Mass Balance Requirements

ISCC PLUS *204-01*
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Content

1 Definitions

Feedstock:	The raw material in a production chain (e.g. rapeseed, corn, sugarcane etc.)
Input material:	The material, which the certified location receives from suppliers for storing, trading or processing
Output material:	The material, which the certified location has stored or produced and intends to sell and/or deliver to its customers
Sustainability attributes	Sustainability attributes refer to the type of input material (also referring to the feedstock), and the sustainability, the material is acquired under, i.e. if the acquired material fulfils all basic requirements or additionally fulfils Add-ons. So far, under ISCC PLUS only ISCC PURE materials (ISCC EU PURE, ISCC DE PURE, ISCC PLUS) are recognized (see “ISCC PURE”). Furthermore, ISCC-compliant materials can fulfil additional Add-ons on farm level (e.g. environmental management and biodiversity (202-01) or classified chemicals (202-02)) or along the whole supply chain (e.g. GHG emission requirements (205-01) or consumables (205-02)). At least on a quantity bookkeeping basis, materials with different sustainability attributes must be kept separate.
ISCC PURE	Any material used in an ISCC PURE supply chain must consist entirely of ISCC material at least on a quantity bookkeeping basis. Within ISCC PURE it must be guaranteed that the whole supply chain from the farm/plantation onwards is entirely ISCC certified. Material certified under any other voluntary schemes than ISCC shall be excluded from the ISCC PURE supply chain. Sustainable material coming from ISCC EU or DE certified units, which fulfils the above ISCC PURE requirement shall contain the statement ISCC PURE (i.e. ISCC DE PURE, ISCC EU PURE).
Sustainability declaration	The sustainability declaration refers to the document, which must accompany the physical material and which includes all sustainability information requirements as referred to by ISCC. It can either be part of or an addition to the delivery note. Depending on the element in the supply chain, one can also refer to the sustainability declaration as weighbridge tickets, delivery notes or bill of lading. Further information on the sustainability declaration are provide in ISCC PLUS 203 Requirements for Traceability
Batch	An amount of material with the same sustainability attributes, which is delivered to a certified party or sold. For each batch, a sustainability declaration is issued.

2 Introduction

Different ISCC requirements for agricultural production and the downstream supply chain exist. While the agricultural producers must comply with ISCC PLUS 202 “Sustainability Requirements for the Production of Biomass”, the supply chain shall ensure the traceability of sustainability attributes of ISCC compliant material. Therefore, all certified elements need to comply with the requirements of the ISCC PLUS 203 “Requirements for Traceability” and with at least one of the chain of custody options.

The chain of custody option “Mass balance” allows the physical mixing of batches while the bookkeeping for different sustainability attributes must be separated. This document describes all relevant requirements of quantity bookkeeping and the mass balance calculation methodology.

3 Scope

The supply chain elements, for which the mass balance option might apply, are:

(1) First gathering point (warehouses or traders which source (buy) sustainable biomass directly from farms or plantations with the aim to store, trade and/or process sustainable biomass)

(2) Warehouse (Storage of sustainable biomass on demand of the first gathering point, i.e. the warehouse is located in the supply chain prior to the first gathering point and shall not buy biomass from farms and sell it to customers)

(3) Conversion units for sustainable feedstock and products (e.g. oil mills, sugar mills refinery, saw mill)

(4) Trader/warehouse (Storage and/or trade of sustainable biomass or bio-based products after the first gathering point)

(5) Transport of sustainable products (e.g. with truck, train, barge or vessel)

4 Normative references

As a basic principle, all relevant ISCC PLUS documents are valid for the scope. The normative references display the documents whose contents are linked and have to be considered as conjoint points.

Relevant references:

ISCC PLUS	201	System Basics
ISCC PLUS	203	Requirements for Traceability

5 Mass balance calculation methodology

5.1 General requirements

The mass balance system is a chain of custody option where ‘sustainability attributes’ remain assigned to ‘batches’ of material on a bookkeeping basis, while the physical material can be mixed. A mixture can have any form where batches would normally be in contact, such as in a container, processing or logistical facility or a conversion site. Sustainability attributes can include information on the type and origin of the feedstock, the certification scheme of the material and relevant Add-ons.

