# SLOVENSKI STANDARD
# SIST EN 17837:2023

**01-december-2023**

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**Poštne storitve - Okoljski odtis pri dostavi paketov - Metode za izračun in navedbo podatkov o emisijah toplogrednih plinov in onesnaževal zraka pri storitvah logistične dostave paketov**

Postal Services - Parcel Delivery Environmental Footprint - Methodology for calculation and declaration of GHG emissions and air pollutants of parcel logistics delivery services

Postalische Dienstleistungen - Ökologischer Fußabdruck der Paketzustellung - Methodik zur Berechnung und Deklaration von THG□Emissionen und Luftschadstoffen von Paketlogistik-Lieferdiensten

Services postaux - Empreinte environnementale de la livraison de colis - Méthodologie pour le calcul et la déclaration des émissions de GES et polluants atmosphériques des services logistiques de livraison de colis



**Ta slovenski standard je istoveten z:** **EN 17837:2023**

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EUROPEAN STANDARD

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# Postal Services - Parcel Delivery Environmental Footprint - Methodology for calculation and declaration of GHG emissions and air pollutants of parcel logistics delivery services

Services postaux - Empreinte environnementale de la livraison de colis - Méthodologie pour le calcul et la déclaration des émissions de GES et polluants atmosphériques des services logistiques de livraison de colis

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## European foreword

This document (EN 17837:2023) has been prepared by Technical Committee CEN/TC 331 “Postal services”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2024, and conflicting national standards shall be withdrawn at the latest by March 2024.

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# Introduction

This document provides principles and rules for the quantification, allocation and reporting of environmental impacts from parcel logistics delivery services.

***Background***

As the consumer product and retail sectors continuously grow and e-commerce increases, logistics services are becoming ever more critical. Traditional logistics value chains and related business models are also disrupted by trends in digitalisation and new fulfilment technologies. General considerations to sustainability are growing in importance due to climate change, changing global supply chains and increased stakeholder consciousness. Measuring the environmental impacts - along the entire value chain from manufacturing to end of life treatment of retail goods - and implementing meaningful mitigation measures is key in combating climate change.

To understand the environmental impacts of the e-commerce and parcel logistics and delivery sectors, all activities in the parcel logistics and delivery service value chain should be looked at. To choose the most effective mitigation strategies and to fully disclose the environmental impacts of parcel logistics and delivery services, solid monitoring methodologies, data sets and standard accounting and reporting approaches are essential.

***Purpose***

This Parcel Delivery Environmental Footprint (PDEF) standard aims to describe a consistent and harmonized methodology for environmental footprinting across the supply chain of parcel logistics and delivery services. In the first instance, it will focus on the accounting of Greenhouse gas (GHG) emissions. At present there are a variety of standards and methodologies for emissions accounting publicly available, but these do not focus on parcel specific accounting.

The PDEF seeks to account for the emissions of the full logistics service supply chain for a delivery including all consequential transportation and operational activities. The standard allocates all emissions towards each specific parcel delivered. This is achieved through the description of a standard set of data points to be measured and a standard calculation and parcel specific allocation methodology.

The objective of this standard is to be consistent with ISO 14083 in its current working draft format[1]. While the PDEF is built on the existing platform of EN 16258 and is consistent with the current working draft of EN ISO 14083[2], it provides an extended scope with its nuanced parcel specific approach, covering the entire parcel delivery value chain from collection to final delivery. Further, the PDEF also covers, as an option, other air pollutants as well as operational and energy provision GHG emissions other than fuel, This reflects the current need to provide more transparency about environmental impacts along complex supply chains.

***Use***

The PDEF is designed to be widely applicable by parcel transport service organizers and accessible to a diverse user group. Within this sector, it is recognized that parcel delivery service operations vary hugely, from multi-national organizations operating multiple transport modes through to a small local operators. Consequently, the standard balances the desire for absolute precision and scientific rigor with a degree of pragmatism to achieve ease of use. Nonetheless, the requirements set out and guidance given are aligned with existing standards[3] and based on sound scientific methods.

