



Audit Report 2024

In accordance with the following requirements:

Puro.earth - Biochar Methodology

Novocarbo Baltic Sea
23936 Grevesmühlen
Operator's No.: PE-70401.003

Contact details operator

Name and address

Novocarbo Baltic Sea
August-Bebel-Str. 1
DE-23936 Grevesmühlen

Phone/Fax

Fixnet: +49 162 24 95 205
Mobile: -
Fax: -
Email: c.ziegner@novocarbo.com

Contact person(s)

Audit visit details

Date

17.06.2024

Duration

11 h 0 m

Persons present including their function

GROSS Cimperley, Carbon Removal Manager

REINKE Benjamin, Project Manager

Philipp Seitz, bio.inspecta AG, Auditor

	very good			not satisfactory		
Clarity of documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Audit visit preparation:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

O.K.
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				1	Audit Description
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.01	Audited Standard: <i>Puro.earth CO2 Removal Marketplace General Rules 3.1 – Biochar Methodology (Annex A)</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.02	Type of Audit: <i>Production Facility Audit and Output Audit Output Audit</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.03	Auditing Body: <i>bio.inspecta AG, Ackerstrasse 117, CH-5070 Frick www.bio-inspecta.ch</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.04	Audit order assigned to an impartial auditor, free from any conflicts of interest, capable and qualified to complete this audit according to Puro Standard. <i>Auditor (name/surname): PHILIPP SEITZ</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.05	Audit ID: <i>PE-70401.003 (320081)</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.06	Audit Date: <i>17.06.24</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.07	Production Facility Location: <i>Am Baarssee 8, 23936 Grevesmühlen /PX1500</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.08	Production period: <i>11.02.24 - 30.06.24</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.09	Audit could be finished within the scheduled time frame
				2	Standing Data Confirmation

