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Emission Data Transfer – Requirements

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Content
1 Scope .......................................................................................................................... 6
2 Normative references ............................................................................................... 6
3 Terms and Definitions .............................................................................................. 7
4 Emission data transfer ............................................................................................. 12
  4.1 Data collection and transfer .................................................................................. 12
5 Forestry operations ................................................................................................... 13
  5.1 General guidance ................................................................................................. 13
  5.2 Forest material classification .............................................................................. 14
  5.3 Forest material yield ............................................................................................ 14
  5.4 Land use change ................................................................................................. 14
  5.5 Fuel use ............................................................................................................... 15
  5.6 Burning of forestry residues .............................................................................. 16
6 Production ................................................................................................................ 17
  6.1 General guidance ................................................................................................. 17
  6.2 Classification of input materials .......................................................................... 17
  6.3 Classification of output materials ....................................................................... 18
  6.4 Fossil fuel use ..................................................................................................... 18
  6.5 Biomass use as a fuel ......................................................................................... 19
  6.6 Electricity use ..................................................................................................... 19
  6.7 Combined Heat and Power .............................................................................. 20
  6.8 Recovered heat .................................................................................................. 20
  6.9 Other ................................................................................................................ 20
7 Transportation and Distribution ............................................................................. 21
  7.1 General guidance ................................................................................................. 21
  7.2 Forest material or product classification ............................................................ 21
  7.3 Transport ........................................................................................................... 21
  7.4 Distribution ........................................................................................................ 22
8 Management system requirements ........................................................................... 23
  8.1 General requirements ........................................................................................ 23
  8.2 Responsibilities and authorities .......................................................................... 23
  8.3 Documented procedures .................................................................................... 23
  8.4 Record keeping .................................................................................................... 23
Appendix 1: Overview of emission data parameters and registration options ........... 25
Appendix 2: PEFC Product categories......................................................................... 28
Foreword

The PEFC Council (the Programme for the Endorsement of Forest Certification schemes) is the worldwide organisation promoting sustainable forest management through forest certification and labelling of forest based products. Products with the PEFC claim and/or label deliver confidence to customers and the end consumers that raw material originates in sustainably managed forests, recycled material, and/or controlled sources.

The PEFC Council provides endorsement of national forest certification schemes which are required to comply with the PEFC Council requirements subject to regular evaluations.

This standard had been developed in an open, transparent, consultative and consensus based process covering a broad range of stakeholders.
Introduction

There is increasing interest from companies purchasing PEFC certified forest material and products to undertake greenhouse gas (GHG) emission reporting. This is largely driven by legislative requirements in the bioenergy sector, particular in Europe, although the interest also extends to companies in other sectors, such as paper and pulp and construction.

The aim of the PEFC Emission Data Transfer standard, therefore, is to provide requirements for organisations along the supply chain of forest based products to pass on relevant emission related data to customers in an accurate and verifiable way to enable them to undertake GHG emission calculations.

Data emission requirements are specified for each stage of the PEFC certified chain of custody from the production of the forest material, its processing into forest products and any associated transport or distribution activities along the supply chain.
1 Scope

This standard covers the data requirements for the collection and transfer of key emission data relevant to the calculation of supply chain GHG emissions of forest products.

The data will be collected by organisations in the supply chain certified to the PEFC Chain of Custody Standard (PEFC ST 2002) and transferred along the supply chain to enable customers to undertake a GHG emission calculation, or life-cycle assessment, of forest based products. The data will be transferred to other organisations along the supply chain through the PEFC Registration and Information System (hereafter “PEFC registration system”).

The standard describes and specifies the data requirements separately for Forestry operations, Production and Transportation & Distribution. Not covered by the standard are data requirements for the Product use or End of life stages.

In scope are emission data that are directly associated with activities undertaken by PEFC Chain of Custody certified organisations, including the consumption or purchase of energy or electricity. Covered are activities by the organisation itself, sub-contractors working on behalf of that organisation or the activities of suppliers of forest based material certified under a PEFC Due Diligence System.

GHG calculation (including the methodological choices used in these calculations) itself is not covered by this standard, thereby broadening its scope and application by providing the highest level of flexibility for users of the GHG data who may be required to report GHG emissions for different purposes using different GHG calculation methodologies.

The standard has international application. However, use of the standard will be on a voluntary basis only and available to organisations that are certified to the PEFC Chain of Custody standard.

This standard shall be implemented for the purposes of third party conformity assessment based on the requirements defined by the PEFC Council or PEFC endorsed forest certification schemes. The conformity assessment is considered as product certification and shall follow ISO/IEC 17065.

The term “shall” is used throughout this standard to indicate those provisions that are mandatory. The term “should” is used to indicate those provisions which, although not mandatory, are expected to be adopted and implemented. The term “may” used throughout this standard indicates permission expressed by this standard whereas “can” or “could” refers to the ability of a user of this standard or to a possibility open to the user.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For both dated and undated references, the latest edition of the referenced document (including any amendment) applies.

