

Inputs from Public Consultation: Global Artisan C-Sink - Dry Matter Assessment						
Section	Chapter	Currently valid text	Request content	Response (accepted/not accepted).	Justification	
10 (Standard)	10		Feedback emphasized that the required laboratory-scale equipment represents a significant financial burden, particularly in the current market environment where Artisan carbon credits remain difficult to commercialize and project economics are already under pressure. Concerns were also expressed that immediate implementation could negatively impact project continuity, especially for smaller developers. Stakeholders therefore requested consideration of more cost-effective approaches to dry matter assessment that remain scientifically robust while being feasible for practical field implementation.	not accepted	The intention behind the Dry Matter Assessment update is not to create unnecessary financial burden for project developers, but to strengthen the robustness and credibility of Artisan credits expected to have a positive impact on the market situation. We understand that some C-Sink Managers have concerns regarding the financial implications of implementing this requirement under current market conditions. However, suitable gravimetric moisture analysers are available at substantially lower cost than often assumed, devices are available at approximately USD 400-800. The implementation options outlined in the update are intended to further reduce the financial burden for project developers. We keep the possibility open for C-Sink Managers to a) Making use of the option to send the samples to a local lab for analysis - see step 3 of the protocol. b) Share equipment among multiple Artisan Pro (see clarification introduced in chapter 4). c) Using the drying oven instead of the thermogravimetric moisture analyzer. However, this requires a	
1	2	The protocol states the fresh weight must be recorded 'immediately before the dry matter analysis' but does not specify a maximum allowable time between production and weighing. In field conditions, delays of several hours are common.	Add guidance on the maximum acceptable elapsed time between production and fresh weight recording or specify that samples must be stored in sealed bags to prevent moisture loss prior to weighing.	accepted	The purpose of the protocol for bulk density method is to determine the bulk density. It is essential that the volume be known immediately after production—30 L in the standardized box—and that the dry mass of this volume be accurately determined. To achieve this, it is crucial that the weighing of the volumetrically measured material and the moisture analysis be performed immediately one after the other, ensuring that no moisture loss occurs in between. Steps 4-7 of the protocol must therefore be performed in a protected location within a maximum of 30 minutes. Once the volume has been determined and secured, it is not critical whether moisture loss occurs between steps 2 and 4. In practice, however, the time must not exceed 96 hours to allow for regular updates of the bulk density.	
1	3	The C-Sink Village protocol states that 'different sampling procedures may be outlined and approved during the technical audit', which may create inconsistency across sites and reduce comparability of dry matter data.	Please consider providing a default fallback procedure for C-Sink Villages where no alternative has been approved, to ensure a minimum standard is always applied.	not accepted	The first sentences of the paragraph describes the default procedure; if the established logistics necessitate modification of procedures, a procedure that ensures at least the same level of representativeness may be proposed as part of the approval process and approved by CSI.	
1	4	The use of a 400-day rolling average for mean bulk density is practical but may mask significant seasonal variation in feedstock moisture and structure, particularly for agricultural residue feedstocks.	Please consider allowing producers to flag seasonal feedstock variation and apply a shorter rolling window (e.g. 180 days) where documented variability exceeds a defined threshold.	accepted	Rolling average was replaced by the mean of the three most recent values of the Bulk Density Assessment for clarity.	
2	2	The protocol requires the kiln to be 'filled with water until the biochar starts to float'. In practice, partial floating can be difficult to observe, especially in large kilns or in low-light conditions.	Provide additional guidance on how to confirm full saturation (e.g. visual signs, water level indicators, or a minimum water-to-biochar volume ratio).	accepted	The kiln or vessel is then filled with water until the water level clearly exceeds the biochar fill level. Note that the biochar will start to float.	
2	1	The Maximum Moisture Method is currently limited to Artisan Pro production. C-Sink Network producers who use Kon-Tiki or similar kilns could also benefit from this method, particularly in regions where laboratory access is limited.	Consider a phased extension of the Maximum Moisture Method to C-Sink Networks in a future revision, subject to validation across additional feedstock and pyrolysis types.	not accepted	The method requires constant weighing of each packaging unit while packing and thorough water quenching of the biochar. We do not consider it realistic that these conditions can be met within the Artisan Network.	
3	1	Every day at least 30 liters of biochar must be sampled from a different kiln given that more than one kiln is used at the registered site. The samples are collected and stored in a sealable container of at least 100 l to form a specific bulk density retention sample.	The 100L transfer step should be removed. Transferring material from the 30L box into a 100L container adds unnecessary handling and may alter compaction, reducing consistency between sites. We recommend weighing the 30L box directly, subtracting the known tare weight.	accepted	Since the sample contained material from three runs and requires three analyses, the precision is just as high if the three analyses are performed independently of one another.	
