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## *Audit Report 2024*

*In accordance with the following requirements:*

*Puro.earth - Biochar Methodology*

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**OBIO AS**

**2360 RUDSHØGDA**

**Operator's No.: PE-71033**

## Contact details operator

### Name and address

OBIO AS  
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 NO-2360 RUDSHØGDA

### Phone/Fax

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 Email: einar@obio.no

### Contact person(s)

Mr. Einar Stuve

## Audit visit details

### Date

13.06.2024

### Duration

4 h 0 m

### Persons present including their function

STUVE Einar, CEO  
 STRAMRUD Anders, Technical Manager  
 Philipp Seitz, bio.inspecta AG, Auditor

very good

not satisfactory

Clarity of documentation

Audit visit preparation:

O.K  
 Corrective action required  
 Not verified  
 Not relevant

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				<b>1</b>	<b>Audit Description</b>
<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>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.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.05	Audit ID:  <i>PE-71033</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.06	Audit Date:  <i>13.06.24</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.07	Production Facility Location:  <i>Leinskogen 14, 2360 Rudshøgda</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.08	Production period:  <i>01.01.2023 - 31.03.2024</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
				<b>2</b>	<b>Standing Data Confirmation</b>

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 Not verified  
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				<b>2</b>	<b>Standing Data Confirmation</b>
<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; limited public support! Evidence of output volume: Differentiation between total produced volume, eligible biochar volume and sold volume. Emissions calculated based on production records of study period from 01.01.23 – 31.03.24</i></p> <p><i>(total volume = 286,5 t) before multiplying the emissions tCO2/unit with the eligible biochar volume = 277 t). CORC calculation is based on sales which are slightly higher than production (332 t) because of significant storage at the beginning of the validation period.</i></p>
				<b>3</b>	<b>Evidence Confirmation</b>
<input checked="" type="checkbox"/>	<input 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: EUROFINS laboratory analysis AR-23-FR-038925-01. Proof of output volume: 286,5 mt of biochar were produced in the period from 01.01.23 to 31.03.34 (eligible 277 mt). The bags are weighed immediately after production. This ensures that the atmospheric moisture does not impact the measurement. To ascertain the dry weight of the biochar, the water from quenching is deducted, which varies from 0 to 100 l per big bag as per customer requirements (the average amount of 50 l is the predominant quenching volume). By taking the respective quenching volumes (1 l = 1 kg) off from each big bag, the difference between brut and net weight will be determined. The total quantity of dry biochar produced during the period is 286 mt, of which 277 mt are eligible volumes. Bags carry numeric ID (year – consecutive number). Proof of sales: CORC calculation based on sales which are slightly higher than production (332 t) because of significant storage at the beginning of the validation period.</i></p>
				<b>4</b>	<b>Eligibility Checklist</b>

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 Corrective action required  
 Not verified  
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				4 Eligibility Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.01 Biochar is used in applications other than energy. (GL Ref. 1.1.1.)  <i>Verification of sales has confirmed use for non-energetic purposes for eligible volumes.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.02 Biochar is produced from sustainable forest or waste biomass raw materials (consult positive list of biomasses). (GL Ref. 1.1.2)  <i>Wood chips sourced from PEFC certified spruce forests. The main supplier is Glommen Mjosen Skog SA, located at Rudshøgda, Norway. COC Multisite certification confirmed at <a href="https://www.pefc.org/find-certified?certificate_number=DNVSE-PEFC-COC-262&amp;licence_number=DNVSE-PEFC-COC-262&amp;name=DNVSE-PEFC-COC-262">https://www.pefc.org/find-certified?certificate_number=DNVSE-PEFC-COC-262&amp;licence_number=DNVSE-PEFC-COC-262&amp;name=DNVSE-PEFC-COC-262</a>. Group certification confirmed through advanced search on <a href="https://www.pefc.org/find-certified?mode=simple&amp;page=1&amp;search=2000-OSL-SYMI-8085&amp;search=">https://www.pefc.org/find-certified?mode=simple&amp;page=1&amp;search=2000-OSL-SYMI-8085&amp;search=</a></i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.)  <i>Ignition like a campfire, no electricity or gas used.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.)  <i>Synthesis gases completely burnt.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.06 The molar H/Corg ratio is less than 0.7.  <i>The molar H/Corg ratio is significantly below 0.7 (=0.29) for ba-no-92-1-3 according to reference analytical report AR-23-FR-038925-01 (app. 75% of the validation period belongs to EBC batch ba-no-92-1-3).</i>