As described in the general requirements of ISCC PLUS 203 “Requirements for Traceability”, it must be guaranteed that the whole supply chain is purely ISCC certified. Thus, only ISCC PLUS-, ISCC EU PURE – or ISCC DE PURE compliant input materials are recognized under ISCC PLUS. For material with further different sustainability attributes, the certified party must keep separate bookkeeping.

The bookkeeping of an ISCC PLUS certified element must be separated according to:

1. Different types of input materials (also referring to the type of feedstock)
2. Different sustainability attributes
    a. One mass balance for all volumes of material that is compliant with ISCC PLUS, ISCC EU PURE or ISCC DE PURE and which is sold as ISCC PLUS
    b. One mass balance for all volumes of input material that is additionally fulfilling voluntary Add-ons (e.g. 202-01, 202-02, 205-01)
3. If more than one chain of custody option is applied
    a. One mass balance for products under chain of custody option Physical Segregation referring to strictness of segregation (Hard IP or Soft IP: see also 204-02)
    b. One mass balance for products under chain of custody option Mass Balance

Within the bookkeeping, batches of input materials, which are of the same type (feedstock), have the same sustainability attributes and are handled under the same chain of custody option, can be merged. Batches of input materials, which are of different type, have different or no sustainability attributes or are not handled under the same chain of custody option, must be kept separate in the bookkeeping. The relevant information must remain assigned to the mixture within the bookkeeping. If the input material is processed or subject to losses, appropriate conversion factors must be used to adjust the size of a batch accordingly. Conversion factors and the resulting changes in amounts have to be documented and shall be subject to verification during the audit. Further requirements on the calculation of a conversion factor are provided in chapter 5.2.

If a physical mixture is split up, the sustainability attributes in the mass balance can be assigned to any physical batch. However, a prerequisite is that the sustainability attributes attached to a certain batch of output material comply with the information on sustainability attributes in the company’s mass balance.

Once, a certified party has treated material under the chain of custody approach “Mass balance”, the material can never be sold as physical segregated (see also 204-02). If both chain of custody options are applied in a certified party, it must be guaranteed that no material assigned to mass balance can enter a physically segregated value chain.

5.2 Calculation of conversion factors

Within the mass balance calculation conversion factors have to be provided for all elements of the production and distribution chain where company internal processes include conversion/processing or losses. The conversion factor describes the loss during the conversion of an input material to an output material and is defined as follows:

C (%) = Ao/Ai * 100

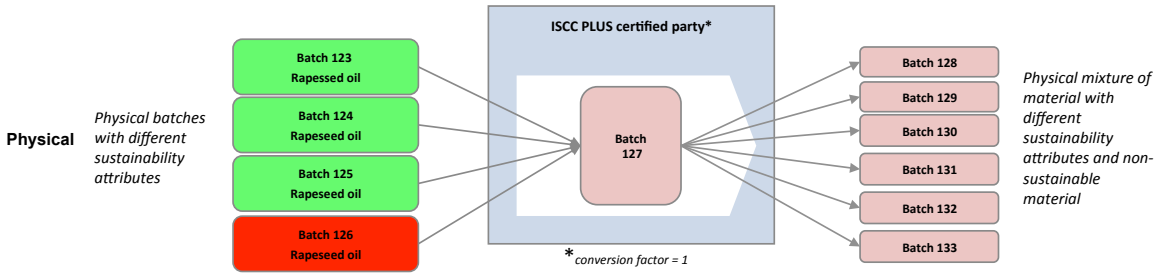
C: **C**onversion factor
Ai: **A**mount of process **i**nput material
Ao: **A**mount of **o**utput yielded by the internal process based on input **A**i

Under the framework of the mass balance calculation the amount of sold or withdrawn sustainable products within one mass balance period should not be larger than the product of the amount Ai going into the process multiplied by the conversion factor C.

5.3. Mass balance calculation methodology

If the certified party wants to use the chain of custody option “mass balance”, the quantity credit methodology shall be used.

Batches of sustainable (may have different sustainability attributes) materials and batches of non-sustainable materials can be physically mixed within a company internal process. However, they need to kept strictly separated in the bookkeeping.



