

Biochar - Finland

Price 270 € / CORC



ITEM

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DEALER

Carbofex Oy

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DESCRIPTION

Carbofex offers a premium grade of biochar for the horticulture industry and water filtering applications. Our biochar captures and stores more CO₂ than is emitted in the manufacturing. One tonne of Carbofex biochar removes 3,2 tonnes of CO₂ eq. from the atmosphere into long-term storage in the product.

Carbofex is the first Puro.earth-certified biochar producer in the world and created the PYCCS methodology together with Puro.earth.

How it works

Biochar is produced from biomass or biowaste, through pyrolysis (heating in high temperatures in the absence of oxygen). Pyrolysis creates a very stable, solid form of carbon that can endure in soil for thousands of years, making it an ideal technology for scalable carbon removal. Carbofex biochar is manufactured from spruce thinnings of sustainably managed Finnish PEFC-certified forests. The raw material would thus decay, as CO₂ to the atmosphere, without the project.

After the state-of-the-art process a kilo (kg) of the resulting biochar embodies 3,43 kg of CO₂ and has caused 0,157 kg of fossil CO₂ emissions from cradle-to-gate i.e. from harvesting the wood to packing at the plant.

The resulting biochar has high fixed carbon content (94%) and chemical and structural stability far greater than in the original materials and removes 3,2 tonnes of CO₂ eq. from the atmosphere. It has multiple commercial uses at potentially industrial volumes, for example, as greenhouse additive, in soil regeneration and in wastewater treatment.

The biochar production is verified for carbon negativity by DNV GL, and issued CORCs per each tonne of CO₂ removed from the atmosphere. Life-Cycle Assessment made by Ecobio followed the methodology described in ISO 14040 and ISO 14044 standards where applicable.

[Check out our Impact Report](#)

[Download our factsheet](#)

[Take a tour of our factory](#)

CARBON REMOVAL INFORMATION

Carbon removal method :	Biochar
Capture of CO₂:	Photosynthesis
Stabilization of CO₂:	Pyrolysis
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Permanence:	Over 1000 years
Status of production:	Audited
Unit of product volume:	tonne
Embodied carbon in product:	3.2
Year of first issuance:	2019
Minimum amount to negotiate:	150

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Avoided emissions (mention avoided emissions in tonnes):

0.4t per tonne avoided of CO₂ removed

Examples of usage:

City plantations by Rölunda Gård STOCKHOLM, SE
Filtration of phosphorus from urban runoff waters ESPOO, FI
Landfill leachate water filtration TAMPERE, FI

Co-benefits:

Puro.earth CORCs only quantify the net-removal and storage of emissions, not reduced or avoided emissions, increased biodiversity or other positive benefits. Here are co-benefits self-reported by the removal supplier.

1. Avoided decomposing of biomass: To make biochar we use pre-commercially harvested wood, which would in normal case be left to decompose in the forest or burnt. Those emissions are avoided by stabilizing the carbon in the wood into our biochar for hundreds of years.
2. Harvesting and managing forests sustainably decreases risk of forest fires, insects and diseases. Pre-commercial harvesting is the first step in sustainable forest management.
3. Replacement of materials and their emissions: Use of Biochar can displace use of fertilizer, water filters or building materials that would have caused emissions.
4. Yield increase impacts: When biochar is used in substrates or soil improvements for horticulture in greenhouses or agriculture, [10% yield increases](#) have been reported. More crops and products means also that less land is required for producing the same amount of food or that more food can be grown on the existing farm land and greenhouses.
5. Green jobs: manufacturing biochar creates green jobs thorough out the value chain from harvesting to distribution and use.

Explanation of avoided emissions:

Excess energy at the pyrolysis plant is used to offset (replace) peat and natural gas inputs - at the Tampere district heating network.

Economic acceleration impact:

The revenue acquired by carbon removal suppliers propels their growth, compounding the climate effect and accelerating the carbon net-negative economy.

The extra income from Puro CORCs has allowed Carbofex to grow its existing biochar production and therefore, remove more CO₂ from the atmosphere.

The extra income also stimulates the development of new products such as phosphorus removal system for lakes and water ecosystems.

Climate impact

1 tonne of Carbofex biochar removes 3,2 tonnes of CO₂ eq. from the atmosphere into long-term storage in the product. Life-Cycle Assessment made by [Ecobio](#) followed the methodology described in ISO 14044 and ISO 14064 standards where applicable.

Additional information

Carbofex's biochar carbon removal project was reviewed by Carbon Plan, a non-profit research organization that analyzes carbon removal opportunities based on the best available science and data. Their report and comments are publicly available for carbon removal mechanism, volume, negativity, permanence, cost, additionality and specificity, here <https://carbonplan.org/reports> (search for Carbofex)

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AUDIT INFORMATION

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Audit statement :

https://static.puro.earth/live/uploads/tinyMCE/Suppliers/Carbofex/Certificate_Carbofex_2022_PURO_Verification

Facility ID:

643002406801000015

Independently verified by:

DNV GL, Heikki Lahtinen