our carbon cycles and the atmosphere – and at the same time **we need to ensure that the alternatives really reduce greenhouse gas emissions**.

To achieve defossilisation, renewable carbon feedstocks, which can be bio-based, CO₂-based or recycled, need to substitute the dominant fossil feedstock in the production of chemicals and materials. These sectors rely on carbon as a feedstock and cannot do without. A key aspect of replacing fossil carbon with renewable carbon is the gained circularity of carbon. The principle advantage of renewable carbon feedstock is that it originates from atmosphere, biosphere and technosphere and therefore does not bring additional fossil carbon from the ground into the carbon cycle above ground. Instead, these feedstocks help to build and realise a truly circular economy and circular carbon loops.

All in all, the here presented materials and products show significantly reduced carbon footprints compared to their established fossil counterparts already today. The brochure visualises that there are not only competitive materials and products made of renewable carbon already on the market, but that they also show significantly reduced carbon footprints compared to their established fossil counterparts. These reductions ranging from 30–90% but at the same

time, these materials and products still have significant potential to further reduce emissions in the future.

The introduction states: *“As you delve into this brochure, we invite you to consider the implications of renewable carbon-based materials on climate change. We believe the case studies provide essential information to guide policy decisions in our pursuit of our climate and net-zero targets.”*

One key implication is that the less additional fossil carbon is added to our above-ground cycle, the smaller will be the amount of carbon emissions that have to be balanced out with expensive atmospheric removal and underground storage of carbon.

The full report can be downloaded here: <https://renewable-carbon.eu/publications/product/rci-scientific-background-report-2023>

Disclaimer

RCI members are a diverse group of companies addressing the challenges of the transition to renewable carbon with different approaches. The opinions expressed in these publications may not reflect the exact individual policies and views of all RCI members.

About RCI

The Renewable Carbon Initiative (RCI) is a global network of more than 60 prominent companies dedicated to supporting and accelerating the transition from fossil carbon to renewable carbon (bio-based, CO₂-based and recycled) for all organic chemicals and materials. Its work focuses on scientific background reports, position papers, advocacy and networking.

Find all press releases of the Renewable Carbon Initiative (RCI), visuals and more free-for-press purposes at www.renewable-carbon-initiative.com/media/press

Responsible for the content under German press law (V. i. S. d. P.):

Dipl.-Phys. Michael Carus

Renewable Carbon Initiative (RCI) www.renewable-carbon-initiative.com

Offices at nova-Institut für politische und ökologische Innovation GmbH, Leyboldstraße 16, DE-50354 Hürth (Germany)

Internet: www.nova-institute.eu

Email: contact@nova-institut.de

Phone: +49 (0) 22 33-460 14 00