[1] ISO 14083:2023 Greenhouse gases — Quantification and reporting of greenhouse gas emissions arising from transport chain operations

[2] EN 16258 provides the basis methodology for calculation and declaration of energy consumption and GHG emissions of transport services in the context of freight and passengers; ISO 14083 is building further on EN 16258 with inclusion of transport and hub operations

[3] For example: EN 16258:2012, ISO 14064

Use of this standard will ensure that calculated emissions are fully accounted and allocated to a parcel. It enables disclosures of parcel specific emissions to have greater consistency and comparability as a foundation for more transparency enabling more sustainable parcel delivery services in the future.

***Coverage***

The normative part of this document covers GHG emissions associated with the transportation related activities as well as the operational activities for a parcel to be delivered. In more detail, it includes:

— the use of vehicles (for all transportation modes) during the delivery phase in terms of core trunking as well as first and last mile related transportation;

— all related operational and energy provision emissions from the use of and processes in logistics sites, namely sites and buildings where the physical handling operations of parcels are carried out.

When quantifying GHG emissions, account is also taken of the GHG emissions associated with energy processes for fuels and electricity used by vehicles and related operations infrastructure (including for example production and distribution of fuels). In addition, empty mileage shall be considered too. As a result, calculation results allow the consistent comparison of possible different energy sources by parcel service providers, users, and other interested parties.

The present document also covers optional guidance on quantifying emissions related to:

— air pollutants (carbon monoxide, nitrogen oxides, particulate matters 2.5 and 10, and sulfur oxides) associated with the use of vehicles for all transportation modes for exhaust and non-exhaust emissions.

— other operational activities needed to fulfil the parcel delivery service, e.g. required packaging materials (everything additional to the underlying parcel inherent packaging) provided by the parcel transport service organizers;

— waste management from the sites of the parcel transport service organizers; and

— all related operational and energy provision emissions from related virtual processing (data computing services).



It specifies general principles, definitions, system boundaries, calculation methods, parcel allocation rules and data requirements, with the objective to promote standardized, accurate, credible and verifiable declarations, regarding emissions quantified. It also includes examples on the application of the principles.

Potential users of this document are any person or organization quantifying emissions related to a parcel delivery service, especially parcel transport service organizers and parcel service users (e.g. consignors and consignees).

This document presents the below elements:

— step by step guidance for quantifying emissions of parcel logistics services;

— calculation methodology for GHG emissions;

— calculation methodology for air pollutants (carbon monoxide (CO), nitrogen oxides (NOx), particulate matters (PM) 2.5 and 10, and sulfur oxides (SOx);

— allocation rules per item (parcel); and

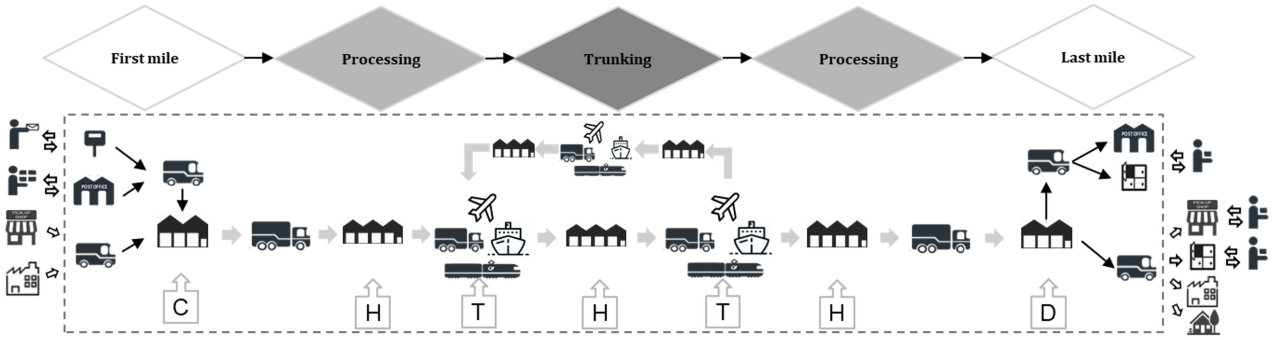
— reporting frameworks and data to be shared with business customers or consignees.

# 1 Scope

This document establishes a common methodology for the calculation, allocation and declaration of Greenhouse gases (GHGs) as well as air pollutant emissions related to any parcel delivery service.

