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Introduction

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Submission of Comments

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/DIS 13391-1

Wood and wood-based products — Greenhouse gas dynamics —

Part 1: Framework for value chain calculations

ICS: 79.020; 13.020.40

ISO/TC 287

Secretariat: **ABNT**

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2024-07-12

This document is circulated as received from the committee secretariat.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 287 *Sustainable processes for wood and wood-based products*.

A list of all parts in the ISO 13391 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Climate change is consistently identified as a significant threat to the environment, business, and our collective way of life. Forest management and subsequent wood-based products can make significant contributions to each of the two principal climate change mitigation goals established in Article 4.1 of the UN Framework Convention on Climate Change^[23] and applied in climate policy at international and national levels:

- “[...] control, reduce or prevent anthropogenic emissions and of greenhouse gases in all relevant sectors [...]”; and
- “[...] conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems”.

This standard series provides methodologies for calculating the overall greenhouse gas dynamics of wood and wood-based products across these two goals. It serves as a complement to other methodologies, protocols, and life cycle assessments. This standard can serve as a tool in supporting regulatory policies, strategies and private sector initiatives in mitigating climate change.

Growing trees sequester carbon from the atmosphere into biomass (above and below ground) and into forest soils. This benefit is partially counteracted by emissions from fossil fuel use associated with seedling production, forest management activities, harvesting and subsequent manufacturing. Carbon can be emitted from the forest through natural disturbances, including climate change related events, or harvesting. When trees are harvested, the carbon absorbed by the forest can be preserved in wood-based products for many decades (e.g. in buildings and in solid wood furniture), while a portion of the carbon will be returned to the atmosphere in much shorter timescales, from products that have a shorter service life or are used as fuel. An additional benefit of using wood-based products occurs when wood-based products substitute alternative products with higher fossil-based greenhouse gas emissions such as steel, concrete, plastics, and fossil fuels, leading to displacement (avoidance) of fossil-based greenhouse gas emissions.

Based on the identified and potential contributions of wood and wood-based products to climate change mitigation, this standard series addresses four components of the greenhouse gas dynamics of wood and wood-based products through the value chain.

With respect to controlling, reducing or preventing emissions:

- value chain emissions for producing and placing wood-based products on the market including reuse, recycling and final use or fate; and
- prevention of emissions from alternative products through the use of wood-based products, including final use or fate.

With respect to greenhouse gas sinks and carbon pools:

- carbon stored in forests, including biomass and soil; and
- carbon stored in wood-based products throughout the value chain, including recycling and final use or fate.

NOTE 1 The displacement potential of greenhouse gas emissions (avoided emissions) is calculated based on the two components addressing (a) value chain emissions for wood-based products and (b) emissions from alternative products. The calculation also uses information about the biogenic carbon of both product(s) or product system(s) where appropriate.

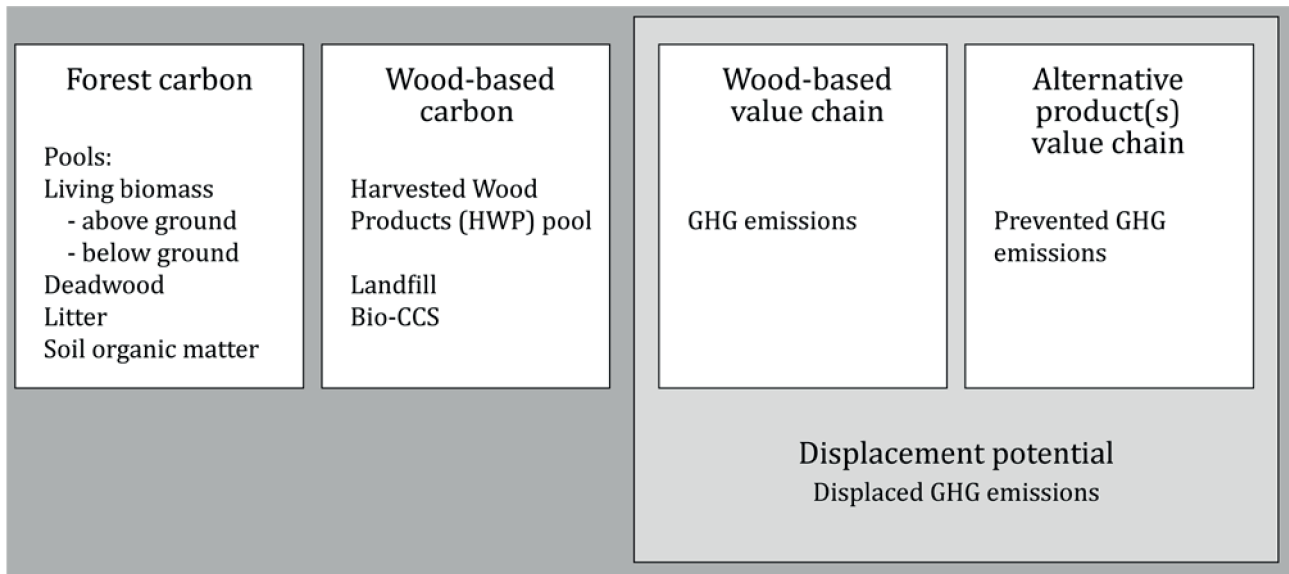


Figure 1 — Illustration of the components of the greenhouse gas dynamics of wood and wood-based products

