

## Origin and destination

*Distance, addresses, postcodes, port and terminal codes, geocoordinates*

# Colophon

## ***Guideline 3 - Origin and destination***

*Distance, addresses, postcodes, port and terminal codes, geocoordinates*

*Carbon Footprint in logistics*

January 2021

© Connekt

## **Connekt/Topsector Logistiek**

Ezelsveldlaan 59

2611 RV Delft

+31 15 251 65 65

info@connekt.nl

www.connekt.nl

# Origin and destination

## Distance, addresses, postcodes, port and terminal codes, geocoordinates

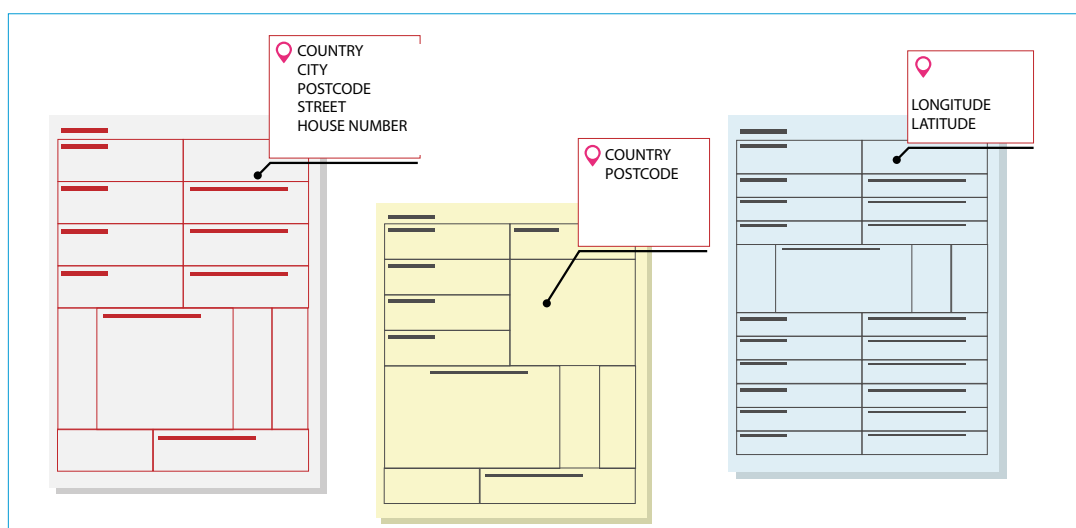
This guideline deals with the standard for indicating the place of origin and the destination: the location where the cargo is collected and where it is delivered. In practice, there are many different ways of specifying these details. They can usually be used for calculations without any further processing.

When it comes to allocating emissions to a cargo, it is not only the quantity that counts, but also the distance over which the cargo needs to be transported: the order. This distance is not always the same as the distance driven or sailed: a transporter may make detours to deliver another cargo as part of the same trip.



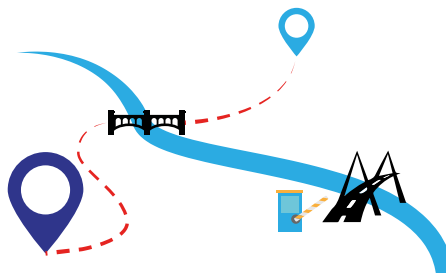
The customer wants the cargo to be moved from its place of origin to its destination. The easiest and purest measure of this distance is the greatcircle distance between the place of origin and the destination of this specific order.

To calculate the great-circle distance, only the geocoordinates (longitude and latitude) of the place of origin and destination are required. In practice, all kinds of different methods are used to specify locations: addresses, postcodes, cities, terminal codes, etc. These can be found on the transport orders (CMR, consignment note).

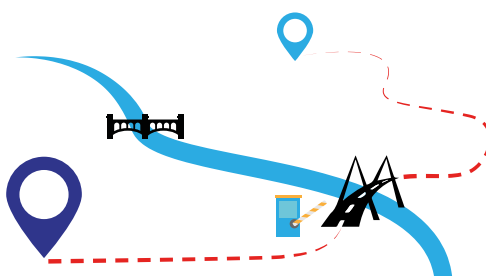


It is very straightforward for software to translate locations into geocoordinates and then perform the calculation. This calculation can therefore be checked easily by auditors.

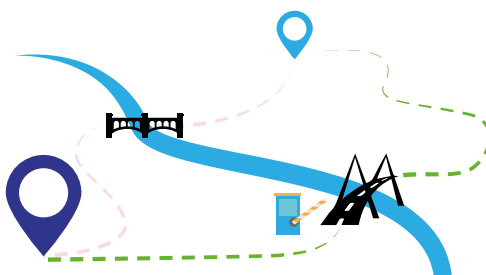
In methods such as GLEC other distances are also permitted as a measure of the useful distance

**Shortest feasible distance**

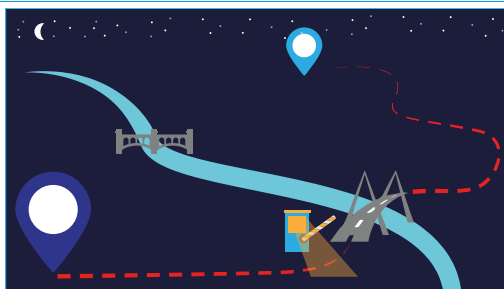
*Takes physical obstacles and infrastructure (mountains, rivers, etc.) into account.*