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				2	Standing Data Confirmation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.01	<p>The standing data has been collected from Puro and checked for consistency against other evidence. (GL Ref.1.2.5.)</p> <p><i>Trade registry available; location evidenced; removal method eligible; 12 month crediting period projected based on raw data availability of only 2 months, commencing on 11.02.2024, which is the start date for both batches, ba-de-30-5-2 & ba-de-30-6-1, until 19.04.24; no public support; documentation on environmental and social safeguards available.</i></p>
				3	Evidence Confirmation
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.01	<p>All necessary evidence has been provided to the auditor by the Production facility and has been used to complete the compliance checklist. (GL Ref. 5.)</p> <p><i>Proof of product quality: (1) EUROFINS laboratory analyses AR-24-FR-014548-02 for ba-de-30-5-2 and AR-24-FR-015642-02 for ba-de-30-6-1; Proof of output volume: 12 month crediting period projected based on raw data availability of only 2 months, commencing on 11.02.2024, which is the start date for both batches, ba-de-30-5-2 & ba-de-30-6-1, until 19.04.24; based on manufacturer specifications instead of actual plant performance and output, the risk that projected data is inflated is high. Proof of sales: The reported volumes were sold to different clients in Sweden, Finland and Netherlands. Delivery notes and invoices available (2); Proof of no double counting: Written declaration of buyer available, Carbon Credit Withdrawal Right issued, thereby transferring the right to generate carbon credits from the carbon content of the biochar.</i></p>
				4	Eligibility Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.01	<p>Biochar is used in applications other than energy. (GL Ref. 1.1.1.)</p> <p><i>Written declarations of buyers attached stating that the said volumes will not be combusted.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				4 Eligibility Checklist
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>4.02 Biochar is produced from sustainable forest or waste biomass raw materials (consult positive list of biomasses). (GL Ref. 1.1.2)</p> <p><i>The company BIOCEN acts as a commission agent for the supply of biomass for a contractually agreed period of 3 years. Both the FSC and PEFC Chain-of-Custody certificates have expired on November 19, 2023. The SURE-EU Certification Scheme which testifies compliance with the sustainability criteria under Directive (EU) 2018/2001 has expired on January 25, 2024.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>4.04 Pyrolysis reactor input fuel for heating is not a fossil fuel. Unless only used for ignition/pre heating or in a mobile unit and the emissions are fully included in the LCA. The use of waste heat from other industrial processes (eg. Biodigesters, cement production) is permitted. (GL Ref. 1.1.4.)</p> <p><i>No external energy sources required other than LPG gas for ignition (start-up energy). Included in the LCA. Rule of thumb: 12h per system start with a 450 KW start burner—natural gas or liquid gas as starting gas.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>4.05 Pyrolysis gases are combusted or recovered. Bio-oil and pyrolysis gases can be stored for later use as renewable energy or materials. (GL Ref. 1.1.5.)</p> <p><i>The excess gases (Syngases) produced in the pyrolysis are recovered, combusted and converted into heat. They are assumed to cover the full heating requirements for the pyrolysis and drying.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>4.06 The molar H/Corg ratio is less than 0.7.</p> <p><i>The molar H/Corg ratio significantly below 0.7 according to AR-24-FR-014548-02 for ba-de-30-5-2 (=0.32) and AR-24-FR-015642-02 for ba-de-30-6-1 (=0.33).</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				4 Eligibility Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>4.07 The biochar produced meets any product quality requirements existing in the jurisdiction where biochar is used and for the specific applications considered (GL Ref 1.1.7).</p> <p><i>Biochar meets highest quality requirements (AgroOrganic certified against EBC). Use as soil amendment for urban purposes, mainly Sweden but also Holland and Finland.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>4.08 Evidence of safe handling and transport is provided and adequate for the production facility. (GL Ref. 1.1.8.)</p> <p><i>Moisture standardized at minimum 20%. EUROFINS analyses claim a higher moisture content, 23,1 and 26,7%.</i></p>
				5 LCA Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>5.01 LCA complete and shows: carbon footprint of the biomass production and supply , emissions from the biochar production process , carbon footprint of the biochar end use - cradle to grave. (GL Ref. 1.1.3)</p> <p><i>LCA boundary established by a reputable LCA provider (CHM Analytics AB); includes all required emission sources of emission categories A1 – A4 and B1 + infrastructure as per LCA model of the product life cycle stages according to Puro. earth methodology. It can therefore be categorized as a cradle-to-grave LCA as it considers the impacts from forestry through to the end use of biochar. As biomass (wood chips) is considered waste wood proceeding from saw mills, emissions from harvesting are not accounted for.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				5	LCA Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.02	<p>The CO2 Removal Supplier provides a life cycle assessment (LCA) for biochar activity including disaggregated information on the emissions arising at different stages. The system boundary is set cradle-to-grave and includes emissions from production and supply of the biomass, from biomass conversion to biochar, and from biochar distribution and use. (GL Ref. 3.1)</p> <p><i>LCA provided by CHM Analytics AB. The studied system is a cradle-to-grave within a 100-year time boundary. Disaggregated information on the emissions arising from biomass transport, manufacturing, transport to end user and application are provided. Infrastructure is included. As biomass (wood chips) is considered waste wood proceeding from saw mills, emissions from harvesting are not accounted for.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.04	<p>The default baseline emission scenario for the project activity feedstock is zero, which is a conservative assumption since it is not taking into account methane emissions derived from decay of manure or combustion of waste biomass. If a non-zero baseline presented, needs to be accepted by Puro.earth</p> <p><i>The default baseline emission scenario for feedstock is zero as no methane emissions from decay of biomass occurs. The supplier has given written confirmation that the wood chips are produced continuously according to the customer's need and that the normal turnover rate of the woodchips is 1-4 days (confirmed through phone call with Schiefke GmbH on 4th July). On-site the chips are held for maximum 3 days before drying and consumption.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.03	<p>Life cycle assessment (LCA) follows ISO standard, WRI GHG protocol or similar method. (GL Ref. 3.2)</p> <p><i>Carbon footprint calculation for the production and application of biochar using the life cycle assessment approach per ISO 14040 and 14044, ISO 14067, and the Puro Earth methodology for biochar edition 2022 version 3, where applicable.</i></p>
				6	Production Facility Checklist (Desktop and Verbal Confirmation).