PEFC ST 1003, Sustainable Forest Management – Requirements
PEFC ST 2002, Chain of Custody of Forest Based Products – Requirements
PEFC ST 2003, Requirements for Certification Bodies operating Certification against the PEFC International Chain of Custody Standard
ISO/IEC Guide 2, Standardization and related activities -- General vocabulary
ISO 9000, Quality management systems -- Fundamentals and vocabulary
ISO 14040, Environmental management -- Life cycle assessment -- Principles and framework
ISO 14044, Environmental management -- Life cycle assessment – Requirements and guidelines
ISO 19011, Guidelines for auditing management systems
ISO/IEC 17065, *Conformity assessment – Requirements for bodies certifying products, processes and services*


IPCC, *2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4, Agriculture, Forestry and Other Land Use*


### 3 Terms and Definitions

For the purposes of this standard, the relevant definitions given in PEFC ST 1003, PEFC ST 2002, ISO/IEC Guide 2 and ISO 9000 apply, together with the following definitions:

#### 3.1 Biomass

Material of biological origin excluding material embedded in geological formations or transformed to fossilised material.

Note: This includes organic material (both living and dead) from above and below ground, e.g. trees, crops, grasses, tree litter, algae, animals and waste of biological origin, e.g. manure.

#### 3.2 Certified material

Raw material that is covered by the PEFC chain of custody claim.

#### 3.3 Certified product

Product which is claimed as including certified material whose content is verified by chain of custody.

#### 3.4 Customer

A single entity, either buyer or user of the organisation’s products, to whom the claim is made.

#### 3.5 Due Diligence System

A framework of procedures and measures, namely information gathering, risk assessment and risk mitigation, to exercise due diligence. See PEFC ST 2002.

#### 3.6 Emission data

Emission data refers to measured or collected data relating to activities that result in the generation of GHG emissions. This data is used by customers to undertake a GHG emission calculation.

Note 1: Emission data is also commonly referred to as “input data” or “Activity data”.
Note 2: Within the context of this standard relevant activities are the production (cultivation and harvesting) of forest based material, the production of forest based products and their associated transport and distribution along the supply chain. The relevant input data for these activities are described in sections 5, 6 and 7.

Note 3: Two types of emission data can be reported for forestry operations activities. ‘Actual’ data that is representative of an organisation's forestry operations, or ‘reference’ data that has been published by an independent organisation (including government bodies, national forestry associations or the scientific community). See section 5.1.4 and 5.1.5.

3.7 Forest
“Land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use” (FAO, Forest Resource Assessment 2015, Terms and Definitions, p. 3).

Note: Further details on the definition of forests are available from the FAO Global Forest Resources Assessment 2015.

3.8 Forest based material
Raw material originating in forest areas or from other areas recognised by the PEFC Council as eligible for PEFC forest management certification, including recycled material originally coming from those areas.

Note: Forest based material includes wood based as well as non-wood based material.

3.9 Forest based products
Products which include forest based material.

3.10 Forest plantation/timber plantation/productive plantation (forest plantations)
Forest or other wooded land of introduced species, and in some cases native species, established through planting or seeding mainly for production of wood or non-wood goods.

Note 1: Includes all stands of introduced species established for production of wood or non-wood goods.

Note 2: May include areas of native species characterised by few species, intensive land preparation (e.g. cultivation), straight tree lines and/or even-aged stands.

Note 3: Application of the definition requires consideration of national forestry terminology and legal requirements.

3.11 Forestry operators
Organisations that either undertake forestry operations directly themselves or supply forest based material.

Note: Includes forest owners or managers and timber traders.

3.12 Forestry residues
Forestry residues are forest based material, that arise following harvesting of the primary forest product and include bark, branches, tree tops, tree stumps that arise from forests or plantations. Forest thinnings and wood from end-of life non-timber plantations are also classified as forestry residues.
Note: Wood from non-timber plantations refer to plantations in which the primary aim of the plantation is the provision of products other than timber (e.g. rubber, coconut, palm), and the trees have reached the end of their productive lifetimes.

3.13 Geolocation
A unique reference identifier that identifies an area of land, for example through Geographical Information System (GIS) coordinates.

3.14 Greenhouse Gas (GHG)
Gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth’s surface, the atmosphere and clouds.

Note: GHG include among others, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

3.15 GHG emissions
Total mass of a GHG released to the atmosphere over a specified period of time.

3.16 Land use change
Land use change (or land conversion) can be understood as referring to changes in terms of the land cover between the six land category types defined by the IPCC (cropland, forestland, grassland, wetlands, settlements and other land), plus a seventh category of perennial cropland.

The following definitions apply for the land use category types:

Cropland: This category includes cropped land, including rice fields. Cropland also includes temporary fallow land (i.e. land set at rest for one or several years before being cultivated again).

Perennial cropland: Multi-annual crops whose stem is usually not harvested annually, such as short rotation coppice, agro-forestry systems, orchards, vineyards and plantations such as cocoa, coffee, tea, oil palm, coconut, rubber trees, and bananas, except where these lands meet the criteria for categorisation as Forestland.

Forestland: As defined above in 3.7. In addition, for the purpose of land use change calculations, forestland can be further categorised between forests with a canopy cover of between 10 and 30 percent, forests with a canopy cover greater than 30 percent and forest plantations. Forests can be further categorised according to:

- Native forest: (non-degraded) Represents native or long-term (i.e. unmanaged forest), non-degraded and sustainably managed forest.
- Shifting cultivation: Permanent shifting cultivation, where tropical forest or woodland is cleared for planting of annual crops for a short time (e.g. 3-5 years) period and then abandoned to regrowth.
- Mature fallow: Represents situations where the forest vegetation recovers to a mature or near mature state prior to being cleared again for cropland use.
- Shortened fallow: Represents situations where the forest vegetation recovery is not attained prior to re-clearing.