It only covers a part of the entire retail value chain. The retail value chain usually consists of creating the product, storing the inventory, distributing the goods and making the product available for consumers.

This document includes only the distribution of goods but considers the entire value chain of the parcel transportation process flow, namely the collection and delivery rounds, the trunking and the operations due to processing and the physical handling of parcels. See Figure 1 below for a graphical illustration.




**Key**

C Collection Depot (Aggregation)
H Hub
T Transport
D Delivery Depot (Dis-aggregation/Distribution)



**Figure 1 — Overview of parcel delivery operations**

# 2 Normative references

There are no normative references in this document.



# 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 General terms

### 3.1.1
**allocation**
partitioning the input or output flows of a process or a product system between the product system under study and one or more other product systems

Note 1 to entry: In this context, partitioning of GHG emissions to the parcel.

[SOURCE: EN ISO 14040:2006, 3.17, modified — Note 1 to entry has been added.]

**3.1.2**
**air pollution**
presence of contaminant or pollutant substances in the air at a concentration that interferes with human health or welfare or produces other harmful environmental effects

[SOURCE: https://www.eea.europa.eu/help/glossary/eea-glossary]

**3.1.3**
**air pollutant**
any pollutant agent or combination of such agents, including any physical, chemical, biological, radioactive substance or matter which is emitted into or otherwise enters the ambient air and can, in high enough concentrations, harm humans, animals, vegetation or material

Note 1 to entry: Air pollutants is a term which then describes an air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include: carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matters.

Note 2 to entry: This document considers carbon monoxide (CO), nitrogen oxides (NOx), particulate matters (PM2.5 and PM10) and sulfur oxides (SOx).

[SOURCE: https://www.eea.europa.eu/help/glossary/eea-glossary]

**3.1.4**
**air pollutant activity data**
quantitative measure of activity that results in the production or removal of air pollutants to or from the atmosphere. For transport operations this is primarily the combustion of fossil fuels or other type of energy consumption



**3.1.5**
**booked transport service**
agreement to carry goods in a specified manner between specified origin and destination locations

Note 1 to entry: For a cargo service this would be accompanied by the cargo unit's gross mass (in (kg) or (tonne)) and the distance between dispatching and receiving locations (indicated as zip codes, IATA codes, UN LoCodes or geo data) carried on the various chosen means of transport.



**3.1.6**
**carbon dioxide equivalent**
**$CO_2e$**
$CO_2e$ (also written as carbon dioxide equivalent, $CO_2$ equivalent or $CO_2eq$) is a metric measure that is used to compare emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of $CO_2$

[SOURCE: Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Carbon_dioxide_equivalent]

**3.1.7**
**carbon offsetting**
mechanism for compensating for carbon emissions of a process through the prevention of the release of, reduction in, or removal of, an equivalent amount of GHG emissions outside the boundary of that process, provided such prevention, removal or reduction are quantified, permanent and additional to a business-as-usual scenario

[SOURCE: EN ISO 14067:2018, 3.1.1.7, modified]

**3.1.8**
**cargo**
collection / quantity of goods (carried on a means of transport) transported from one place to another

Note 1 to entry: Cargo can consist of either liquid or solid materials or substances, without any packaging (e.g. bulk cargo), or of loose items of unpacked goods, parcels, unitised goods (on pallets or in containers) or goods loaded on transport units and carried on active means of transport.

[SOURCE: EN 14943:2005, 3.151, modified]

**3.1.9**
**collection and delivery round**
journey normally, but not necessarily, starting and ending at the same location, with the purpose to collect and/or deliver one or more consignment/parcel in different locations during the course of the journey

**3.1.10**
**consignment**
separately identifiable amount of *freight or parcel* transported from one consignor to one consignee via one or more modes of transport

Note 1 to entry: Although consignment and shipment are common terms often considered as synonyms, in this document and other technical publications, a consignment is differentiated to a shipment. Indeed, a shipment refers to a grouping of freight corresponding to the shipper needs, whereas a consignment refers a grouping of freight according to a carrier or freight forwarder's transport solutions.

