

bio.inspecta AG

q.inspecta AG

Ackerstrasse 117

CH - 5070 Frick

Tel. +41 (0)62 865 63 00

Fax +41 (0)62 865 63 01

international@bio-inspecta.ch

www.bio-inspecta.ch

Audit Report 2022

In accordance with the following requirements:

Puro.earth - Biochar Methodology

Sylva Fertilis France

61200 Argentan

Operator's No.: PE-71029

Contact details operator**Name and address**

Sylva Fertilis France
2 Route de Sees
FR-61200 Argentan

Phone/Fax

Fixnet: +33 233774737
Mobile: -
Fax: -
Email: C.Gosset@slbsa.com

Contact person(s)

Mr. Cyprien Gosset

Audit visit details**Date**

19.10.2022

Persons present including their function

COAT, Carine, 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 2.0 – 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</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	Auditor Initials: <i>PS</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.05	Audit ID: <i>PE-71029</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.06	Audit Date: <i>19.10.22</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.07	Production Facility Location: <i>2 Route de Sées, 61200 Argentan</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.08	Production period: <i>Sep 2021 - Aug 2022</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.1.2.3.)</p> <p><i>Trade registry available; location evidenced; removal method eligible; LCA calculation covers the period 1st Sep 2021 until 31st Aug 2022, corresponding roughly to EBC batch period ba-fr-84-1-2; no public support! Evidence of output volume: Two granularities of char are produced: > 1mm and 0-1 mm. 114,3 dry metric tons of biochar were produced from production start 1st Sep 2021 – 31st August 2022. 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 moisture content has been deducted. Analysis shows that the moisture content of the biochar is 1.85%. Pellet consumption cannot be measured during the production process but outbalanced against the remaining stock. When set against production figures, a conversion ratio of 4.35 to 1 can be established that can closely mirror the conversion b/ween biomass and biochar. The conversion ratio has been confirmed during the EBC audit.</i></p>
				3	Evidence Confirmation

O.K.
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				3	Evidence Confirmation
<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: (1) EUROFINS laboratory analysis AR-21-FR-037519-01 for biochar sampled in Sep 2021 during the EBC Audit. Proof of output volume: Two granularities of char are produced: > 1mm and 0-1 mm. 114,3 dry metric tons of biochar were produced from 1st Sep 2021 – 31st August 2022 (validation period). The bags are weighed immediately after production w/ calibrated weighing scales. This ensures that the atmospheric moisture does not impact the measurement. To ascertain the dry weight of the biochar, the moisture content has been deducted. Analysis shows that the moisture content of the biochar is 1.85%. Production figures can be retrieved from the stock movement (uploaded). Analysis shows that 4.36 tons of wood pellets were required to produce 1 ton of biochar during the study period. Proof of sales: Sales can be retrieved from the stock movement, each w/ a unique lot ID, and backed by invoices. As sales are lagging behind production (stock difference verified on the compound), CORCs are claimed based on the sales that have occurred during the validation period (79.15 Dry tons). The LCA calculation is 2.62 CORC/dry ton net embodied CO2 storage. Proof of no double counting: Customer research on a sample basis has proven that CORCs are not being claimed through another crediting scheme.</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>No use for energetic purposes. Horticulture; urban and communal gardening.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.02	<p>Biochar is produced from sustainable forest or waste biomass raw materials (consult positive list of biomasses). (GL Ref. 1.1.2)</p> <p><i>Use of wood pellets sourced from PEFC certified forests as feedstock (certificate available). Feedstock category ID F-03 figures in permissible list of inputs. The pellets' supplier is FICAP, located in Pomacle, Grand Est region of France.</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"/>	4.03	<p>If the raw material is forest biomass: - Biomass has not been harvested from peatlands. - Biomass could not be used in construction. (GL Ref. 1.1.3 - 1.1.4)</p> <p><i>No confirmed peatlands in areas where raw material is being sourced (supported by PEFC certificates for all suppliers of FICAP). Timber qualities that could be used for construction are assumed to have been precluded from the production of wood chips.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.04	<p>Evidence of safe handling and transport is provided and adequate for the production facility. (GL Ref. 1.1.12)</p> <p><i>No prevention of dust formation due to limited water content. A certificate of success to a self-heating test (attached) discards spontaneous self-ignition. Dust explosion and dust inhalation may occur and represent significant health risks. A material safety sheet is available that indicates the associated health risks.</i></p>
				5	LCA Checklist