Grassland: This category includes rangelands and pasture land that are not considered Cropland. It also includes systems with woody vegetation (such as scrubland) and other non-grass vegetation such as herbs and brushes that fall below the threshold values used in the Forest Land category. The category also includes all grassland from wild lands to recreational areas as well as agricultural and silvi-pastural systems (where applicable).
Wetlands: This category includes areas of peat extraction and land that is covered or saturated by water for all or part of the year (e.g., peatlands) and that does not fall into the Forest Land, Cropland, Grassland or Settlements categories. It includes reservoirs as a managed sub-division and natural rivers and lakes as unmanaged sub-divisions.

Settlements: This category includes all developed land, including transportation infrastructure and human settlements of any size, unless they are already included under other categories. This should be consistent with national definitions. Examples of settlements include land along streets, in residential (rural and urban) and commercial lawns, in public and private gardens, in golf courses and athletic fields, and in parks, provided such land is functionally or administratively associated with particular cities, villages or other settlement types and is not accounted for in another land use category.

Other land: This category includes bare soil, rock, ice, and all land areas that do not fall into any of the other categories.

3.17 Producers
Organisations that are engaged in the production of forest based products.

Note: Includes wood chipping facilities, pellet mills, paper and pulp mills, sawmills etc.

3.18 Organisation
Any entity which is implementing the requirement of this standard. Such an entity has the ability to clearly identify the suppliers of its raw materials and the customer of its products.

3.19 Recycled material
Forest based material that is

(a) diverted from the waste stream during a manufacturing process. Excluded is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it. Excluded are by-products such as sawmilling by-products (sawdust, chips, bark, etc.) or forestry residues (bark, chips from branches, roots, etc.) as they do not represent “waste stream”.

(b) generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

Note 1: The term “capable of being reclaimed within the same process that generated it” means that the material generated in one process is continuously returned to the same process at the same site. An example is residue generated by a press line in a panel board production which continuously re-enters the same press line. This is not considered as recycled material.

Note 2: Material classified under the grades of recovered paper according to EN 643 is recognised as meeting the definition of the recycled material.

Note 3: The definition is based on definitions of ISO 14021.

3.20 Supplier
A clearly identified single entity directly supplying input material.

3.21 Supply chain
Organisations involved, through upstream and downstream linkages of suppliers and customers, in processes and activities delivering value in the form of products to the user.

Note 1: The linkages are defined by flows of mass and energy.
Note 2: In practice, the expression “interlinked chain” applies from suppliers to those involved in the end-of-life processing.

Note 3: In practice, the expressions “product chain” or “value chain” are often used.

3.22
Transporters and distributors
Organisations that are engaged in the transport or distribution of forest based material.

3.23
Waste
Waste is defined as substances or objects which the holder intends or is required to dispose of.
4 Emission data transfer

4.1 Data collection and transfer

4.1.1 The organisation shall collect supply chain emission data as defined by this standard.

4.1.2 The organisation’s activities under the scope of this standard shall also cover the activities of sub-contractors working on behalf of the organisation.

4.1.3 Emission data shall be entered in the PEFC registration system and transferred to customers along the supply chain through the PEFC registration system.

Note 1: To ensure the consistent application of this standard, the PEFC registration system includes pre-defined (i.e. fixed) data registration options for emission data requirements. Explanatory or additional information can be provided through the use of “free text” fields, if appropriate.

Note 2: The data registration options are also provided in Appendix 1 of this standard, along with a summary of the emission data requirements specified in sections 5, 6 and 7.

4.1.4 Emission data shall be entered and transferred in the units specified in this standard.

Note: Emission data can also be entered in an alternative unit if it is not collected in the unit specified, provided that a standard unit conversion factor exists to enable conversion of the data in the PEFC registration system. For example, emission data can also be entered in the units specified by the British Imperial System or U.S. customary system.

4.1.5 Organisations shall transfer aggregated supply chain data, which includes emission data relevant to the organisation’s own operations, as well as any emission data that have been transferred to the organisation by its suppliers.

4.1.6 Appropriate evidence for each emission data entry shall be made available to auditors for inspection. See also section 8.4.
5 Forestry operations

5.1 General guidance

5.1.1 This section outlines the requirements for organisations meeting the definition of forestry operators.

5.1.2 If forest based material is sourced through a PEFC certified Due Diligence System\(^1\) then the organisation procuring the material will need to request the relevant information from the supplier. In addition, information shall only be reported at a geographical scale in which conditions are sufficiently homogenous.

Note: Forests consisting of similar tree species and subject to the same forestry management practises can be considered as being sufficiently homogenous.

5.1.3 Organisations shall report data for activities that are relevant to their operations. If an organisation does not undertake a specific activity then a value of zero shall be reported.

Note: Some of the data requirements in this section may not be applicable to all organisations. For example, if a forestry operation does not use agro-chemical input then the requirements included in section 5.5.2 are not relevant.

5.1.4 Organisations shall report company specific (actual) data that is representative of their forestry operations, where available. Average annual data can be reported. If actual data is not available then reference values can instead be reported. The type of data reported shall always be stated.

5.1.5 Reference values shall only be used under specific conditions:

- The regional differences for these values should be taken into consideration when using this data. For the European Union, a value relevant for the NUTS2 level\(^2\) or more fine-grained level shall be used. For other countries a similar level would be applicable.