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 Not verified  
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				<b>4 Eligibility Checklist</b>
<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 (FeedPlus and AgroOrganic certified against EBC). Use in Norway and Scandinavian countries for feed and agricultural purposes. The analytical downgrade to Feed and Urban status' during ba-no-92-1-3 is believed to be an outlier, and possibly attributable to improper sampling procedures. For ba-no-92-1-4 the highest classes FeedPlus and AgroBio have been recovered.</i></p>
<input type="checkbox"/>	<input checked="" 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>Quenching to average moisture level of 14,6%. Safety data sheet available. Moisture under control through New water content measurement strategy (ti-92-1) which allows proper calibration during quenching, regulated through pressure adjustment. Objective evidence like water meter and pressure readings are missing.</i></p>
				<b>5 LCA Checklist</b>
<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 (Accend); 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 categorised as a cradle-to-grave LCA as it considers the impacts from forestry through to the end use of biochar. Emissions from harvesting included (specific forestry and extraction emissions for spruce applied &gt;&gt; <a href="https://nmbu.brage.unit.no/nmbu-xmlui/bitstream/handle/11250/2429274/2011-57_Clara%20Valente_%28INA%29.pdf?sequence=1&amp;isAllowed=y">https://nmbu.brage.unit.no/nmbu-xmlui/bitstream/handle/11250/2429274/2011-57_Clara%20Valente_%28INA%29.pdf?sequence=1&amp;isAllowed=y</a>; locally adapted diesel consumption for chipping included &gt;&gt; <a href="https://www.researchgate.net/publication/261920239_Determining_long-term_chipper_usage_productivity_and_fuel_consumption">https://www.researchgate.net/publication/261920239_Determining_long-term_chipper_usage_productivity_and_fuel_consumption</a>. For transport emissions, CO2e per unit calculated correctly based on mass of wet raw material.</i></p>

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 Not verified  
 Not relevant

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5 LCA Checklist				
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>5.02 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>The LCA is set cradle-to-grave and is therefore complete. Disaggregated information on the emissions arising at biomass harvesting, biomass transport, manufacturing, transport to end user and application are provided.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>5.04 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 1-2 weeks. 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"/>	<p>5.03 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).				

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 Not verified  
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				<b>6 Production Facility Checklist (Desktop and Verbal Confirmation).</b>
<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>The produced biochar is not used for energy purposes. Biochar produced during the period has been marketed and sold as soil amendment and animal feed. (§1.1.1). The feedstock consists exclusively of wood chips. (§1.1.4.) Feedstock supply for the wood chips is well documented and PEFC sustainably certified. (§1.1.2). The facility is EBC-certified. (§1.1.7) Compliance with comparable conditions is outlined in this report, and all process emissions have been calculated in the LCA using the cradle-to-grave approach. The following emissions have been accounted for: Harvesting of the wood, chipping, transport of wood chips to the production site, the manufacturing of the biochar on site, transportation of the biochar, and use of the biochar. (§1.1.3). Pyrolysis gases are captured and combusted within the reactor to maintain the carbonisation process. (§1.1.5). The remaining gases are combusted and exhausted. The exhaust emissions have been analysed and quantified. (§1.2.4). The produced biochar has a high, stable carbon content. The lab analysis performed by Eurofins in August 2023 demonstrated an organic carbon content of 90.9% in the dry state, which corresponds to the gross capture of 3.31 kg CO<sub>2</sub>/kg. (§5.3.3). The produced biochar has a H/C<sub>org</sub> molar ratio of 0.29 (Eurofins, 2023), well below the 0.7 threshold. (§1.1.6). OBIO has implemented appropriate measures to ensure the safe storage and transport of the biochar, including quenching of the biochar. They can provide a material safety data sheet for transport and storage. (§1.1.8). The potential for methane emissions from stockpiling of wet feedstock onsite and at the supplier has been considered in accordance with the criteria of the EBC (2020). There are no emissions from feedstock storage. The potential for fugitive release of syngas from pyrolysis is considered negligible.</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>The LCIA process characterises and assesses the effects of environmental releases identified in the LCI into impact categories such as global warming, acidification, carcinogenics, respiratory effects, eutrophication, ozone depletion, ecotoxicity, and smog. The global warming impact category is the only one that must be considered.</i></p>