[Figure 1](#) shows how the four components of the greenhouse gas dynamics fit together – namely the carbon stored in the forest; the wood-based carbon relating to storage in harvested wood products; the wood-based value chain emissions; and the value chain emissions from the alternative products. The final two can be combined to derive the displacement potential by subtracting the wood-based value chain emissions from the sum of the value chain emissions from the alternative product(s). The details of this calculation are given in ISO/DIS 13391-3:2024. Each component is calculated and reported on separately. Users of this document can report calculations on one or several components, provided the choices are explained.

NOTE 2 The wood-based product can be a product or a product system based predominantly on woody materials, e.g. it can be a building element with a wood content.

The greenhouse gas -related aspects of forests, wood and wood-based products are one among a set of other interrelated aspects of sustainability. This standard does not address other connections between the climate and forests and wood and wood-based products, nor does it address important aspects of sustainability, such as biodiversity, climate resilience, water resources and societal impacts.

The goal of the standard series is to provide tools to assess each component which together compose the greenhouse gas dynamics of wood and wood-based products for the entire value chain and combine multiple products at an organizational or aggregated level (while providing information about data quality and system boundary differences that this can contain).

Part 1 of the standard series addresses the overall framework for greenhouse gas dynamics calculations. It also links the parts together. Part 1 also covers two of the four components – value chain emissions for wood-based products, and the calculation of carbon in the harvested wood products carbon pool.

Part 2 of the standard series addresses the carbon balance of forest management units. The forest carbon balance can vary widely. Influences include tree species composition and distribution, the local climate and soil type, and the sustainability of forest management practices. In addition, external factors such as fire, drought, pests and diseases can add increasing risk to stores of forest carbon, whilst other factors can enhance greenhouse gas removals.

Part 3 of the standard series addresses displacement of greenhouse gas emissions, the situation when wood-based products or product systems placed on the market are assumed to replace alternative products or product systems with higher greenhouse gas emission profiles.

Wood and wood-based products — Greenhouse gas dynamics —

Part 1: Framework for value chain calculations

1 Scope

This document specifies how to calculate the greenhouse gas dynamics of a set of wood and wood-based products. It includes the greenhouse gas emissions, removals, and carbon pools for one or multiple forest management unit(s), harvested wood product(s), value chain(s), and potential displacement of emissions from alternative products replaced by wood-based products. Together these four components represent the greenhouse gas dynamics of a set of wood and wood-based products. The scope of the calculations are the organizational or an aggregated level, comprising the area of study.

This document sets general requirements and overarching terminology.

This document specifies the different components of a greenhouse gas dynamics calculation.

This document includes information on how claims and declarations can be communicated based on this standard, both within the value chain and to customers and consumers.

This document is intended to be used by organizations seeking to understand, commit to or contribute to climate change mitigation. These organizations can be either private or public, regardless of type or size, and located in any jurisdiction, or position within a specific value chain.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/DIS 13391-2:2024, *Wood and wood-based products — Greenhouse gas dynamics — Part 2: Forest carbon balance*

ISO/DIS 13391-3:2024, *Wood and wood-based products — Greenhouse gas dynamics — Part 3: Displacement of greenhouse gas emissions*

ISO 14020:2022, *Environmental statements and programmes for products — Principles and general requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

greenhouse gas dynamics

group of *greenhouse gas sources* (3.10), *greenhouse gas sinks* (3.9) and greenhouse gas fluxes reported together for forest management unit(s), *harvested wood product(s)* (3.20), *value chain(s)* (3.27), and *displacement potential* (3.4) within defined *system boundaries* (3.28) and within a specified time period

Note 1 to entry: “Forest management unit” is defined in ISO/DIS 13391-2:2024, 3.2.

3.2

forest carbon balance

net of *greenhouse gas* (3.7) emissions and removals of forest management unit(s) within a specified time period

Note 1 to entry: The five *carbon pools* (3.8) of the forest are included.

Note 2 to entry: *Value chain* (3.27) emissions related to e.g. *forestry operations* (3.18) are excluded.

Note 3 to entry: “Forest management unit” and “forest” are defined in ISO/DIS 13391-2:2024, 3.2 and 3.1.

3.3

displacement

situation where the use of any *wood* (3.19) and *wood-based products* (3.20) contribute to avoided *GHG* (3.7) *emissions from alternative products* (3.5), other than biogenic emissions

Note 1 to entry: Displacement is a broader term than *substitution* (3.6).

Note 2 to entry: The scale of displacement will depend on market conditions.

3.4

displacement potential

quantity of avoided *GHG* (3.7) emissions due to *displacement* (3.3) based on the quantity of products placed on the market

Note 1 to entry: Measured in tonnes of *carbon dioxide equivalents* (3.10) (tCO₂e)

3.5

emissions from alternative products

greenhouse gas (3.7) emissions from a product or product system potentially not occurring due to the use of a product or product system containing *wood* (3.19) with functional equivalence

Note 1 to entry: A “product system” can be e.g. a building element.