O.K.
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				6 Production Facility Checklist (Desktop and Verbal Confirmation).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.01 Evidence of Production Facility eligibility under the general rules of Puro Standard. (GL Ref. 1.2.1)</p> <p><i>Trade registry available; location evidenced; removal method eligible; 12 month crediting period projected based on raw data availability of only 2 months, commencing on 11.02.2024, which is the start date for both batches, ba-de-30-5-2 & ba-de-30-6-1, until 19.04.24; no public support; documentation on environmental and social safeguards available.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.02 The Production Facility demonstrate Environmental and Social Safeguards. (GL Ref. 1.2.2.)</p> <p><i>Environmental and Social Safeguards submitted (see attached).</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.03 CO2 Removal Supplier shall be able to demonstrate additionality, meaning that the project must convincingly demonstrate that the CO2 removals are a result of carbon finance. Even with substantial non-carbon finance support, projects can be additional if investment is required, risk is present, and/or human capital must be developed. To demonstrate additionality, CO2 removal Supplier must provide full project financials and counterfactual analysis based on Baselines that shall be project-specific, conservative and periodically updated. Suppliers must also show that the project is not required by existing laws, regulations, or other binding obligations. (GL Ref. 1.2.3)</p> <p><i>Additionality requirements fulfilled. Additionality statement attached to the validation order.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.04 The Production Facility's documentation system is accurate and reliable (GL Ref. 1.2.4)</p> <p><i>Big bags are weighed immediately after production to ensure that the atmospheric moisture does not impact the measurement. Big bags are recorded with sequential numbers.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				6	Production Facility Checklist (Desktop and Verbal Confirmation).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.05	<p>The quantity of the biochar produced and sold is quantified and documented in a reliable manner (GL Ref. 1.2.4)</p> <p><i>Big bags are weighed immediately after production to ensure that the atmospheric moisture does not impact the measurement. Big bags are recorded with sequential numbers. Water from quenching is deducted, however, moisture is not measured for each big bag; instead, an average moisture content of 20% is assumed, although Eurofins analyses claim water contents of 23.1 and 26,7%.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.06	<p>Relevant meters are in place and they are calibrated (GL Ref. 1.2.4)</p> <p><i>Production output: The bags are weighed immediately after production. This ensures that the atmospheric moisture does not impact the measurement. Energy use: Electricity metered: global electricity consumption of facility factored in. Electricity allocated to biochar in correspondence to the share of captured energy (64%; the remainder allocated to heat and electricity exported). Natural gas for start-up based on tank filling purchase data.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.07	<p>The emissions from the cultivating, harvesting and transporting of the biomass are estimated and calculated in a reliable manner (GL Ref 1.2.4)</p> <p><i>Cultivation and harvesting emissions not accounted for as wood chips are declared as waste material. Written declaration of supplier available (Schiefke GmbH). Contacted via phone. However, chipping of waste material is not taken into account.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.08	<p>The energy use of the Production Facility can be quantified and the emissions from the process calculated (GL Ref. 1.2.4)</p> <p><i>Emissions from the production process of the biochar are limited to electricity for the whole site, propane gas for start up, lubricant, water, stack emissions and infrastructure.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				6	Production Facility Checklist (Desktop and Verbal Confirmation).
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.09	<p>The auditor goes through the Quantification of CO2 Removal requirements with the CO2 Removal Supplier, so that the Supplier is able to calculate the CO2 Removal independently in its Output Report</p> <p><i>The calculatory paths provided in the Puro LCA format and limited availability of raw data are not exhaustive for validators to quantify CO2 removal requirements.</i></p>
				7	Calculation Checklist
