ATTACHMENT 1

Biochar Methodology

Requirements and verification results

Company:	Carbofex Oy	
Facility address:	Kaarnakatu 1, 37150 Nokia	
Date:	21.3.2023	
Auditor:	Pasi Nissinen	DNV
Participants:	Anna Yrjönen	Carbofex Oy
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1.1. Requirements for activities to be eligible under the n		Verification method	Verification remarks	Compliace
1.1.1	Biochar must be used in applications that preserve its carbon storage property (e.g. greenhouse substrates, surface water barrier, animal feed additive, wastewater treatment, insulation material, landfill/mine absorber,	Freight documents	Pricing prohibiting at practical level usage for energy production. Customer verification from invoices	Yes
1.1.2	Biochar must be produced from sustainable biomass: sustainably sourced biomass, or waste biomass such as agricultural waste, biodegradable waste, urban wood waste or food waste.	One delivery agreements with MHY Pohjois-Pirkka Oy, who is participating PEFC group sertification. Certificate 9529-03 valid	Only certified raw material used. Verified from raw material invoices. Used pulpwood material and its quality is not suitable for pulp manufaturing.	Yes
1.1.3	The producer must demonstrate net-negativity with results from a life cycle assessment (LCA) or carbon footprint of the biomass production and supply, the biochar production process, and of the biochar use,	Document check.	Ecobio Life Cycle Assessment according to ISO 14040 and Puro.Earth Biochar Methodology 20.3.2023.	Yes

1.1.4	In the biochar production process, the use of fossil fuels (coal, oil, natural gas) for ignition, pre-heating, or heating of the pyrolysis reactor is permitted. However, the co-firing of fossil fuels and biomass in the same reaction chamber is not permitted, as fossil carbon may be mixed with the biochar product. The greenhouse gas emissions	Production process and document review.	Pyrolysis process heated with pyrolysis gases. Oil is used only starting the process after shut down. Ecobio Life Cycle Assessment according to ISO 14040 and Puro.Earth Biochar Methodology 20.3.2023.	Yes
1.1.5	In the biochar production process, the pyrolysis gases must be combusted or recovered through an engineered process that either negates or makes negligible any methane emissions to the atmosphere. Bio-	Production process.	Pyrolysis process heated with pyrolysis gases. Oil is used only starting the process after shut down.	Yes
1.1.6	The molar H/Corg ratio must be less than 0.7. H/Corg ratio is an indicator of the degree of carbonisation and therefore of the biochar stability. Values exceeding 0.7 are an	Calculation check.	CORC calculation: ratio is 0,14.	Yes
1.1.7	The biochar produced must meet any product quality requirements existing in the jurisdiction where biochar is used and for the specific applications considered. In other	Document check.	Eurofins Report number AR-23-GQ-001614-01, dated 13.3.2023	Yes
1.1.8	Measures must be taken for ensuring safe working environment, cleaner production principles (see section 5.3.6), and safe handling and transport of biochar, e.g. to prevent fire, dust and health hazards. Such safety measures include, but are not limited to, providing a Material Safety Data Sheet,	Production process.	Verified during the production unit tour.	Yes

1.2. Requirements for the Production Facility Audit	Verification method	Verification remarks	Compliance

1.2.1	The Production Facility Auditor checks the Production Facility against the Requirements for activities to be eligible under the general rules of Puro Standard and the specific requirement in this methodology (section	Production process.	Verified during the production unit tour.	Yes
1.2.2	The CO2 Removal Supplier shall be able to demonstrate Environmental and Social Safeguards and that the Production Facility activities do no significant harm to the surrounding natural environment or local	Production process.	Verified during the production unit tour. Self testimony that company doesn't need environmental permit according to the Environmental protection law (Ympäristönsuojelulaki	Yes
1.2.3	The 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.	Production process.	Verified during the production unit tour.	Yes
1.2.4	The Production Facility Auditor checks that the Production Facility is capable of metering and quantifying the biochar output in a reliable manner, for the Quantification of CO2 Removal (section 4). This check also	Production tour. CORC calculation.	CORC calculation and production reports (Excel file Production volumes).	Yes
1.2.5	Collection of standing data of the Production Facility. The Production Facility Auditor collects and checks the standing data of the	Document check.	Member code and GSRN number.	Yes

5.2. Biomass production and supply

5.2.1	Proof of origin and sustainability of the biomass feedstock used must be kept in records, be submitted to Puro, and made	Document check.	q.inspecta GmbH certificate number BINT-8116, issued 1.12.2022, valid 31.3.2023 Cerificate and QR-code	Yes
5.2.2	Life cycle assessment data for the biomass production and supply must be provided and documented. In particular, climate change impact must be presented in a disaggregated way exhibiting the contribution of the	Document check.	Ecobio Life Cycle Assessment according to ISO 14040 and Puro.Earth Biochar Methodology 20.3.2023.	Yes

5.5. Proof of no double counting

5.5.2	A statement is needed from the CO2 Removal Supplier that the underlying physical product (biochar) in which the CO2 is stored will not be sold or marketed as “climate positive” if the CO2 removal certificate associated with the underlying physical product (biochar) is removed from the underlying product and	Verfication onsite visit.	Statement sent with quotations and invoices confirming that the customer does not give any rigths to claim carbon sink.	Yes
5.5.2	Check of the packaging of the product (how the product is branded) is needed, if CO2 removal certificate associated with the underlying physical product (biochar) is	Production tour.	Packaging text: EBC certified premium/feed. Organic approved.Climate positive. Also reference with EBC certification and	Yes
5.5.3	No marketing and branding claims can be made by the end-user (user of biochar) that the underlying physical product (biochar) is a carbon sink, if the decoupled CO_2 certificate has been sold to and cancelled by another	Verfication onsite visit.	Verified according to the delivery contract of one main customer. Contract is on attacment of the Puro audit package.	Yes

4.6 Calculation parameters	t

E_{stored}	Ecobio Life Cycle Assessment according to ISO 14040 and Puro.Earth Biochar Methodology 20.3.2023.	Verified using the CORC calculation.	3,427
$E_{biomass}$	Ecobio Life Cycle Assessment according to ISO 14040 and Puro.Earth Biochar Methodology 20.3.2023.	Verified using the CORC calculation.	0,086
$E_{production}$	Ecobio Life Cycle Assessment according to ISO 14040 and Puro.Earth Biochar Methodology 20.3.2023.	Verified using the CORC calculation.	0,093
E_{use}	Ecobio Life Cycle Assessment according to ISO 14040 and Puro.Earth Biochar Methodology 20.3.2023.	Verified using the CORC calculation.	0,061733

SUMMARY AND OUTPUT CALCULATION		
Formula: CORCs= Estored-Ebiomass-Eproducti	1.9.2022-28.2.2023	
E_{stored}	3,427	mt CO2 eq / mt biochar (dry)
$E_{biomass}$	0,086	mt CO2 eq / mt biochar (dry)
$E_{production}$	0,093	mt CO2 eq / mt biochar (dry)
E_{use}	0,061733	mt CO2 eq / mt biochar (dry)
CORC FACTOR (net carbon sequestration over	3,184	mt CO2 eq / mt biochar (dry)
Total number of CORCs	**421,53**	**CORCs**