O.K.
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

5 LCA Checklist			
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.01	<p>LCA complete and shows: - The emissions from the process. - The carbon content of the biochar. - Requirements 1.1.6 - 1.1.11.</p> <p><i>Emissions A1 – A4 and B1 revised and confirmed through documentary support (invoices; emission factor sourcing; google mapping etc.). Average carbon content provided as part of EUROFINS analytical reference reports AR-21-FR-037519-01 (2021) & AR-21-FR-037519-01 (2022) taken into account; Requirement 1.1.6: Ignited similarly to a camp fire. No external energy sources required; Requirement 1.1.7: Gases recovered and converted into heat; Requirement 1.1.8: The heat is not used so far. A study has been commissioned regarding heat recovery which is due to be implemented in 2023 and supposed to supply the communal heating system from beginning of 2024. EBC allows a temporary exemption for this requirement. Exemption available for previous batch period. Request for future exemption imposed as corrective measure during the EBC audit on 19.10.22; Requirement 1.1.9 Average carbon content provided as part of EUROFINS analytical reference reports AR-21-FR-037519-01 (2021) & AR-21-FR-037519-01 (2022) = 95% taken into account; Requirement 1.1.10 The molar H/Corg ratio significantly below 0.7. Average H/Corg ratio provided as part of EUROFINS analytical reference reports AR-21-FR-037519-01 (2021) & AR-21-FR-037519-01 (2022) = 0.17 taken into account; Requirement 1.1.11 The molar O/Corg ratio significantly below 0.4. Average O/Corg provided as part of EUROFINS analytical reference reports AR-21-FR-037519-01 (2021) & AR-21-FR-037519-01 (2022) (=0.015) taken into account.</i></p>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.02	<p>Pyrolysis reactor input fuel for heating is not a fossil fuel. (GL Ref 1.1.6)</p> <p><i>Ignited similarly to a campfire. No external energy sources required.</i></p>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.05	<p>Stabile fixed carbon content is over 50%. (GL Ref. 1.1.9.)</p> <p><i>Average carbon content provided as part of EUROFINS analytical reference reports AR-21-FR-037519-01 (2021) & AR-21-FR-037519-01 (2022) = 95% taken into account.</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"/>	5.06	<p>The molar H/Corg ratio is less than 0.7. (GL Ref. 1.1.10.)</p> <p><i>The molar H/Corg ratio significantly below 0.7. Average H/Corg ratio provided as part of EUROFINS analytical reference reports AR-21-FR-037519-01 (2021) & AR-21-FR-037519-01 (2022) = 0.17 taken into account.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.07	<p>The molar O/Corg ratio is less than 0.4. (GL Ref. 1.1.11.)</p> <p><i>The molar O/Corg ratio significantly below 0.4. Average O/Corg provided as part of EUROFINS analytical reference reports AR-21-FR-037519-01 (2021) & AR-21-FR-037519-01 (2022) (=0.015) taken into account.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.08	<p>The LCA boundary is reasonable and has been completed by a reputable LCA provider: - Includes emissions from sourcing and transporting raw materials and emissions from production. - Excludes emissions from transport to end-use and end-use" (GL Ref. 3.1.2.)</p> <p><i>LCA boundary established by a reputable LCA provider (Accend); includes all required emission sources of emission categories A1 – A4 and B1 from sourcing and transporting raw material to production to transport to customer and end use application. The emissions from the feedstock have been calculated based on a LCA study for Swedish wood pellets production (uploaded). The pellet LCA shows the breakdown of the pellet production process and has been adapted to the particular circumstances of FICAP (pellet supplier). The emissions factor of the energy-intensive parts of the production has been increased to account for the comparative electricity mix in France and Sweden. The emissions from the transport of raw materials to the pellets factory has been considered and increased, based on the greater transport distance for the actual forest operations in France (73 km) compared to the LCA study (40km). The additional process step of wood chipping by the supplier has been added. Finally, the transport of the pellets has been calculated separately based on the typical type of vehicle used and the actual distance. Greenhouse gas emissions from biochar transport have been calculated using the tkm transported, including the biochar and packaging mass. The emissions arising from the application of biochar to soil using tractors have been modelled based on the diesel consumption of a tractor during manure spreading operations, 0.3 litres/tonne spread.</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 The Production Facility documents the quantity of biochar produced and sold. (GL Ref. 1.2.)</p> <p><i>Two granularities of char are produced: > 1mm and 0-1 mm. 114,3 dry metric tons of biochar were produced during validation period starting 1st Sep 2021 – 31st August 2022. 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 moisture content has been deducted. Analysis shows that the moisture content of the biochar is 1.85%. Production figures can be retrieved from the stock movement (uploaded). Analysis shows that 4.36 tons of wood pellets were required to produce 1 ton of biochar during the study period.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>6.02 The Production Facility's documentation system is accurate and reliable. (GL Ref. 1.2.)</p> <p><i>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 moisture content has been deducted. Analysis shows that the moisture content of the biochar is 1.85%. Analysis shows that 4.36 tons of wood pellets were required to produce 1 ton of biochar during the study period. Although pellet consumption cannot be measured during the production process. it can be outbalanced against the remaining stock. Ratio confirmed during EBC audit.</i></p>