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.01	<p>Qbiochar = Quantity of biochar produced and sold to end user. (dry char) (GL Ref. 4.2.)</p> <p><i>The LCA is based on projected data for a 12 month period. Based on manufacturer specifications instead of actual plant performance and output, 1 100 tonnes of dry biochar were sold in the modelling period, while production data (58,75 t) and sales data (57,35 t), both dry matter, would trigger biochar volumes of < 400 tonnes if extrapolated over the modelling period.</i></p> <p><i>Based on manufacturerspecifications instead of actual plant performance and output, 1.100 tonnes of dry biochar were sold in the modelling period, while production data (58,75 t) and sales data (57,35 t), both dry matter, would trigger biochar volumes of < 400 t ifextrapolated over the modelling period. The CO2eq value must be recalculated at the end of the validation period based on actual production output.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.02	<p>FpTHTs = $c + m \times H/Corg$ (GL Ref. 4.2.)</p> <p><i>Provided in the LCI at given soil temperature and selected time horizon = 0.83.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.03	<p>C Biochar = carbon content of biochar (GL Ref. 4.2.)</p> <p><i>The organic carbon content of the biochar was measured at 89.8% for ba-de-30-5-2 (AR-24-FR-014548-02), and 89,1% for for ba-de-30-6-1 (AR-24-FR-015642-02), both in the dry state. Therefore, the mass of captured CO2 contained in each dry mt of biochar can be expressed as 3.664×0.8945 (average carbon content of both analyses = 3.277 tonnes CO2/tonne) of biochar.</i></p> <p><i>Comment: The LCA takes the higher carbon content for ba-de-30-5-2 (AR-24-FR-014548-02) into account, 89.8% instead of the average of 89.45%, which entails a gross embodies carbon content of 3.29 instead of 3.27.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				7	Calculation Checklist
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.04	<p>Estored = biochar carbon storage = Qbiochar x Cbiocharorg x FpTHTs x 44/12 (GL Ref. 4.2.)</p> <p><i>The laboratory test shows that the biochar has a H/Corg ratio of 0.32 & 0.33, indicating a good level of stability. Using the combination of H/Corg ratio and an average soil temperature of 15°C, it has been determined that 83.5% of biochar is durable at 100 years. A 16.5% buffer has therefore been factored into the carbon removal calculation per the Puro.Earth methodology for biochar.</i></p> <p><i>Comment: As the main application sites are in the Nordics, it is worth reflecting whether lower soil temperatures can be applied.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.05	<p>Ebiomass = LCA emissions of production and supply of biomass (GL Ref. 4.3.)</p> <p><i>The turnover rate of biomass to biochar is hypothetical. As the raw data on which the modelling period is based is limited to 2 months, the turnover rate cannot be determined with accuracy. Biomass storage data is missing.</i></p> <p><i>Comment:</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.06	<p>Eproduction = LCA emissions from biochar manufacturing (GL Ref. 4.4)</p> <p><i>Emissions from electricity (for the whole site), propane gas for start up, lubricant, water, stack emissions and infrastructure accounted for.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.07	<p>Euse = LCA emissions of the use of biochar, including distribution up to the point of final use (GL Ref 4.5)</p> <p><i>Transport distance in tonkm is based on hypothetical figures based on raw data availability of only 2 months. Needs correction at the end of the validation period.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				7	Calculation Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.08	<p>CORCs = Estored - Ebiomass - Eproduction - Euse</p> <p><i>According to the LCA calculation, tonnes of dry biochar is calculated based on the CO2eq CORC factor of 2,37, whcih results in 133,084 CORC.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.09	<p>Quantity of CORCs (in evidence).</p> <p><i>According to the actual but hypothetic LCA calculation, tonnes of dry biochar is calculated based on the CO2eq CORC factor of 2,37, whcih results in 133,084 CORC.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.10	<p>Confirm consistency.</p> <p><i>A projected LCA that is based on limited and hence hypothetical raw data lacks consistency by default. The calculatory paths provided in the Puro LCA format and limited evidence of raw data are not exhaustive for validators to quantify CO2 removal requirements.</i></p> <p><i>Comment: A projected LCA that is based on limited and hence hypothetical raw data lacks consistency by default. The calculatory paths provided in the Puro LCA format and limited evidence of raw data are not exhaustive for validators to quantify CO2 removal requirements.</i></p>
				8	Site Visit Checklist