- Such data shall primarily be based on official statistical data from government bodies when available and of good quality. If not available, statistical data published by independent bodies (including national forestry associations), may be used. As a third option, the numbers may be based on scientifically peer-reviewed work, with the precondition that the data used lies within the commonly accepted data range when available.

- The data used shall be based on the most recent available data from the above-mentioned sources. Typically, the data should be updated over time, unless there is no significant variability of the data over time.

- For fertiliser use, the typical type and quantity of fertiliser used for the tree species in the region concerned may be used.

- When a reference value for yield is reported, it is required to also use a reference value for fertiliser input. Similarly, if a reference value for fertiliser input is reported, it is required to also use a reference value for yield. Similarly, if a reference value for fertiliser input is reported, it is required to also use a reference value for yield.\(^*\)

- The use of reference values shall be justified to the auditor. (See also section 8.4.)

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\(^1\) PEFC ST 2002

\(^2\) [http://ec.europa.eu/eurostat/web/nuts/overview](http://ec.europa.eu/eurostat/web/nuts/overview)
• Reference data shall only be reported for sections 5.3, 5.5 and 5.6.

5.2 **Forest material classification**

5.2.1 The ‘type’ of forest based material supplied shall be specified, according to the following classifications:

- Forests
- Forest plantation/timber plantation/productive plantation (Forest plantations)
- Forestry residues
  - Branches, tree tops and bark
  - Diseased wood and storm salvage
  - Wood from end of life non-timber plantations
  - Thinnings (from woodlands, forests and plantations)
  - Tree stumps

5.2.2 The ‘form’ shall also be specified, according to the following classifications:

- Chips
- Logs – with or without bark
- Other (specified by organisation)

5.2.3 Information on the tree species shall also be reported in-line with existing requirements under PEFC Chain of Custody certification.

5.3 **Forest material yield**

5.3.1 The average yield of harvested material during a defined period for each classification supplied shall be reported. [t / ha]

5.3.2 In addition, the associated average moisture content of the harvested material (as delivered to the customer) shall also be reported. [%]

5.4 **Land use change**

5.4.1 If forest material is supplied from land where conversion has taken place in the past 20 years, the following data shall be reported to enable calculation of the change in (above and below ground) carbon stocks and associated land use change impact to be made:

- Year of land use change
- Geolocation of forest (to determine the climate region, ecological zone and soil type)
- Current and previous land use (forestland, perennial cropland, cropland, grassland, wetland, settlement and other land)
  - For forestland: forest with 10 to 30 percent canopy cover, forest with greater than 30 percent canopy cover, forest plantation
  - For forestland: native forest (non-degraded), managed forest, shifting cultivation–mature, shifting cultivation–shortened fallow
  - For grassland: grassland, scrubland
- Land management and input (for cropland and perennial cropland)
  - Land management: full tillage, reduced tillage, no tillage
• Input: low, medium, high with manure, high without manure

• Land management and input (for grassland)
  • Land management: improved, nominally managed, moderately degraded, severely degraded
  • Input: medium, high

Note 1: Changes in the land use can impact the level of carbon stocks stored in the land, both positively and negatively depending on the conversion conditions.

Note 2: In general, land use change from forests to other types of land use is restricted under PEFC certification and shall not occur unless in justified circumstances. Conversely, the conversion of abandoned agricultural and treeless land into forest land shall be taken into consideration.\(^3\)

Note 3: The 20 year interval is taken as a default length of transition period for carbon stock changes following land-use change, as recommended by the IPCC.

Note 4: Conversion of a forest (e.g. forest with 30 percent canopy cover) to a forest plantation shall be reported if the conversion took place within the last 20 years.

Note 5: No data needs to be reported for sustainably managed forest plantations that have been forest for at least 20 years, as it can be assumed that replanting will occur following harvesting and that the forest will regrow into the same type of forest prior to harvesting (i.e. that the extraction of forest material will have no long-term average impact on the forest carbon stocks).

Note 6: Forest thinning is not considered to be a land use change unless the canopy cover of the forest falls below 10%.

5.5 Forestry inputs

5.5.1 Any reproductive forest material input used shall be reported. [kg / ha] or [average number / ha]

5.5.2 Any agro-chemical inputs that are used during the forestry rotation period shall be reported. Both the average amount and type of each agro-chemical input shall be reported separately. Agro-chemical inputs could include:

(a) Fertilisers [kg (nutrient) / ha]
(b) Soil improvers [kg (nutrient) / ha]
(c) Pesticides (including fungicides, herbicides and pesticides) [kg (active ingredient) / ha]

5.6 Fuel use

5.6.1 The fuel use associated with forestry establishment shall be reported. Such activities include land preparation, planting, application of agro-chemicals and forestry management. The total fuel use and fuel type shall be reported. [l fuel / ha]

5.6.2 The fuel use associated with forestry harvesting activities shall be reported separately, and furthermore reported for each forest material classification harvested. Such activities include felling, skidding, stacking and loading of forest products. The total fuel use and fuel type shall be reported. [l fuel / ha]

5.6.3 Any fuel use for in-forest chipping shall be reported separately to the fuel use specified in 5.6.1 and 5.6.2. The total fuel use and fuel type should be reported. [l fuel / ha] or [kWh / ha (if electricity is used)]

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3 PEFC ST 1003; PEFC ST 2002
5.7 Burning of forestry residues

5.7.1 If the burning of forestry residues at the forestry operation site is practised then this shall be reported. [average % of total forestry residues that are burned]
6 Production

6.1 General guidance

6.1.1 This section outlines the requirements for organisations meeting the definition of producers.

6.1.2 The data provided shall be based on a defined reporting period to be determined by the organisation, of up to a maximum of 12 months. This reporting period shall be documented in the PEFC registration system.

