

SCS Certification Standard for Product Carbon Intensity and Reduction for Chemicals and Co-products

SCS-115

Module B. Biofeedstock and Recycled Content

B.1 Introduction

The carbon intensity of chemicals and products can be reduced by using feedstocks with biobased or recycled content. Such raw materials may contain actual biobased or recycled content or have such content allocated to them by a certified mass balance procedure.

In the case of biobased feedstocks, operators at the start of the supply chain will be using biomass directly from crops or biogenic wastes. These may be processed in stand-alone facilities segregated from fossil materials, or coprocessed together with fossil feedstock. Further down the supply chain, operators are more likely to receive raw materials with biocontent allocated by mass balance which are chemically indistinguishable from their fossil counterparts.

Recycled feedstock includes materials derived from waste plastics, waste synthetic textiles, used solvents, used mineral oils or similar products. Mechanical recycling involves physical processing of wastes such as shredding, washing, and heat treatment including melting. Chemical recycling involves chemical transformations of wastes such as pyrolysis, gasification and depolymerisation. Both mechanical and chemically recycled content are accepted.

B.2 Requirements for operators using biobased and recycled raw materials

B.2.1 Operators using biobased raw materials shall have certification to SCS-114. Operators using raw materials with recycled content shall have certification to SCS-103. All raw materials shall have a valid certification to prove their sustainability and the level of actual or allocated biocontent or recycled content. Certification shall be to SCS-114 Certification Standard for Biobased Content, or standards recognised therein for biobased raw materials¹ or, for

¹ Certification schemes recognized in SCS-114 Certification Standard for Biobased Content include: SAI Farm Assurance Level Silver; SCS Sustainably Grown; International Sustainability and Carbon Certification (ISCC); REDcert; Biomass Biofuel Sustainability Voluntary Scheme (2BSVs); Better Biomass; Bonsucro; Forest Stewardship Council (FSC); Programme for the Endorsement of Forest Certification (PEFC); Sustainable Biomass Program (SBP); Sustainable Resources Verification Scheme (SuRe-EU); Responsible Fisheries Management Certification (RFM); Aquaculture Stewardship Council (ASC); Marine Stewardship Council (MSC); Proterra; Roundtable on Sustainable Palm Oil (RSPO); Round Table on Responsible Soy Association (RTRS); Roundtable on Sustainable Biomaterials (RSB); U.S. Soybean Sustainability Assurance Protocol (US SSAP); Rainforest Alliance (RA); Leading Harvest

recycled ones, SCS-103 Certification Standard for Recycled Content, or standards recognised therein².

- B.2.2 Information accompanying each consignment shall include the method of allocation (mass, economic value or energy) if bio or recycled content has been allocated by mass balance.

B.3 Carbon Intensity of feedstocks

- B.3.1 The validated carbon intensity of feedstocks containing biobased or recycled content shall have been calculated according to the recognized Standard to which they are certified, or listed in an accepted database, as described in Section 6.1.4 of this Standard. Emissions from permitted types of direct land use change shall be included in the carbon intensity of feedstocks. The standards recognized in SCS-114 may have different land use change rules and cut-off dates, which can affect the feedstock's carbon intensity. Each raw material shall maintain its individual carbon intensity, even if mixed with the same feedstock that has a different carbon intensity.
- B.3.2 CO₂ uptake from the air during biomass growth can be included in the carbon intensity calculation as a negative value. Removals of CO₂ from the air into biomass shall be characterized as -1 kg CO₂e/kg CO₂ in the calculation of the carbon intensity when entering the system. The actual levels of CO₂ uptake will vary for each biomass source. The CO₂ uptake to be included in the carbon intensity shall be limited to the biogenic carbon content present or attributed to a feedstock or product. The calculation shall be audited by an external auditor.
- B.3.3 Carbon accumulation in the soil from improved farming practices, as described in the EU Renewable Energy Directive dated 18 October 2023, can also have a negative value, if evidence is provided of carbon accumulation, as detailed in the Directive. To avoid double counting, carbon credits based on soil-sequestered carbon used to reduce the carbon intensity of products claimed, cannot have been sold or used to reduce the carbon intensity of any other product.
- B.3.4 The carbon intensity of virgin biomass shall include positive inputs such as from fertiliser manufacture and use, emissions from manure application, and power for harvesting or transport, as described in the EU Renewable Energy Directive dated 18 October 2023.
- B.3.5 Both biogenic and fossil wastes which have no further use other than for energy generation, shall have a carbon intensity of zero at the point of arising. Except where the CO₂ uptake in virgin biomass can be traced through to a waste or end-of-life material, then that waste can also have a negative carbon intensity. For example, the negative carbon intensity of virgin palm oil can also be allocated to used cooking oil (UCO) resulting from the use of palm oil in a food factory or restaurant.