Bookkeeping

Input

Batch No.	Kind	Attribute	Amount (t)
123	Rapeseed oil	ISCC PLUS, 202-01	1000
124		ISCC EU PURE, 202-01	600
125		ISCC PLUS	300
126		Non-sustain.	200
Total			2100

Company internal process

Batch No.	Kind	Attribute	Amount (t)	* cf = 1
127	Rapeseed oil	ISCC PLUS, 202-01	1600	1600
		ISCC PLUS	300	300
		Non-sustain.	200	200
Total				2100

Output

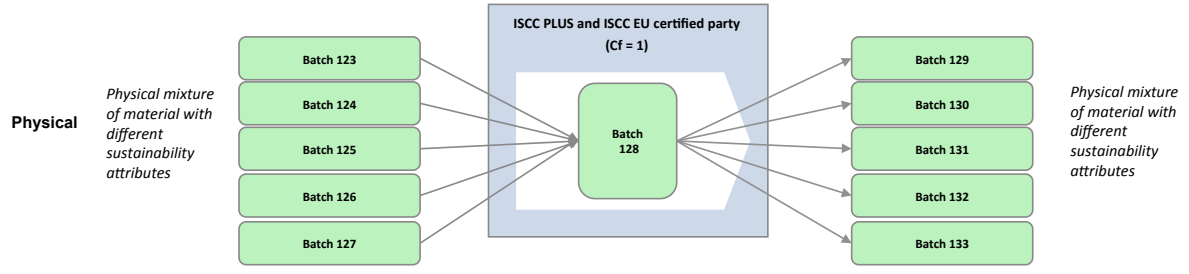
Batch No.	Kind	Attribute	Amount (t)
128	Rapeseed oil	ISCC PLUS, 202-01	500
129	Rapeseed oil	ISCC PLUS, 202-01	600
130	Rapeseed oil	ISCC PLUS, 202-01	500
131	Rapeseed oil	ISCC PLUS	300
132	Rapeseed oil	Non-sustain.	100
133	Rapeseed oil	Non-sustain.	100
Total			2100

Figure 1: Quantity credit methodology (Cf=1)

Any element in the supply chain, which is certified against ISCC PLUS can buy ISCC PLUS, ISCC EU PURE or ISCC DE PURE compliant input material and can sell the output as ISCC PLUS material. Thus, in figure 2 the ISCC PLUS- and ISCC PURE-compliant input material of batches 123 and 124 can be merged into one batch of ISCC PLUS compliant material in the mass balance. Batch 125 is a different kind of feedstock and thus cannot be merged with batches 123 and 124. This merging within the bookkeeping is only possible if the input material has similar sustainability attributes (see also figure 3). Within the mass balance period

(see also 5.4.1 Definition of periodical boundary), batches of sustainable output materials with the same sustainability attributes can be arbitrarily split within the bookkeeping as long as the total amount does not exceed the quantity credit (batch 128 – 133 in figure 2). Within the bookkeeping of figure 2 batches 132 and 133 (which are physically a mixture of sustainable and non sustainable material) are declared as non-sustainable. The outgoing batches 128 till 131 are declared as ISCC PLUS compliant. This sustainability attribute has to be stated on the sustainability declaration of the output material. For batches 128 to 130 it would have been also possible to sell one batch of ISCC PLUS compliant material and issue one sustainability declaration, as all sustainability attribute of all batches are the same including the kind of output material.

In contrast to the approach shown in figure 2, sustainable input material of different types or with different sustainability attributes cannot be merged in the bookkeeping (see figure 3). Sustainability declarations (in compliance with ISCC PLUS 203) must be issued for the different types of output materials and sustainability attributes. Figure 3 describes the approach of bookkeeping of sustainable material with different sustainability attributes of an ISCC PLUS- and additionally ISCC EU-certified party. ISCC PLUS certified units, which are additionally ISCC EU certified, shall keep a different mass balance for ISCC EU material. This mass balance shall comprise all ISCC EU material, which has not explicitly been claimed to be ISCC EU PURE.