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.01	<p>The raw material is of eligible type and sustainably sourced (GL Ref. 1.1)</p> <p><i>Both the FSC and PEFC Chain-of-Custody certificates have expired on November 19, 2023. The SURE-EU Certification Scheme which testifies compliance with the sustainability criteria under Directive (EU) 2018/2001 has expired on January 25, 2024.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				8	Site Visit Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.02	<p>The LCA specifics and emissions boundary are consistent with observations on site (GL Ref. 1.1)</p> <p><i>Cultivation and harvesting emissions not accounted for as wood chips are declared as waste material. Written declaration of supplier available (Schiefke GmbH). Supplier contacted via phone.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.03	<p>There are no fossil fuels used to heat the pyrolysis reactor (GL Ref. 1.1)</p> <p><i>No external energy sources required other than LPG gas for ignition (start-up energy). Included in the LCA. Rule of thumb: 12h per system start with a 450 KW start burner—natural gas or liquid gas as starting gas.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.04	<p>Pyrolysis gases are recovered in the biochar production process (GL Ref. 1.1)</p> <p><i>The excess gases (Syngases) produced in the pyrolysis are recovered, combusted and converted into heat. They are assumed to cover the full heating requirements for the pyrolysis and drying.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.05	<p>Evidence of safe handling and transport of the biochar (GL Ref. 1.1)</p> <p><i>Moisture standardized at minimum 20%. EUROFINS analyses claim a higher moisture content, 23,1 and 26,7%.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.06	<p>Biochar is used in applications other than energy (GL Ref. 1.1)</p> <p><i>Written declarations of buyers attached stating that the said volumes will not be combusted.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.07	<p>The molar H/Corg ratio is less than 0.7</p> <p><i>The molar H/Corg ratio significantly below 0.7 according to AR-24-FR-014548-02 for ba-de-30-5-2 (=0.32) and AR-24-FR-015642-02 for ba-de-30-6-1 (=0.33).</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				8	Site Visit Checklist
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.08	<p>Confirm how the Production Facility documents the quantity of biochar produced and sold</p> <p><i>Big bags are weighed immediately after production to ensure that the atmospheric moisture does not impact the measurement. Big bags are recorded with sequential numbers. Water from quenching is deducted, however, moisture is not measured for each big bag; instead, an average moisture content of 20% is assumed, although Eurofins analyses claim water contents of 23.1 and 26,7%.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.09	<p>Confirm that the Production Facility's documentation system is accurate and reliable</p> <p><i>Big bags are weighed immediately after production to ensure that the atmospheric moisture does not impact the measurement. Big bags are recorded with sequential numbers.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.10	<p>Confirm that appropriate metering infrastructure is present and calibrated correctly to determine production output</p> <p><i>Production output: The bags are weighed immediately after production. This ensures that the atmospheric moisture does not impact the measurement.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.11	<p>Confirm that appropriate metering infrastructure is present to quantify the energy use of the Production Facility</p> <p><i>Electricity metered. Natural gas for start-up based on tank filling purchase data.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.12	<p>Confirm the calculations that are used to quantify emissions from the process. These account for: - the energy (e.g. waste heat) created by the biochar - the energy source used in the production process</p> <p><i>The calculatory paths provided in the Puro LCA format are not exhaustive for validators to quantify CO2 removal requirements.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				8	Site Visit Checklist
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8.13	<p>Confirm the process that is in place to quantify emissions from the harvest of raw materials. These account for: - forest biomass vs biomass from other waste</p> <p><i>As biomass (wood chips) is considered waste wood proceeding from saw mills, emissions from harvesting are not accounted for.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.14	<p>Confirm the process that is in place to quantify emissions from the transport of raw materials to the Production Facility.</p> <p><i>The process to quantify transport emissions takes the distance from the drying location into account but not the distance from the source of the material to the drying location.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.15	<p>The Production Facility demonstrate Environmental and Social Safeguards</p> <p><i>Environmental and Social Safeguards submitted (see attached).</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.16	<p>Confirm the CO2 removals are a result of carbon finance</p> <p><i>Additionality requirements fulfilled. Additionality statement attached to the validation order.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.17	<p>The requirements for Quantification of CO2 Removal have been explained to the Supplier by the Auditor for the purpose of compiling the Output Report</p> <p><i>Explained during 2 conference calls.</i></p>