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"/>	6.03	<p>Metering infrastructure is used to determine: - production output - energy use of Production facility (GL Ref. 1.2.)</p> <p><i>Production Output: The bags are weighed immediately after production w/ calibrated weighing scales. This ensures that the atmospheric moisture does not impact the measurement. To ascertain the dry weight of the biochar, the moisture content has been deducted. Analysis shows that the moisture content of the biochar is 1.85%. Electricity: One global meter accounts for the entire factory. Entire consumption linked to the production, handling, and conditioning of biochar: The pyrolysis reactor uses electricity from the grid for its operation, as does the suction system for pellets and biochar. Power consumption data from 2nd Semester 2021 and 1st Semester 2022 from invoices have been used as the basis for the calculation. 2MWh of electricity are used for each tonne of dry biochar. The emissions related to the electricity consumption are 112 kg CO₂e/tonne of dry biochar produced.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.04	<p>Appropriate calculations 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 (GL Ref. 1.2.)</p> <p><i>Power consumption data from 2nd Semester 2021 and 1st Semester 2022 from invoices have been used as the basis for the calculation. 2MWh of electricity are used for each tonne of dry biochar. The emissions related to the electricity consumption are 112 kg CO₂e/tonne of dry biochar produced. Emissions related to electricity consumption have been calculated using the French database Base Carbone emission factor for 2021 grid electricity in France: 0.0569 kg CO₂e/kWh. No use of diesel or gas as forklifts for moving the char are electric. Emissions from waste heat precluded for being a by-product of the pyrolysis.</i></p>

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"/>	6.05	<p>An appropriate process is in place to quantify emissions from the harvest of raw materials. These account for: - forest biomass vs biomass from other waste (GL Ref. 1.2.)</p> <p><i>LCA boundary established by a reputable LCA provider (Accend); includes all required emission sources of emission categories A1 – A4 and B1 from sourcing and transporting raw material to production to transport to customer and end use application. The emissions from the feedstock have been calculated based on a LCA study for Swedish wood pellets production (uploaded). The pellet LCA shows the breakdown of the pellet production process and has been adapted to the particular circumstances of FICAP (pellet supplier). The emissions factor of the energy-intensive parts of the production has been increased to account for the comparative electricity mix in France and Sweden. The emissions from the transport of raw materials to the pellets factory has been considered and increased, based on the greater transport distance for the actual forest operations in France (73km) compared to the LCA study (40km). The additional process step of wood chipping by the supplier has been added. Finally, the transport of the pellets has been calculated separately based on the typical type of vehicle used and the actual distance. Greenhouse gas emissions from biochar transport have been calculated using the tkm transported, including the biochar and packaging mass. The emissions arising from the application of biochar to soil using tractors have been modelled based on the diesel consumption of a tractor during manure spreading operations, 0.3 litres/tonne spread.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.06	<p>An appropriate process is in place to quantify emissions from the transport of raw materials to the Production Facility. These account for: - distance transported - fuel used (GL Ref. 1.2.)</p> <p><i>The pellets are assumed to be transported by the specially designed 28-ton freight trucks that are typically used in the industry in France. The distance from the supplier (FICAP) location in Pomacle, Grand Est, to the facility location in Argentan, Normandy is 360 km. Greenhouse gases emissions from feedstock transport have been calculated using the factor 0.105 kg CO₂e/tkm, from the dataset "Rigid - 26 to 32 tons - On-road diesel, including 7 % bio-based" from the French database Base Carbone. The feedstock transport emissions are 168 kg CO₂e/tonne dry biochar.</i></p>