² Certification schemes recognized in SCS-103 Certification Standard for Recycled Content include: Better Cotton Initiative (BCI); Forest Stewardship Council (FSC); International Sustainability & Carbon Certification (ISCC); REDcert2; Roundtable on Sustainable Biomaterials (RSB) Advanced Products; Textile Exchange Recycled Claim Standard

- B.3.6 Post –consumer wastes have a carbon intensity of zero.
- B.3.7 Pre-consumer wastes that are diverted from the waste stream during the manufacturing process such as plastic process scrap and any other wastes that are mechanically recyclable, shall have:
- a. A carbon intensity of zero when used as input to a mechanical recycling process.
 - b. The carbon intensity of the virgin counterpart when used as inputs to any other process.
 - c. The carbon intensity of post-consumer waste, which is zero, when pre-consumer plastic waste has been baled with post-consumer plastic waste by a waste handling facility. This shall apply to the entire bale, providing it has a minimum post-consumer content of at least 50% and no further use other than for energy generation.
- B.3.8 Collection, transport, and any processing emissions e.g., shredding and washing of waste plastic, melting or purification of biogenic wastes, pyrolysis, depolymerization or other high temperature/pressure chemical recycling methods, shall be added to the carbon intensity of the waste, even if this results in recycled content having higher emissions than virgin production.
- B.3.9 GHG credits for avoided incineration or landfilling are not allowed.

B.4 Coprocessing

- B.4.1 An operator coprocessing fossil and biobased raw materials or biocontent allocations shall develop, maintain and implement a mass balance system. A similar approach shall be used for raw materials with recycled material or recycled content allocations.
- B.4.2 Operators shall follow Sections 7 and 8 of SCS-114 to quantify and allocate biobased or recycled content to products derived from coprocessing these materials with fossil counterparts.
- B.4.3 Wastes that are not collected from the process, as they are emitted to air, water or soil, or lost as unrecycled scrap or other wastage, shall carry an appropriate share of the biobased or recycled content. This amount shall be determined experimentally by a site-specific determination of the conversion factor as described in SCS-114.
- B.4.4 Coprocessing of biobased or recycled feedstocks that are chemically different from the fossil feedstocks can be carried out. This could lead to differential processing of the biobased or recycled molecules so a conversion factor for each feedstock shall be determined experimentally, i.e., based on actual data. The energy required for the coprocessing of the feedstocks shall also be determined experimentally.

B.5 Alignment of biobased or recycled content and GHG emissions savings

- B.5.1 Allocation of biobased or recycled content (or mass balanced allocations) to products and allocation of GHG emissions savings shall be aligned. In other words, the carbon intensity

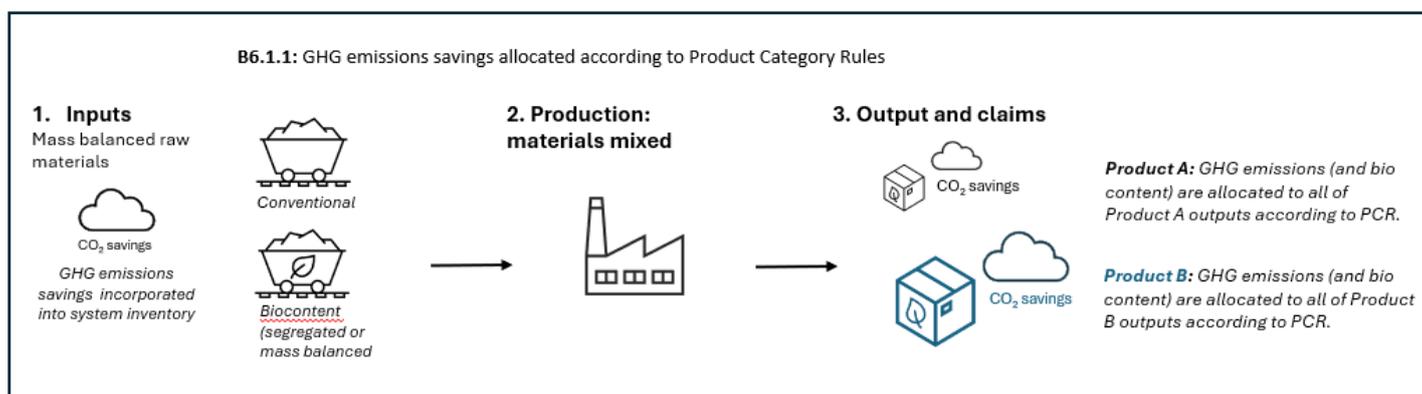
reduction of a product shall be directly related to its real or allocated biobased or recycled content. See B.6 below.

- B.5.2 If a claim is made about GHG savings but not the content of a product, then the actual or allocated content cannot be assigned to another product and the claim shall be aligned with the claims requirements of this Standard. Conversely, if a claim is made about the content of a product but not the GHG savings, then the actual or allocated GHG savings cannot be assigned to another product and the claim shall be aligned with the claims requirements of SCS-114 or SCS-103.

B.6 Carbon intensity reduction from biobased or recycled feedstocks.