6.1.3 Average data values over the reporting period shall be calculated based on the production output of the organisation’s production facility over the specified period.

6.1.4 If the organisation’s production facility produces multiple product outputs which use different production processes then data shall be provided for each specific product output.

6.1.5 The data shall be updated at the start of each reporting period to ensure that it remains representative of the production facility.

6.1.6 The reporting period needs to be restated if:

- Significant technical changes to the equipment, operating performance or production process occur.
- Significant technical changes in the nature of the input material occur.
- The plant undergoes a change of legal ownership (including new operating license held by a different operating company).

6.1.7 Organisations shall only report information that is relevant to the production facility and the product(s) reported. If an organisation does not undertake a specific activity then a value of zero shall be reported.

Note: Some of the data requirements in this section may not be applicable for all forest products supplied. For example, if the production facility does not operate a Combined Heat and Power (CHP) system then the requirements included in section 6.7 are not relevant.

6.2 Classification of input materials

6.2.1 The ‘type’ of all input materials used as a raw material in the production process shall be specified according to the following classifications:

- Forests (see section 5.2.1)
- Forest plantations (see section 5.2.1)
- Forestry residues (see section 5.2.1)
- Wood residues (as defined by the PEFC Product category classification)
- Recycled material

6.2.2 The ‘form’ of all input materials used as a raw material in the production process shall be specified according to the following classifications:

- Chips
• Logs - with or without bark
• Other (specified by organisation)

6.2.3 The quantity and average moisture content of each input material used by the production facility over the reporting period shall be reported. [t] and [% input]

6.2.4 If a portion of the input material is diverted for on-site energy generation then this shall be reported separately and excluded from the quantity reported under 6.2.3.

Note: For example, bark is typically removed from logs at a pellet mill prior to processing into pellets. The bark is then used on-site for drying purposes at the pellet mill.

6.3 Classification of output materials

6.3.1 The ‘type’ of all output materials arising from the production process shall be specified according to the PEFC Product category classifications (see Appendix 2).

Note: In some cases, the output(s) reported for one production facility can also serve as a material input to another production facility (either co-located or at a different location). For example, sawdust originating from a sawmill can be used as an input material for the production of panel board.

6.3.2 The production quantity and average moisture content of each output material produced over the reporting period shall also be reported. The moisture content shall be based on a system of regular and continuous measurement in order to produce an average. [t] and [% output]

6.3.3 The moisture content of intermediate products also need to be reported (if different to the output material). [t] and [% input and output]

Note: For example, chips are typically dried at a pellet mill prior to the pelleting process. In this case, the moisture content before and after the drying needs to be reported.

6.4 Fossil fuel use

6.4.1 The fossil fuel used by the production facility shall be reported. [L fuel / t product] or [kWh / t product]

Note: Included is fuel use during start-up and on-going operation, such as for drying, machinery operation and vehicle use.

6.4.2 The usage for each fossil fuel shall be reported separately.

6.4.3 If a production facility is co-located with another production facility then the specific fuel consumption for each facility shall be determined separately.

Note 1: An example of co-located production facility is a sawmill and a pellet mill operated by the same organisation and located at the same site.

Note 2: The most appropriate method of determining this is to use segregated fuel storage tanks or metering.

6.4.4 If segregated storage tanks or metering are not available then an alternative method to determine the relative shares should be applied.

Note: For example, based on the hourly consumption and the number of operating hours.
6.5 **Biomass use as a fuel**

6.5.1 Biomass used as a fuel at the production facility shall be reported. [t biomass / t product] or [kWh / t product]

Note 1: Biomass is typically combusted in a boiler to produce heat for drying, or in a CHP plant to provide heat, steam and electricity for the facility.

Note 2: The origin of the biomass could be from within the production facility itself (e.g. bark or sawmill residues), or from an external facility (e.g. neighbouring sawmill).

6.5.2 If data is provided on a per tonne basis then the average moisture content of the biomass and calorific value (on a Lower Heating Value basis) shall also be reported.

6.5.3 Any associated transport of the material to the production also needs to be reported in-line with the data requirements described in section 7. Similarly, any associated processing of the material shall be reported in-line with the data requirements described in this section.

Note: Transport includes, for example, delivery of biomass by truck or conveyer system to the production facility. Processing includes, for example, grinding or chipping.

6.5.4 If multiple types of biomass are used then data for each type shall be reported separately, including the origin of the biomass specified, unless a weighted average at the entrance of the boiler or CHP plant can be calculated.

6.6 **Electricity use**

6.6.1 The total electricity consumption used by the production facility shall be reported. [kWh / t product]

6.6.2 The origin of the electricity shall also be reported and specified as either:

(a) grid supply,

(b) dedicated external supply from a source that is not connected to the grid,

(c) self-supply.

Note 1: If multiple options are used then data shall be reported for each option.

Note 2: Option (c) shall only be reported if the electricity generated by the production facility is used directly on-site. Otherwise it shall be reported as grid supply.

Note 3: See also section 6.7 for specific requirements relating to CHP.

6.6.3 For dedicated external supply not connected to the grid and self-supply, information on the electricity production technology shall also be reported, including whether the generation technology was fossil or renewable.