Book-keeping

Input

Batch No.	Kind	Attribute	Amount (t)
123	rapeseed oil	ISCC PLUS, 202-01	1000
124	rapeseed oil	ISCC EU PURE, 202-01	600
125	rapeseed oil	ISCC PLUS, 205-01	300
126	rapeseed oil	ISCC EU PURE*	200
127	rapeseed oil	ISCC EU	100
Total			2200

Company internal process

No.	Kind	Attribute	Amount (t)	* cf = 1
128	rapeseed oil	ISCC PLUS, 202-01	1600	1600
	rapeseed oil	ISCC PLUS, 205-01	300	300
	rapeseed oil	ISCC EU PURE*	200	200
	rapeseed oil	ISCC EU	100	100
Total				2200

Output

Batch No.	Kind	Attribute	Amount (t)
129	rapeseed oil	ISCC PLUS, 202-01	1600
130	rapeseed oil	ISCC PLUS, 205-01	400
131	rapeseed oil	ISCC EU PURE*	100
132	rapeseed oil	ISCC EU	50
133	rapeseed oil	ISCC EU	50
Total			2200

* Batch 126 has the same GHG value as batch 125

Figure 2: Assigning sustainability attributes to outgoing batches at an ISCC PLUS- and ISCC EU-certified party (Cf=1)

Batches 123 and 124 have the same sustainability attributes. Thus they can be merged to one mass balance in the company's bookkeeping. ISCC EU material always fulfils GHG emission requirements (205-01). As batch 126 has the same GHG value as batch 125, both fulfil the same requirements and could be merged. If both batches would have different GHG values, they could not be merged in the mass balance.

In this case the certified party, which is ISCC PLUS and ISCC EU certified, wants to sell the ISCC EU PURE material (partly) as ISCC EU PURE material and not as ISCC PLUS material. This is only possible in case of an ISCC EU certification. Batches 125 and 126 are thus kept separate. On the output site, the ISCC EU certified party sells 100 t of the initial batch 126 as ISCC EU PURE (batch 131). The other 100 t of batch 126 are sold together with the ISCC PLUS, 205-01 (batch 130).

Merging is not possible for batch 127, as this batch does not fulfil the requirements of ISCC PURE. As the company is also ISCC EU certified, they can also sell ISCC EU compliant material. No requirements on ISCC purity have to be followed for selling output materials under ISCC EU (see batches 132 and 133). All ISCC EU PURE compliant material could have also been sold as ISCC EU PURE material. However, it is not possible to sell ISCC PLUS material as ISCC EU or ISCC DE compliant material.

5.4 Mixture boundaries

If mass balance is applied as chain of custody option a physical mixture of sustainable and non-sustainable products is possible within certain periodical and spatial boundaries. The definition of the periodical and spatial boundary is of crucial importance for the mass balance calculation. The periodical boundary defines the timeframe in which the mass balance of sustainable in- and output material must be balanced. The spatial boundary defines for which spatial entity (location) the mass balance must be applied.

5.4.1 Definition of the periodical boundary

The mass balance calculation requires the definition of the timeframe for which the outgoing batches of sustainable output material have to be balanced with the incoming batches of sustainable input material. The balance in the system can be continuous in time, in which case a deficit, i.e. that at any point in time more sustainable material has been withdrawn than has been added, is required not to occur. Alternatively the balance could be achieved over an appropriate period of time and regularly verified.

The maximum timeframe (period) for the ISCC mass balance calculation is three months. Within the three months period the bookkeeping system does allow to go short of sustainable material. However, for the overall bookkeeping period, the amounts of incoming sustainable input material with specific sustainability attributes and the amounts of outgoing sustainable output material with specific sustainability attributes equivalent to the input material must be balanced.

5.4.2 Definition of the spatial boundary

Generally the mass balance must be site specific. Credits achieved within one site´s mass balance cannot be transferred to another site´s mass balance. However, conversion units and warehouses, which are only certified under ISCC PLUS, are able to transfer positive credits to other conversion units or warehouses which are located either within national borders or located in a neighbouring country (sharing the same border). Only in this case the positive credit can be booked out of the mass balance of one unit and booked into the mass balance of another unit (other geographical location). The advantage of this procedure is significant reduction of material transport and related greenhouse gas emissions.