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				<b>6 Production Facility Checklist (Desktop and Verbal Confirmation).</b>
<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>An additionality statement has been submitted by the CO2 Removal Supplier.</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>The bags are weighed immediately after production. This ensures that the atmospheric moisture does not impact the measurement. Bags carry numeric ID (year – consecutive number). Sales are documented in a sales overview; each sale is backed by an invoice.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.05 The quantity of the biochar produced and sold is quantified and documented in a reliable manner (GL Ref. 1.2.4)</p> <p><i>Proof of output volume: 286,5 mt of biochar were produced in the period from 01.01.23 to 31.03.24 (eligible 277 mt). The bags are weighed immediately after production. This ensures that the atmospheric moisture does not impact the measurement. To ascertain the dry weight of the biochar, the water from quenching is deducted, which varies from 0 to 100 l per big bag as per customer requirements (the average amount of 50 l is the predominant quenching volume). By taking the respective quenching volumes (1 l = 1 kg) off from each big bag, the difference between brut and net weight will be determined. The total quantity of dry biochar produced during the period is 286 mt, of which 277 mt are eligible volumes. Bags carry numeric ID (year – consecutive number). Proof of sales: CORC calculation based on sales which are slightly higher than production (332 t) because of significant storage at the beginning of the validation period.</i></p>

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 Not relevant

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				<b>6 Production Facility Checklist (Desktop and Verbal Confirmation).</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.06 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. Bags carry numeric ID (year – consecutive number). Energy use: Electricity metered: global electricity consumption of facility factored in.</i></p> <p><i>Electricity allocated to biochar in correspondence to the share of captured energy (57%; the remainder allocated to heat exported). Diesel consumption: Use of a diesel-powered loader. Invoice for 2023 attached. Period January- March 2024 it has been extrapolated using the 2023 invoice. Regular calibration confirmed.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.07 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>Analysis shows that 4.52 t of dry wood chips were required to produce 1 dry ton of biochar during the study period. The calculation of the emissions from the forestry and harvesting of the wood chip includes loss of sinks. The data source is "Valente, C., Spinelli, R., Hillring, B. G., &amp; Solberg, B. (2014). Mountain forest wood fuel supply chains: Comparative studies between Norway and Italy. Biomass and Bioenergy, 71, 370-380. <a href="https://doi.org/10.1016/j.biombioe.2014.09.018">https://doi.org/10.1016/j.biombioe.2014.09.018</a>". This LCA study was performed on data from the same supplier. The additional process step of chipping has been added using an industry-standard factor for diesel-powered chipping. The analysis shows that 38,11 t of CO2e emissions are caused by the wood chips used to produce the bio-char during the period. This amounts to 133 kg CO2e/unit. The wood chips are transported by freight trucks. The distance from the supplier, Glommen Mjøsen Skog SA to the facility location in Rudshøgda is only 2km (checked on google maps). For supply of wood chips, monthly activity reports are available (attached). Greenhouse gases emissions from feedstock transport represent 0,77 kg per declared unit of output. The emissions factor 0.0901 kg CO2e/tonkm from Ecoinvent 3.6 has been used.</i></p>

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 Corrective action required  
 Not verified  
 Not relevant

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				<b>6 Production Facility Checklist (Desktop and Verbal Confirmation).</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.08 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, diesel for forklift usage, stack emissions and infrastructure. The electricity consumed by the whole site during the assessed period, considering the reactor but also other machinery and lightning, is 533 kWh for each tonne of dry biochar. Emissions related to electricity consumption have been calculated using the national grid mix for Norway, which is primarily hydropower. Allocated emissions from the consumption of electricity amount to 10 kg CO2e per dry tonne of biochar. Diesel has been modelled using a global diesel dataset from Ecoinvent 3.9.1, "diesel, burned in building machine - GLO", resulting in 11 kg CO2e per t of dry biochar.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.09 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>
				<b>7 Calculation Checklist</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>7.01 Q<sub>biochar</sub> = Quantity of biochar produced and sold to end user. (dry char) (GL Ref. 4.2.)</p> <p><i>Proof of output volume: 286,5 mt of biochar were produced in the period from 01.01.23 to 31.03.34 (eligible 277 mt). The bags are weighed immediately after production. This ensures that the atmospheric moisture does not impact the measurement. To ascertain the dry weight of the biochar, the water from quenching is deducted, which varies from 0 to 100 l per big bag as per customer requirements (the average amount of 50 l is the predominant quenching volume). By taking the respective quenching volumes (1 l = 1 kg) off from each big bag, the difference between brut and net weight is being determined. The total quantity of dry biochar produced during the period is 286 mt, of which 277 mt are eligible volumes. Bags carry numeric ID (year - consecutive number). Proof of sales: CORC calculation based on sales which are slightly higher than production (332 t) because of significant storage at the beginning of the validation period.</i></p>