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"/>	6.07	<p>An appropriate process is in place to calculate the uncertainty buffer for the O/Corg ratio: - where O/Corg <0.2, the buffer = 2.5% - where O/Corg >0.2, the buffer = 5% (GL Ref. 1.2.)</p> <p><i>The stability of the carbon content can be ascertained using the molar O/Corg ratio. The maximum oxygen content was calculated by excluding other elements, and the maximum molar O/C ratio of 0.015 determined (average of last 2 analytical reference reports). The lower safety buffer of 2.5% from the Puro methodology is therefore applied. The stable CO2 content, taking into account the safety buffer, is 3,39 metric T/T (1 declared unit) of output.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.08	<p>An appropriate system is in place to account for other uncertainties or losses and these are added to the buffer. (GL Ref. 1.2.)</p> <p><i>All energy and mass flows from the primary data have been allocated to the LCA for biochar. Because Sylva Fertilis uses wood pellets, with 6% moisture content, no pile emissions occur at their site.</i></p>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.09	<p>The process recovers pyrolysis gases and waste heat from the production of biochar. (GL Ref. 1.1.7.)</p> <p><i>Gases recovered and converted into heat. The heat is not recovered so far. EBC allows a temporary exemption for this requirement, the request for exemption was imposed as corrective measure during the EBC audit on 19.10.22.</i></p>
				7	Calculation Checklist
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.01	<p>Qbiochar = Quantity of biochar produced and sold to end user. (GL Ref. 4.6.)</p> <p><i>Certificates are claimed based on sales, rather than production as they are asynchronous. For the validation period Sep 2021 to Aug 2022, Sylva Fertilis has sold 79.15 dry tons of biochar.</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"/>	7.02	<p>Cbiochar = CO2 storage volume of the biochar. (GL Ref. 4.6.)</p> <p><i>From the laboratory analysis of the biochar's physical qualities, the gross sequestration of CO2 is 3,39 metric tons/unit. After the emissions from the process, 0.77 tons/unit has been deducted, the net CO2 sequestration per metric ton of biochar, and the factor used to calculate Puro CO2 removal certificates (CORCs) is 2.62.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.03	<p>Bbiochar = Buffer for possible CO2 re-emitted during Product life-time. (GL Ref. 4.6.)</p> <p><i>The stability of the carbon content can be ascertained using the molar O/Corg ratio. The maximum oxygen content was calculated by excluding other elements, and the maximum molar O/C ratio of 0.015 determined (average of last 2 analytical reference reports). The lower safety buffer of 2.5% from the Puro methodology is therefore applied. The stable CO2 content, taking into account the safety buffer, is 3,39 metric T/T (1 declared unit) of output.</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"/>	<p>7.04 Ebiochar = Net emissions from biochar production to the atmosphere, taking into account the own use of energy in a closed system. (GL Ref. 4.6.)</p> <p><i>2 combustion emissions identified: electricity and methane during production of char. Electricity: One global meter accounts for the entire factory. Entire consumption linked to the production, handling, and conditioning of biochar: The pyrolysis reactor uses electricity from the grid for its operation, as does the suction system for pellets and biochar. Power consumption data from 2nd Semester 2021 and 1st Semester 2022 from invoices have been used as the basis for the calculation. 2MWh of electricity are used for each tonne of dry biochar. Emissions related to electricity consumption have been calculated using the French database Base Carbone emission factor for 2021 grid electricity in France: 0.0569 kg CO2e/kWh. The emissions related to the electricity consumption are 112 kg CO2e/tonne of dry biochar produced.</i></p> <p><i>Forklifts for moving the char are also electric. Sylva Fertis commissioned an exhaust gas analysis in April 2021. CO2 emissions are considered to be carbon neutral, the report also measures methane, which is included in the LCI. The report shows a rate of 0.005 Kg CH4/hour. Using GWp100 the methane emissions amount to 6.0Kg CO2e/unit of biochar. The total emissions related to the manufacturing of the biochar (EPD Module A3) are 144 kg CO2e/unit of biochar.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>7.05 Lbiochar = Possible leakage from biochar production. (GL Ref. 4.6.)</p> <p><i>Because Sylva Fertis uses wood pellets, with 6% moisture content, no pile emissions occur at their site. The pellets manufacturer declares that they do not store wood in chipped form on site for any length of time that would result in greenhouse gas emissions.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>7.06 Erawmaterial = Emissions from harvesting the raw material, including possible loss of sinks. (GL Ref. 4.6.)</p> <p><i>Analysis shows that 4.36 tons of wood pellets were required to produce 1 ton of biochar during the study period. The emissions from raw materials for each ton of dry biochar is 358 Kg CO2e.</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"/>	7.07	<p>ETrawmaterial = Emissions from transport of raw material to production site. (GL Ref. 4.6.)</p> <p><i>The pellets are assumed to be transported by the specially designed 28-ton freight trucks that are typically used in the industry in France. The distance from the supplier (FICAP) location in Pomacle, Grand Est, to the facility location in Argentan, Normandy is 360 km. Greenhouse gases emissions from feedstock transport have been calculated using the factor 0.105 kg CO₂e/tkm, from the dataset "Rigid - 26 to 32 tons - On-road diesel, including 7 % bio-based" from the French database Base Carbone. The feedstock transport emissions are 168 kg CO₂e/tonne dry biochar.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.08	<p>CO₂ removal (calculation cell). (GL Ref. 4.7.2.)</p> <p><i>Sylva Fertilis intends to claim CORC certificates using the factor 2.62 ton CO₂e/dry ton biochar. Certificates are claimed based on sales, rather than production as they are asynchronous. For the period Sep 2021 to Aug 2022, Sylva Fertilis has sold 79,15 dry tons of biochar and claims 207,242 CORCs.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.09	<p>Quantity of CORCs (calculation cell).</p> <p><i>Sylva Fertilis intends to claim CORC certificates using the factor 2.62 ton CO₂e/dry ton biochar. Certificates are claimed based on sales, rather than production as they are asynchronous. For the period Sep 2021 to Aug 2022, Sylva Fertilis has sold 79,15 dry tons of biochar and claims 207,242 CORCs.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.10	<p>Quantity of CORCs (in evidence).</p> <p><i>CORCs: 207,242</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.11	<p>Confirm consistency.</p> <p><i>Sylva Fertilis intends to claim CORC certificates using the factor 2.62 ton CO₂e/dry ton biochar. Certificates are claimed based on sales, rather than production as they are asynchronous. For the period Sep 2021 to Aug 2022, Sylva Fertilis has sold 79,15 dry tons of biochar and claims 207,242 CORCs.</i></p>
				9	Overall conclusion