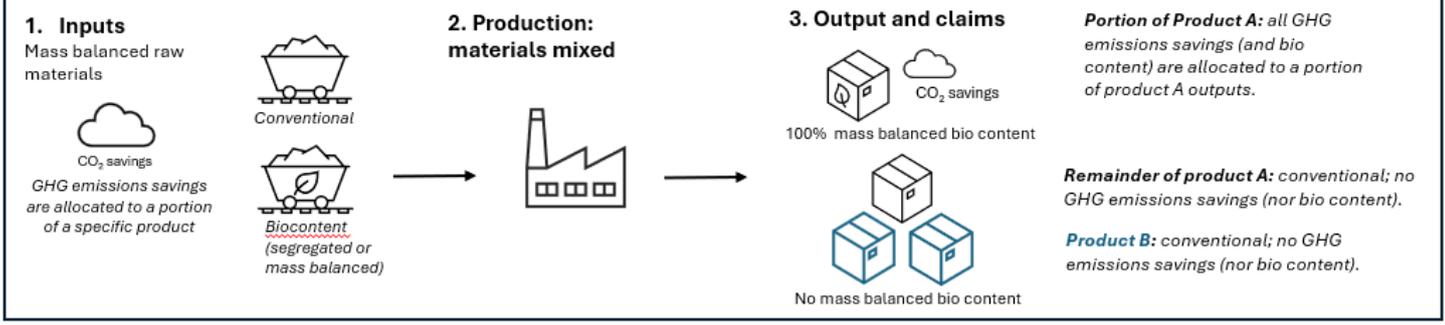
- B.6.1 Operators shall choose one of the following three methods.

B.6.1.1 The reduction of carbon intensity due to the substitution of fossil feedstocks with biobased or recycled raw materials shall reduce the overall emissions inventory of the system. GHG emissions are then allocated to products according to product category rules. Thus, all products shall have a reduced carbon intensity. If claims are made about biobased or recycled content, then they shall be aligned with the GHG savings. Where there is no PCR, then allocation shall be by economic value or mass, according to the guidance in TfS. Allocation can also be by energy content. See Section 7.4.1 of this Standard.



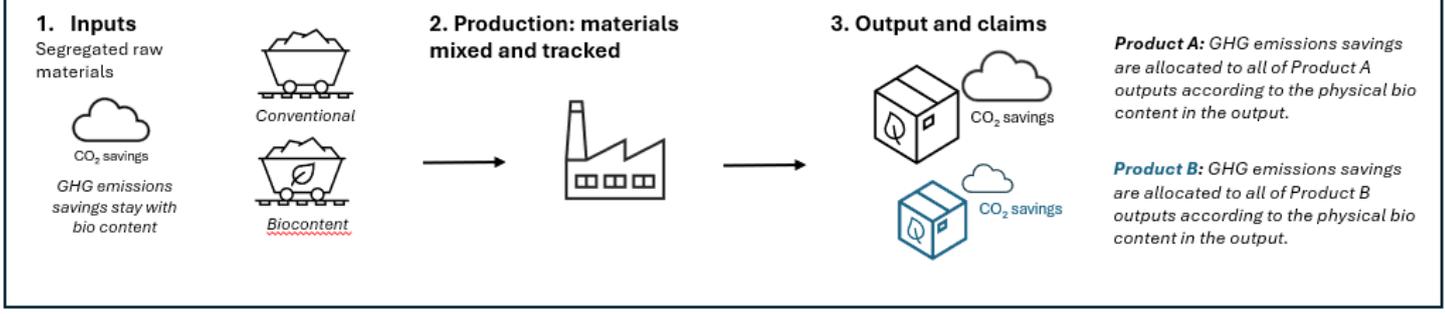
B.6.1.2 The operator can allocate all of the GHG savings, after taking account losses to waste, from the use of biobased or recycled raw materials, to a specific quantity of one or more products within the system. A mass balance system shall be maintained to reconcile quantities of the same product with different carbon intensities. The mass balance period shall be three months. A positive balance (surplus) can be carried forward into the next mass balance period as a credit. These credits do not expire providing that the operator's certification to both SCS-114 and this Standard, remains valid. If claims are made about biobased or recycled content, then they shall be aligned with the allocation of GHG savings.

B6.1.2: GHG emissions savings allocated to a portion of a specific product (i.e., mass balanced used)



B.6.1.3 The physical biobased or recycled content in products, originating from biobased or recycled feedstocks, shall be used as the means of allocating GHG emissions savings to products. This option applies only to products with physical biobased or recycled content where allocation of biobased content by mass balance has not occurred. It is more likely to occur at the start of the supply chain. The baseline value for the comparator fossil products shall be based on product category rules.

B6.1.3: GHG emissions savings allocated by physical presence of bio content (i.e., mass balance not used)



B.6.2 If an operator wishes to change method, then another audit shall be required.

B.6.3 When mass balancing bio or recycled content virtually between certified sites, as per SCS-103 or SCS-114³, an operator may only transfer the volume of a given consignment twice. Further transfers between certified sites of the mass balanced bio or recycled content material before or after processing are not allowed.

³ "Credits can be [...] transferred virtually between any certified sites that are wholly or majority owned (i.e., >50% ownership) by the same company or part of a group of companies held by the same parent company."