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

8 Site Visit Checklist				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>8.18 Confirm the process that is in place to collect and maintain proofs as per Section 5 of the Biochar Guidelines. - Proof of sustainability of raw material for forest biomass (FSC, SFI, PEFC, other certifications) - Proof of sustainability of raw material for waste biomass - LCA data for biomass and biochar production, supply and use, including climate change impact and the contribution of each life cycle stages - Proof of product quality: laboratory analysis of total organic carbon content, hydrogen content and H/Corg - Proof of production volume: documentation for the whole period and methodology applied to calculate the dry mass of biochar produced. - For mobile units or carbonizer operator: proof of load cell measurement of the biochar for the whole period, and water input measurement. - Proof of end use of biochar: offtake agreement, shipment, and other records indicating the intended use of biochar. - Justification on the soil temperature selected for the calculation of the biochar sequestration. - Proof of sales - Proof of no double counting/C positive marketing.</p> <p><i>All issues addressed above.</i></p>
9 Overall conclusion				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>9.01 Overall conclusion:</p> <p><i>The LCA calculation for the validation period (11.02.24 – 30.06.24) provides a credible and faithful account of output volumes and emissions, and thus of declared carbon dioxide removals eligible for CORCs as stated in the Output statement.</i></p>

Auditor's evaluation and recommendation

Non-compliance	Corrective action	Deadline
Puro.earth - Biochar Methodology		
3.01 Based on manufacturer specifications instead of actual plant performance and output, the risk that projected data is inflated is high. This may trigger a distorted CO ₂ eq value as emissions are allocated to projected output volumes that may be in excess of real volumes.	The CO ₂ eq value must be recalculated at the end of the validation period based on actual production output.	
4.02 Both the FSC and PEFC Chain-of-Custody certificates have expired on November 19, 2023. The SURE-EU Certification Scheme which testifies compliance with the sustainability criteria under Directive (EU) 2018/2001 has expired on January 25, 2024.	Please submit certificates with validity periods that cover at least the batch periods of ba-de-30-5-2 and ba-de-30-6-1.	24 Days
6.05 Moisture is not measured for each big bag; instead, an average moisture content of 20% is assumed, although Eurofins analyses claim water contents of 23.1 and 26,7%.	Please document the readings of the water meter regularly (and eventually pressure), or conceive any alternative method that allows reliable water measurements. Submit corresponding evidence at the end of the validation period.	
6.07 Chipping of waste material is not taken into account.	Emissions from chipping of waste material must be taken into account. The CO ₂ eq value must be recalculated at the end of the validation period including emissions from chipping waste biomass.	
6.09 The calculatory paths provided in the Puro LCA format, and limited availability of raw data are not exhaustive for validators to quantify CO ₂ removal requirements.	Calculatory paths and raw data must be made fully available in simplified excel-based LCA format by the time the actual crediting period is due for end validation.	
8.01 Both the FSC and PEFC Chain-of-Custody certificates have expired on November 19, 2023. The SURE-EU Certification Scheme which testifies compliance with the sustainability criteria under Directive (EU) 2018/2001 has expired on January 25, 2024.	Please submit certificates with validity periods that cover at least the batch periods of ba-de-30-5-2 and ba-de-30-6-1.	24 Days

8.08 Moisture is not measured for each big bag; instead, an average moisture content of 20% is assumed, although Eurofins analyses claim water contents of 23.1 and 26,7%.	Please document the readings of the water meter regularly (and eventually pressure), or conceive any alternative method that allows reliable water measurements. Submit corresponding evidence at the end of the validation period.	
8.12 The calculatory paths provided in the Puro LCA format are not exhaustive for validators to quantify CO2 removal requirements.	Calculatory paths and raw data must be made fully available in simplified excel-based LCA format by the time the actual crediting period is due for end validation.	
8.14 The process to quantify transport emissions takes the distance from the drying location into account but not the distance from the source of the material to the drying location.	Transport distances must also take the distance from the source of the raw material to the drying location into account. Transport emissions must be recalculated based on the corrected distance and tonkm at the end of the validation period.	

The Right to be Heard

The undersigned has reviewed the outcome of the audit documented in this report and confirms the completeness and accuracy of the information provided in the audit and the content of this report.

He/ she has taken note of the non-conformities, measures, deadlines and sanctions described in this report.


The undersigned has the option of submitting a counter-notification in writing to bio.inspecta AG within three working days of receipt of this report. If no reply is received within this period, the contents of this report shall be deemed to be acknowledged.

Frick, 05.08.2024

Grevesmühlen,

bio.inspecta AG / q.inspecta GmbH
International Department

Novocarbo Baltic Sea



.....

Philipp Seitz

name, first name.....

Auditor

function.....