O.K
Corrective action required
Not verified
Not relevant

Puro.earth - Biochar Methodology

				9	Overall conclusion
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.01	<p>Overall conclusion:</p> <p><i>The validator confirms that the LCA calculation 01.09.21 - 31.08.22 provides a credible and faithful account of output volumes and emissions, and thus of declared carbon dioxide removals from sales, which have occurred in the same period, as stated in the Output statement. Despite the lack of traceability to private customers and online retail, sales have not been precluded due to their very limited participation in the overall sales. No proportional increase to bulk sales as compared to previous validation period. The validator is confident that the conservativeness has been applied to a sufficient degree to say that declared CO2 removals are fully justified.</i></p>

Auditor's evaluation and recommendation

Non-compliance	Corrective action	Deadline
Puro.earth - Biochar Methodology		
4.04 No prevention of dust formation due to limited water content.	Dust explosion and dust inhalation may occur and represent significant health risks. A material safety sheet is available that indicates the associated health risks. As per EBC standard chapter 7.7 both manufacturer and trader must refer to those hazards. Please submit proof that for wholesale (big bags) associated health hazards are disclosed accordingly; the dissemination of the material safety sheet could be a measure.	
5.01 The heat is not used so far. A study has been commissioned regarding heat recovery which is due to be implemented in 2023 and supposed to supply the communal heating system from beginning of 2024.	Please submit an exemption for a maximum of 2 more years. A further exemption is not possible.	
6.09 The heat is not used so far. A study has been commissioned regarding heat recovery which is due to be implemented in 2023 and supposed to supply the communal heating system from beginning of 2024.	Please submit an exemption for a maximum of 2 more years. A further exemption is not possible.	

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, 04.01.2023

Argentan, 09/01/2023

bio.inspecta AG / q.inspecta GmbH
International Department

Sylva Fertilis France

PC SC-12

Philipp Seitz

Auditor

name, first name..... Stéphane LEDENTU

function..... Gérant