6.6.4 If grid electricity is purchased on a renewable energy tariff, or with associated renewable energy (green) certificates then these details shall also be reported.

6.6.5 If a production facility is co-located with another production facility then the specific electricity consumption for each facility shall be determined separately.

Note: The most appropriate method of determining this is to use segregated metering.

6.6.6 If segregated metering is not available then an alternative method to determine the relative shares shall be applied.
Note: An alternative method could be based on the hourly consumption of equipment and the number of operating hours.

6.7 Combined Heat and Power

6.7.1 If a CHP plant is used at the production site then the following additional information shall be reported:

- Fuel type
- Total fuel energy input \([\text{t / year}]\) or \([\text{kWh / year}]\)
- Net 'useful' power output (i.e. gross power produced by the electric generator minus any parasitic electric losses) \([\text{kWh / year}]\)
- Net 'useful' heat output (i.e. gross useful thermal output of the CHP system minus the thermal input) \([\text{kWh / year}]\)
- Power and heat exported (i.e. any excess power, heat or steam exported off-site) \([\text{kWh / year}]\)

6.7.2 If biomass fuel is used and the data is provided on a per tonne basis then the average moisture content of the biomass and calorific value (on a Lower Heating Value basis) shall also be reported.

6.8 Recovered heat

6.8.1 If recovered heat from an external production facility is used, then the fuel used to generate the heat shall be reported as well as the heat input. \([\text{kWh / t product}]\)

Note: An example of the use of recovered heat is for drying purposes at the production facility.

6.9 Other

6.9.1 Any chemicals or additives used in the production process shall be specified and the amount reported. \([\text{t / t product}]\)

Note: Chemicals could include formaldehyde, inks or glues, while additives could include binding agents such as lignin, starch or calcium carbonate.

6.9.2 Any wastes or leaks that leave the production facility shall be specified and the amount reported. \([\text{t waste / t product}]\)

Note: This could include material that is sent to landfill or for further processing prior to safe disposal.
7 Transportation and Distribution

7.1 General guidance

7.1.1 This section outlines the requirements for organisations meeting the definition of transporters and distributors.

7.1.2 Information for all transport or distribution steps along the chain of custody shall be reported by the organisation, relevant to the scope of the organisation’s activities.

Note: Examples of transport steps that shall be reported include the transport of forest material to a production facility, or the transport of forest products to a customer. The transport of workers (e.g. employee commuting), or sales agents working on behalf of the organisation, is not considered to be within the scope of this standard and should not be reported.

7.1.3 Any associated transport or distribution losses shall be reported. [t output / t input]

7.2 Forest material or product classification

7.2.1 The ‘type’ and ‘form’ of all forest materials or products transported or distributed shall be reported, in-line with the requirements specified in sections 5 and 6.

7.2.2 Any change in moisture content shall be reported, as described in section 7.4.4

7.3 Transport

7.3.1 As a minimum, the following information shall always be reported:

(a) transport mode and type
(b) transport capacity [t]
(c) average load (for sea transport also specify whether the load is dedicated or shared with other cargo) [t] and [% dedicated]
(d) bulk density [kg / m³]
(e) fuel type
(f) average one-way distance (or alternatively maximum one-way distance) [km]
(g) transport vehicle return journey [empty or full].

7.3.2 If available, the fuel consumption can also be reported. [l / t] or [l / km]

Note: There are two ways of measuring fuel consumption:

(a) Using actual fuel records for the specific type of vehicle used along the transport route. Unladen return journeys must also be taken into account (unless it can be demonstrated that this is not applicable).
(b) Using a fuel efficiency factor which has been specifically calculated for the type of vehicle used along the transport route. Unladen return journeys must also be taken into account (unless it can be demonstrated that this is not applicable).
7.3.3 For sea transport, the distance between harbours can be estimated using an on-line calculator. The calculator used must be specified.

7.4 Distribution

7.4.1 Examples of distribution activities include wood seasoning or treatment, storage, handling, forwarding and loading of forestry material or products.

Note: An example of treatment is the heat treatment of wood chips to fulfil phytosanitary requirements.

7.4.2 Any fuel or electricity use associated with distribution activities shall be reported for each distribution stage under the control of the organisation. This includes electricity use for aeration or condensation fans, conveying and loading systems and fuel use for vehicles or heating.

7.4.3 The total fuel use and fuel type and electricity use shall be reported. This shall be based on the quantity of material handled during a defined reporting period to be determined by the organisation, of up to a maximum of 12 months. This reporting period shall be documented in the PEFC registration system. [L fuel / t or kWh / t]

7.4.4 Any change in moisture content shall also be recorded. [% - input and output]
8 Management system requirements

8.1 General requirements

8.1.1 For the purposes of this standard, the management system requirements given in PEFC ST 2002 are relevant. The requirements specified in this standard are additional.

8.2 Responsibilities and authorities

8.2.1 General responsibilities

8.2.1.1 The organisation’s management shall define and document its commitment to implement and maintain the emission data transfer in accordance with this standard. The organisation’s commitment shall be made available to the organisation’s personnel, suppliers, customers, and other interested parties.

8.2.1.2 The organisation’s management shall appoint a member of the management who, irrespective of other responsibilities, shall have overall responsibility and authority for the organisation’s emission data transfer requirements.

8.2.1.3 The organisation’s management shall carry out a regular periodic review of the organisation’s emission data transfer requirements and its compliance with the requirements of this standard.