O.k  
 Corrective action required  
 Not verified  
 Not relevant

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				7	Calculation Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.02	<p>FpTHTs = <math>c + m \times H/Corg</math> (GL Ref. 4.2.)</p> <p><i>Provided in the Gross embodied CO2 calculator at given soil temperature and selected time horizon = 0.993.</i></p>
<input checked="" type="checkbox"/>	<input 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 90.9% in the 2023 analysis of biochar, in the dry state (AR-23-FR-038925-01, 2023). Therefore, the mass of captured CO2 contained in each dry mt of biochar can be expressed as <math>3.664 \times 0.909 = 3.309</math> tonnes CO2/tonne of biochar.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.04	<p>Estored = biochar carbon storage = <math>Q_{biochar} \times C_{biocharorg} \times FpTHTs \times 44/12</math> (GL Ref. 4.2.)</p> <p><i>The laboratory test shows that the biochar has a H/Corg ratio of 0.29, indicating a good level of stability. Using the combination of H/Corg ratio and an average soil temperature of 5°C, as the main application sites are in the Nordics, it has been determined that 99.3% of biochar is durable at 100 years. A 0.65% buffer has therefore been factored into the carbon removal calculation per the Puro.Earth methodology for biochar.</i></p>
<input checked="" type="checkbox"/>	<input 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 assessed period operations data shows that 4.52 tonnes of dry wood chips were required to produce 1 dry tonne of biochar during the study period. The calculation of the emissions from the forestry and harvesting of the wood chips includes loss of sinks. The additional process step of chipping has been added using an industry-standard factor for diesel-powered chipping. The calculation shows that 67.3 tonnes of CO2e emissions are caused by the wood chips used to produce the biochar during the period. The allocated emissions amount to 133 kg CO2e/tonne of dry biochar.</i></p>

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 Corrective action required  
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 Not relevant

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				7	Calculation Checklist
<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 the production process of the biochar are limited to electricity for the whole site, diesel for forklift usage and process emissions. Moreover, allocated emissions arise from the infrastructure, the Biomacon reactor. In total, the allocated emissions of greenhouse gases related to the manufacturing of biochar amount to 23 kg CO2e per tonne of dry biochar.</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>The bagged biochar is transported to the customer by truck. The volume-weighted average distance travelled for biochar to customers is 568 km. Greenhouse gas emissions from biochar transport have been calculated using the tkm transported, including the biochar and packaging mass. The transport to end user has been modelled using the Ecoinvent dataset "transport, freight, lorry &gt;32 metric ton, EURO6 - RER". Total biochar transport emissions, including the biochar and packaging mass, are 66 kg CO2e per tonne of dry biochar. The biochar is mainly mixed with manure or compost for use as a soil improvement medium and with feed when used as animal feed. So, as a conservative assumption to assess application emissions, the Ecoinvent dataset "solid manure loading and spreading, by hydraulic loader and spreader - CH" has been used, considering that mechanical means are used in both end-uses. The biochar application emissions are estimated to be 4 kg CO2e per tonne of dry biochar.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.08	<p>CORCs = Estored - Ebiomass - Eproduction - Euse</p> <p><i>For January 2023 – March 2024, the net carbon removal is 3.05 tonnes CO2e/t of dry biochar, being the emissions arising from the biochar life cycle 0.25 t CO2e/t of dry biochar.</i></p> <p><i>CORCs: 1.013,9</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>Given the mass of 332 dry tonnes sold during the assessed period, the resulting total CO2e removed was 1013,9 t CO2.</i></p> <p><i>CORCs: 1013,9</i></p>

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 Not verified  
 Not relevant

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				<b>7</b>	<b>Calculation Checklist</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.10	Confirm consistency.  <i>All inconsistencies have been solved with the responsible LCA provider during the validation exercise.</i>
				<b>9</b>	<b>Overall conclusion</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.01	Overall conclusion:  <i>The validator confirms that the LCA calculation for the validation period (01.01.23 – 31.03.24) 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>

### Auditor's evaluation and recommendation

Non-compliance	Corrective action	Deadline
Puro.earth - Biochar Methodology		
4.08 Moisture under control through New water content measurement strategy (ti-92-1) which allows proper calibration during quenching, regulated through pressure adjustment. Objective evidence like water meter and pressure readings are missing.	Please document the readings of the water meter regularly (and eventually pressure), at least twice a week and submit corresponding evidence in future (imposed as B Sanction as part of the EBC re-certification process)..	

## 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, 30.06.2024

RUDSHØGDA, ..... 1/7 - 2024

bio.inspecta AG / q.inspecta GmbH  
International Department

OBIO AS



Philipp Seitz

name, first name..... Einar Skuve

Auditor

function..... CEO