[SOURCE: EN ISO 14064-3:2019, modified]



**3.1.11**
**distance**
distance between two locations (origin, destination) that could either be actual distance covered or network or planned distance

**3.1.11.1**
**actual distance**
distance along the actual route taken by a vehicle



Note 1 to entry: Distance measured by an on-board device (odometer)

**3.1.11.2**
**network distance**
distance between two locations where there is a strict limitation in the possible routes due to the available infrastructure options

**3.1.11.3**
**planned distance**
distance of the shortest route between two locations according to the respective infrastructure and operational constraints for the journey and transport modes

**3.1.11.4**
**shortest feasible distance**
**SFD**
DEPRECATED: planned distance, network distance

transport distance (3.1.27) determined as the distance achievable by the shortest practical route available according to the infrastructure options for a particular vehicle (3.1.35) type

Note 1 to entry: "Shortest practical route" implies that small detours from the shortest distance, for example to avoid congested city centres or rural roads unsuitable for certain vehicle (3.1.34) sizes, can be included.

**3.1.12**
**empty trip**
section of the route of a vehicle during which no freight or parcel is transported

EXAMPLE (Re)positioning trips and empty backhauls are examples of empty trips.

**3.1.13**
**energy**
electricity, fuels, steam, heat, compressed air and other similar media

Note 1 to entry: For the purposes of this document, energy refers to the various types of energy, including renewable, which can be purchased, stored, treated, used in an equipment or in a process, or recovered.

[SOURCE: EN ISO 50001:2018, 3.5.1]



**3.1.14**
**energy carrier**
substance or phenomenon that can be used to transfer energy or to operate chemical or physical processes

EXAMPLE Such as electricity, combustible fuels, steam, heat and compressed air.

[SOURCE: ISO 13600:1997, 2.5, modified — EXAMPLE has been added.]



**3.1.15**
**energy consumption**
quantity of energy applied

[SOURCE: EN ISO 50001:2018, 3.5.2]

**3.1.16**
**energy factor**
factor relating activity data to energy consumption

**3.1.17**
**energy provision emissions**
GHG emissions released to atmosphere during the process of producing, storing, processing and distributing an energy carrier for an equipment or vehicle operation

**3.1.18**
**freight**
goods being transported from one location to another

EXAMPLE Examples of goods are materials, commodities, parcels, etc.

[SOURCE: EN 14943:2005, 3.437, modified — EXAMPLE has been added.]

**3.1.19**
**fuel consumption**
quantity of fuel (as an energy carrier) used

Note 1 to entry: For reasons of simplification, this definition includes all energy carriers, such as electricity.

Note 2 to entry: Fuel consumption should be expressed in most commonly understood units for each type of fuel, whilst respecting scientific principles for accuracy of the calculation; normally this would mean volume (litres or gallons) for liquid fuels, mass for gaseous fuels and kWh for electricity.

Note 3 to entry: For transport using electric traction, the fuel consumption is the total quantity of energy supplied minus any energy returned by the vehicle and subsequently transmitted back to the energy grid or to other vehicles, when vehicles are used as distributed power sources. Energy is returned (to the contact line) when electric traction has regenerative braking or other types of reused energy such as waste heat recovery systems. The energy generated during braking may be stored on the vehicle in question, or in shared systems such as rail transport may be made available to other consumers connected to the contact line.

**3.1.20**
**fuel emission factor**
factors that relate the emissions produced to the amount of a specific fuel that is consumed



Note 1 to entry: Depending on its nature, a fuel may have a factor for both operational and energy provision.

Note 2 to entry: Depending on the production process, what are nominally the same fuels at point of use may have different energy provision emission factors.

Note 3 to entry: Fuel emission factors should include both emissions that result from the feedstock production, transformation and distribution processes and, where applicable (e.g. some biofuels), a consequential approach to induced land use change.

Note 4 to entry: See Annex A for details on Energy and Emissions Factors.

**3.1.21**
**global warming potential**
**GWP**
index, based on radiative properties of GHGs (3.1.22), measuring the radiative forcing following a pulse emission of a unit mass of a given GHG in the present-day atmosphere integrated over a chosen time horizon, relative to that of carbon dioxide ($CO_2$)

[SOURCE: EN ISO 14064-1:2019, modified]