8.2.2 Responsibilities and authorities for emission data transfer

8.2.2.1 The organisation shall identify the personnel performing activities for the implementation and maintenance of emission data transfer and shall establish personnel responsibilities and authorities relating to emission data transfer for at least the following elements:

(a) forest based material or forest product procurement (as relevant) and identification of the origin,
(b) forestry operations, production or transport and distribution activities as defined by this standard (as applicable),
(c) record keeping,
(d) internal audits and non-conformity control.

Note: The responsibilities and authorities for emission data transfer given above can be cumulative.

8.3 Documented procedures

8.3.1 The organisation shall establish written documented procedures for its emission data transfer. The documented procedures shall include at least the following elements:

(a) organisational structure, responsibilities and authorities relating to emission data transfer,
(b) procedures for emission data transfer covering all requirements of this standard.

8.4 Record keeping

8.4.1 The organisation shall establish and maintain records on its emission data transfer to provide evidence of conformity with the requirements of this standard and its effectiveness and efficiency. The organisation shall keep at least the following:

(a) emission data records for all input material received,
(b) emission data records of all products sold/transferred as output products,

(c) records of internal audits, periodic emission data transfer review, non-conformities which occurred and corrective actions taken,

(d) records on complaints and their resolution.

8.4.2 Appropriate emission data records shall be made available to auditors on request. Where actual data are used, these records could include: maps, aerial photographs, satellite images or land register databases; sales receipts, purchase orders or invoices, fuel logbooks; meter readings; bills of lading. Where reference data are used, this shall be the specific report or database extract.

8.4.3 The organisation shall maintain the records for a minimum period of five years.
Appendix 1: Overview of emission data parameters and registration options

The emission data parameters specified in sections 5, 6 and 7 are summarised below:

**Forestry operations (Section 5)**
- Data type [Actual or Reference]
- Forest material type (see below)
- Forest material form (see below)
- Forest material species
- Forest material yield [t / ha]
- Forest material moisture content [%]
- Land use change specification (see below)
- Reproductive forest material input [kg / ha] or [average number / ha]
- Agro-chemical input [kg nutrient / ha, kg active ingredient / ha] and type (see below)
- Fuel use [l / ha] and type (see below) – for establishment, harvesting, in-forest chipping
- Forest residue burning [average % of total forestry residues that are burned]

**Production (Section 6)**
- Reporting period
- Forest material type – input
- Forest material form – input
- Product output – see Appendix 2
- Quantity [t] and moisture content [%]
- Fuel use [l / ha] and type (see below)
- Biomass use [t biomass / t product] or [kWh / t product]
- Electricity use [kWh / t product] and specification (see below)
- CHP fuel type (see below)
- CHP total fuel energy input [t / year] or [kWh / year]
- CHP LHV of biomass fuel
- CHP net ‘useful’ power output [kWh / year]
- CHP net ‘useful’ heat output [kWh / year]
- CHP power and heat [kWh / year]
- Recovered heat use [kWh / t product]
- Chemicals or additives [t chemical or waste / t product]
- Waste or leaks [t waste / t product]

**Transportation (Section 7)**
- Losses [t output / t input]
- Forest material / Product type
- Forest material / Product form
- Transport mode and type (see below)
- Transport capacity [t]
- Average load [t]
- Average load for sea transport) [% dedicated]
- Bulk density [kg / m3]
- Fuel type
- Average one-way distance [km]
- Transport vehicle return journey [empty or full]
- Fuel consumption [l / t] or [l / km]

**Distribution (Section 7)**
- Reporting period
- Losses [t output / t input]
- Forest material type
- Forest material form
- Fuel use [l fuel / t product] or [kWh / t product] and type (see below)
- Moisture content [% - input and output]
The emission data registration options available in the PEFC registration system are listed below:

**Agro-chemicals**
- Fertiliser - N
- Fertiliser - K₂O
- Fertiliser - P₂O₅
- Fertiliser - MgO
- Fertiliser - Na
- Fungicide
- Herbicide
- Pesticide
- Lime

**Electricity**
- Dedicated external supply from a source that is not connected to the grid
- Grid supply
- Self-supply

**Forest material form**
- Chips
- Logs (with bark)
- Logs (without bark)
- Other

**Forest material type**
- Forests
- Forest plantation/timber plantation/productive plantation (Forest plantations)
- Forestry residues - Branches, tree tops and bark
- Forestry residues - Diseased wood and storm salvage
- Forestry residues - End of life non-timber plantations
- Forestry residues - Thinnings (from woodlands, forests and plantations)
- Forestry residues - Tree stumps

**Fuel types**
- Biodiesel
- Bioethanol
- Biomass
- Black liquor
- Coal
- Coke
- Diesel
- Gasoline
- Heavy fuel oil (HFO)
- Heavy fuel oil (HFO) for maritime transport
- Light fuel oil (LFO)
- Lignite
- Liquid Propane gas (LPG)
- Natural gas
- Peat
- Spent liquor (other)

**Land use change - general**
- Year of land use change
- Geolocation of forest
Land use categories
Cropland
Forestland - canopy cover 10 to 30 percent
Forestland - canopy cover >30 percent
Forestland - plantation
Grassland
Grassland - scrubland
Perennial cropland
Other land
Settlement
Wetland

Land use types - forests
Native forest (non-degraded)
Managed forest
Shifting cultivation-shortened fallow
Shifting cultivation-mature fallow

Land input (for cropland and perennial cropland)
Low
Medium
High with manure
High without manure