3.6

substitution

situation where a specific *wood-based product* (3.20), assembly, structure, or building is used instead of a specific alternative product, assembly, structure, or building (with functional equivalence), thus leading to avoided *GHG* (3.7) emissions associated with the alternative product, assembly, structure or building

3.7

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

[SOURCE: ISO 14050:2020, 3.9.1]

3.8

carbon pool

component in the environment, other than the atmosphere, that has the capacity to accumulate, store or release carbon

EXAMPLE Forest *biomass* (3.13), *wood-based products* (3.20) and soils.

Note 1 to entry: The total mass of carbon contained in a carbon pool at a specified point in time could be referred to as the carbon stock of the pool.

Note 2 to entry: The units for the stored carbon are mass (e.g., tC).

Note 3 to entry: See [clause 5.1.1](#) and [Annex A](#) for details on the carbon pools considered in this document.

Note 4 to entry: “Forest” is defined in ISO/DIS 13391-2, 3.1.

3.9

greenhouse gas sink

process that removes a *GHG* ([3.7](#)) from the atmosphere

Note 1 to entry: A given *carbon pool* ([3.8](#)) can act as a net sink for atmospheric greenhouse gases if, during a given time interval, more carbon is sequestered from or transferred to that pool than released.

[SOURCE: ISO 14064-1:2018, 3.1.3, modified — Note 1 to entry added]

3.10

greenhouse gas source

process that releases a *GHG* ([3.7](#)) into the atmosphere

Note 1 to entry: A given *carbon pool* ([3.8](#)) can act as a net source for greenhouse gases, aerosols, or precursors of greenhouse gases if, during a given time interval, more carbon is released than sequestered or transferred to that pool.

Note 2 to entry: Greenhouse gas sources include the combustion of fossil fuels, forest fires, and respiration.

[SOURCE: ISO 14064-1:2018, 3.1.2, modified — Notes 1 and 2 to entry added]

3.11

carbon fluxes

amount of carbon exchanged between *carbon pools* ([3.8](#)) over a specified time period

3.12

carbon dioxide equivalent

CO₂e

CO₂ equivalent

unit for comparing the radiative forcing of a *greenhouse gas* ([3.7](#)) to that of carbon dioxide

[SOURCE: ISO 14050:2020, 3.9.3]

3.13

biogenic carbon storage

carbon that has been removed from the atmosphere and retained for some time as biogenic carbon in living *biomass* ([3.13](#)) or in *wood-based products* ([3.20](#))

3.14

biomass

material of biological origin excluding material embedded in geological formations or transformed to fossilized material

[SOURCE: ISO 13065:2015, 3.4, modified — “raw” deleted]

3.15

allocation

partitioning of the inputs or outputs of a process or product system between the product system under study and one or more other product systems

[SOURCE: ISO 14044:2006/Amd 2:2020, clause D.1]

3.16

primary data

quantified value of a unit process or an activity obtained from a direct measurement or a calculation based on direct measurements at the original source

[SOURCE: ISO 14050:2020, 3.6.34]

3.17

secondary data

data that have already been collected and are available from another source or which are indirectly derived, and do not fulfil the requirements for *primary data* ([3.16](#))

Note 1 to entry: Secondary data can include data from databases and published literature, default emission factors from national inventories, calculated data, estimates or other representative data, validated by competent authorities.

Note 2 to entry: Secondary data can include data obtained from proxy processes or estimates.

[SOURCE: ISO 14067:2018, 3.1.6.3, modified — “which” replaced by “that have already been collected and are available from another source or which are indirectly derived, and”]

3.18

forestry operations

activities performed during forest management, including but not limited to planting, thinning, and harvesting

Note 1 to entry: “Harvesting” and “thinning” are defined in ISO/DIS 13391-2:2024, 3.8 and 3.9.

3.19

wood

lignocellulosic substance between the pith and bark of a tree or a shrub

[SOURCE: ISO 38200:2018, 3.2]

3.20

wood-based product

harvested wood product

HWP

product wholly or partially derived from *wood* ([3.19](#)) or wooden components

Note 1 to entry: The product can be the result of mechanical, chemical, biological and/or thermal processing.

Note 2 to entry: Wood-based product and harvested wood product can include *cork* ([3.22](#)) or *lignified material other than wood* ([3.21](#)), when reporting the *carbon pools* ([3.8](#)), as defined in [Annex A](#).

[SOURCE: ISO 38200:2018, 3.3, modified — Additional preferred terms “harvested wood product” and “HWP” added and Note 2 to entry added.]

3.21

lignified material other than wood

lignocellulosic material deriving from the bark of a tree or shrub or from perennial plants which are not able to form *wood* ([3.19](#)) due to the lack of a growth layer (cambium)

EXAMPLE Bamboo, rattan.

[SOURCE: ISO 38200:2018, 3.4]

3.22

cork

protective layer of the cork oak tree (*Quercus suber* L), which can be periodically removed from its trunk and branches to provide the raw material for cork products

[SOURCE: ISO 38200:2018, 3.5]