2	1	2: The content of the 30 l box is transferred into an empty bag, which is then	Remove this Step. The 30L sample can be weighed directly in the box, with the box tare deducted from the gross weight. Removing the transfer to a bag reduces handling, avoids material loss or compaction, and simplifies field implementation.	not accepted	This would only be possible in a set-up where the moisture analysis is performed directly at site. If it is carried out at a different location it has to be transferred into a closed bag to prevent loss of material. Steps 4-7 of the protocol must be performed in a protected location within a maximum of 30 minutes.	
2	1		Sample from the Production Pile Moisture samples should be taken from the full production pile, not from the 30L bulk density box. A sample from the box may not represent the full batch, as material near the top or edges may have different moisture levels. We recommend collecting small grab samples progressively as biochar is added to the production pile, creating a composite sample across the full batch. If this is not feasible, at least 12 subsamples should be taken from different points across the pile and combined before moisture analysis.	not accepted	The purpose of the protocol for bulk density method is to determine the bulk density. It is essential that the volume be known immediately after production under standard production conditions – 30 L in the standardized box – and that the dry mass of this volume be accurately determined. To achieve this, it is crucial that the weighing of the volumetrically measured material and the moisture analysis be performed immediately one after the other, ensuring that no moisture loss occurs in between. Steps 4-7 of the protocol must therefore be performed in a protected location within a maximum of 30 minutes. Steps 4-7 involve thorough homogenization to ensure the moisture content of the entire 30l sample is representative.	
			Instead, shared moisture analysers should be allowed at the regional level, for example within the same operating region or a 50 km radius. This would keep measurement quality intact while making implementation financially and logistically feasible. Shared use can be controlled through calibration records, sample labeling, chain-of-custody procedures, and dMRV documentation.	accepted	Clarifications regarding equipment sharing where included in chapter 4.	
2	2	Step 1: To saturate the biochar and reach the maximum moisture content/maximum water holding capacity the kiln is filled with water until the biochar starts to float and the biochar is left to saturate for one hour. Subsequently the water is released, and the biochar is transferred on a tarp	Shift to Average Moisture Once Sufficient Data Exists Using the maximum measured moisture value for credit calculations is overly conservative and may understate actual dry matter and carbon content. We recommend using the maximum value during the initial data-collection period. Once a statistically sufficient dataset is available, calculations should shift to the average measured moisture value for the relevant feedstock and production conditions. This remains conservative at the start while better reflecting actual project performance over time.	not accepted	While this may be reasonable as an internal quality control measure, adopting it as a standard method would create significant potential for misuse.	

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1	3	The sampling and bulk density measurement must be repeated once per year or for every 500 m ³ of biochar produced, whichever comes first.	We strongly recommend applying the same measurement frequency for both Artisan Pros and Artisan Networks to ensure consistency, transparency, and a level playing field across project types in the market. Given that per-cycle production for an Artisan Network farmer is typically lower, a threshold such as 100 m ³ or a monthly measurement cadence is even more appropriate, as it would require multiple production cycles to reach - unlike for an Artisan Pro. Additionally, both Artisan Pros and Networks are managed by aggregators with comparable access and operational capacity to conduct these measurements. Relaxing the criteria for one category, therefore, does not reflect a balanced or equitable assessment.	yes	Quantities are aligned now.
10 (Standard)	1		To enable independent verification and traceability of the dry matter calculation by publicly disclosing the exact assessment method and mathematical constant used to derive the final Product Quantity (DM). The update to the Global Artisan C-Sink Standard's Dry Matter Assessment method introduces two distinct methodologies to mathematically calculate the final dry weight: the Bulk Density Method and the Maximum Moisture Method. Depending on the method, the final dry matter is calculated by applying an intermediary constant—either a certified mean bulk density (calculated over a 400-day rolling average) or a Default MC _{max} value. Currently, the standard only mandates the public disclosure of the final "Product Quantity (DM)" alongside C-content and H/Corg ratios. If this limited disclosure continues, a transparency gap is created where the public remains unable to verify which assessment method or mathematical constant was applied to arrive at the published quantity. Adding these two fields bridges this gap without compromising the privacy of all other raw field measurements.	accepted	The documentation of the used dry matter assessment tool will be a mandatory field in the data transmitted via dMRV for verification. It is thus available to the verifying VVB. The information will also be part of the publicly accessible monitoring report to the necessary extent.
1	1	Required Tools and Equipment: CSI-endorsed thermogravimetric moisture analyzer (e.g., PCE MA 110TS).	Usage of draing oven should be permitted	accepted	A drying oven capable of reaching and maintaining 105°C combined with a calibrated weighing scale with a precision of at least 1 mg is also eligible and inserted to the annex.
			Details on equipment calibration should be clarified	accepted	The C-Sink Manager is responsible for proper calibration of the thermogravimetric moisture analyzer or the high precision scale as per the manufacturer's manual with the supplied test weights. Regardless of the manufacturer's specifications, calibration must be done at least every 365 days or 100 uses,
			Please Introduce direct weighing of dry biochar if dry quenching (snuffing) is performed.	accepted	Option for direct weighing was added as prone to CSI technical approval.