Land management (for cropland and perennial cropland)
Full tillage
Reduced tillage
No tillage

Land input (for grassland)
Medium
High

Land management (for grassland)
Improved
Nominally managed
Moderately degraded
Severely degraded

Transport modes and types
Inland bulk carrier
Rail - diesel
Rail - electric
Ship - coaster
Ship - handymax (35,000 to 50,000 DWT)
Ship - handysize (15,000 to 35,000 DWT)
Ship - panamax (65,000+ DWT)
Ship - supramax (50,000 to 60,000 DWT)
Truck - for chips
Truck - for logs
Truck - for pellets

Note: DWT refers to Dead Weight Tonnage.
Appendix 2: PEFC Product categories

Note to TF: Product code “01040 – Wood residues” appears to describe “By-products – Bark, sawdust, sawmill residues, slabwood” well (as defined in PEFC ST 2002 – see “Recycled material, a“). A recommendation would therefore be to include these products under codes “01041-01049”.

<table>
<thead>
<tr>
<th>Code</th>
<th>Product categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>01000</td>
<td>Roundwood</td>
</tr>
<tr>
<td>01010</td>
<td>Sawlogs and veneer logs</td>
</tr>
<tr>
<td>01020</td>
<td>Pulpwod</td>
</tr>
<tr>
<td>01030</td>
<td>Chips and particles</td>
</tr>
<tr>
<td>01040</td>
<td>Wood residues</td>
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<tr>
<td>01050</td>
<td>Other industrial roundwood</td>
</tr>
<tr>
<td>02000</td>
<td>Fuelwood and charcoal</td>
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<tr>
<td>02010</td>
<td>Fuelwood (incl chips, residues, pellets, brickets, etc.)</td>
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<tr>
<td>02020</td>
<td>Charcoal</td>
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<tr>
<td>03000</td>
<td>Sawnwood and sleepers</td>
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<tr>
<td>03010</td>
<td>Railway sleepers</td>
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<tr>
<td>03020</td>
<td>Sawnwood</td>
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<tr>
<td>04000</td>
<td>Engineered wood products</td>
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<tr>
<td>04010</td>
<td>Laminated Lumber Products</td>
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<td>04020</td>
<td>Finger Jointed Lumber</td>
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<td>Glue Laminated Products (Glulam)</td>
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<tr>
<td>04040</td>
<td>Laminated Veneer Lumber (LVL)</td>
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<td>04050</td>
<td>Parallel Strand Lumber (PSL)</td>
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<tr>
<td>04060</td>
<td>I-Joists / I-Beams</td>
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<td>04070</td>
<td>Trusses &amp; Engineered Panels</td>
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<td>Unbleached sulphite pulp</td>
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<td>06050</td>
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<td>07000</td>
<td>Paper and paper board</td>
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<tr>
<td>07010</td>
<td>Graphic papers</td>
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<tr>
<td>07011</td>
<td>Newsprint</td>
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<tr>
<td>07012</td>
<td>Uncoated mechanical</td>
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<td>Uncoated woodfree</td>
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<td>07014</td>
<td>Coated papers</td>
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<td>Household and sanitary paper</td>
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<td>07030</td>
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<td>Case materials</td>
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<td>Other papers mainly for packaging</td>
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<tr>
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<td>Other paper and paperboard</td>
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<td>07050</td>
<td>Converted paper products</td>
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<td>07060</td>
<td>Printed matter</td>
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<td>08000</td>
<td>Wood manufacturers</td>
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<tr>
<td>08010</td>
<td>Packaging, cable drums, pallets</td>
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<td>Packaging and crates</td>
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<tr>
<td>08012</td>
<td>Cable drums</td>
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### Emission Data Transfer - Requirements

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<th>Furniture</th>
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<td>08031</td>
<td>Windows</td>
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<td>08032</td>
<td>Doors</td>
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<td>08033</td>
<td>Shingles and shakes</td>
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<td>Floors</td>
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<td>Others</td>
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<td>Decorative wood</td>
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<td>Tools and turned wood</td>
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<td>Tools</td>
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<td>Buildings and their parts</td>
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<tr>
<td>09020</td>
<td>Garden Furniture/Outdoor Products</td>
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<td>09021</td>
<td>Garden furniture</td>
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<td>09022</td>
<td>Playground equipment</td>
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<td>Decking</td>
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<td>Natural cork and cork waste</td>
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<td>Cork manufactures</td>
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<td>Non-wood products</td>
</tr>
<tr>
<td>14000</td>
<td>Other</td>
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</tbody>
</table>

### List of species

1. **Coniferous**
   - All woods derived from trees classified botanically as Gymnospermae - e.g. fir (Abies), parana pine (Araucaria), deodar (Cedrus), ginkgo (Ginkgo), larch (Larix), spruce (Picea), pine, chir, kail (Pinus), etc. These are generally referred to as softwoods.

2. **Non-coniferous tropical**
   - All woods derived from trees classified botanically as Angiospermae - e.g., maple (Acer), alder (Alnus), ebony (Diospyros), beech (Fagus), lignum vitae (Guaiacum), poplar (Populus), oak (Quercus), sal (Shorea), teak (Tectona), casuarina (Casuarina), etc. These are generally referred to as broadleaved or hardwoods.

3. **Non-coniferous other**
   - Non-coniferous woods originating from tropical countries.

4. **Not specified**
   - Non-coniferous woods originating from countries other than tropical.