**Shortest planned distance**

*Takes the most effective route according to the schedule into account.*

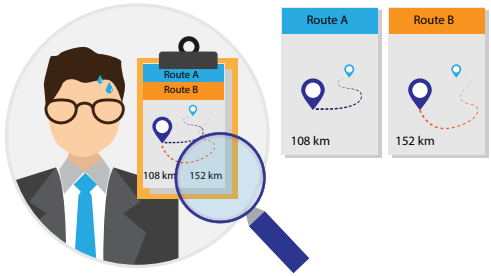
**Actual distance**

*What has been driven in practice.*

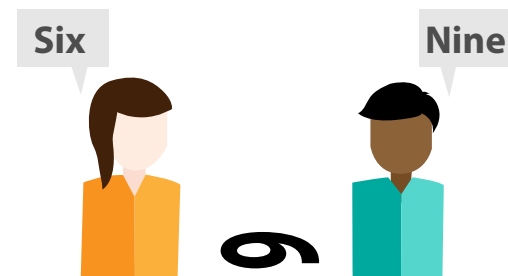
**Quickest distance**

*Takes the types of roads and traffic flow into account.*

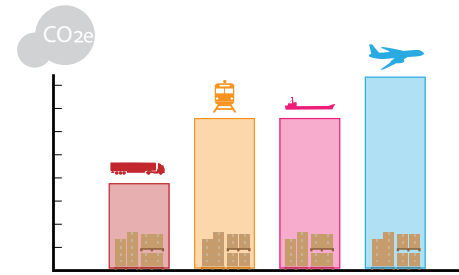
The disadvantages of these other methods of handling distance are:



They are more difficult for auditors to check.

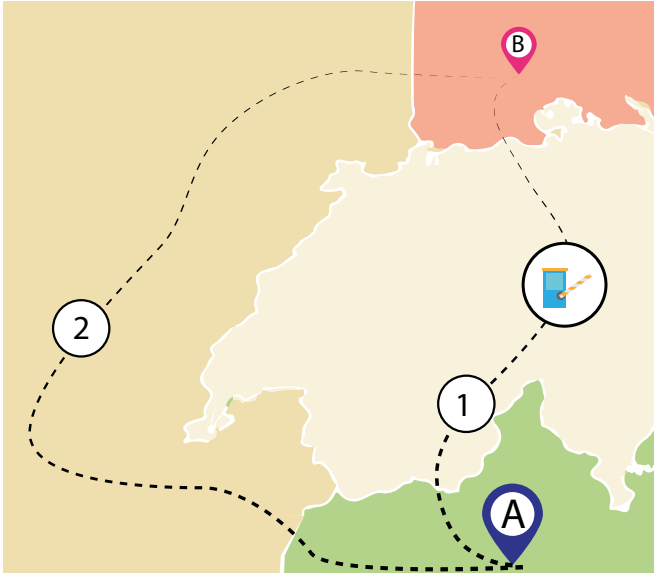


The outcome is more difficult to compare with others and more open to interpretation.




The outcome depends on the mode of transport used (road, rail, inland shipping, air). As the network distances between a place of origin and a destination differ from one mode to another, comparing the various options becomes a very onerous task, unless the transportation distance is taken as a measure for the allocation, in which case the comparison can be made very directly.

Example



1

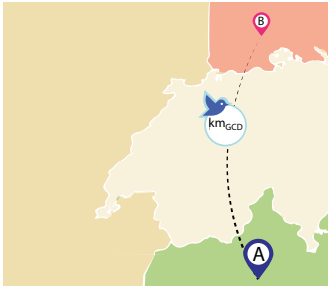
 ROUTE 1  
900 KM

2

ROUTE 2  
1200 KM

To give an example: is the most effective route to go straight through Switzerland (with a toll to pay, 900 km) or to go around it (no toll to pay, 1200 km)?

This gives rise to discussion and differences of interpretation, particularly if you look at the efficiency of the transport: in both examples, the journey will be made with a full truck, and the emissions per ton.km will be the same. In absolute terms, however, the longer route generates more emissions per ton.



If great-circle distances are used, the difference is immediately visible. That is not to say that the route around Switzerland is wrong. That is a decision for the customer and the transporter to make together. The effect of that decision is visible, however, if transportation distances are used for the allocation.




When allocated emissions are reported an indication must be given of the chosen measure of distance. In these guidelines preference is given to the transportation distance.

Location indication - cities


A list of location indicators is provided below. Software can easily convert each of these location indicators to geocoordinates. These geocoordinates can then be used to calculate the transportation distance (great-circle distance) using software.

| Input data format - Location: cities |                     |            |                         |                                   |                           |                            |                    |                            |
|--------------------------------------|---------------------|------------|-------------------------|-----------------------------------|---------------------------|----------------------------|--------------------|----------------------------|
| Order number                         | Fuel period (month) | Date       | Quantity (cubic meters) | Departure location - country code | Departure location - city | Destination - country code | Destination - city | Customer/recipient (group) |
| 1                                    | January             | 01/01/2019 | 22                      | NL                                | ROTTERDAM                 | NL                         | UTRECHT            | Customer A                 |
| 2                                    | January             | 01/01/2019 | 28                      | NL                                | AMSTERDAM                 | NL                         | ROTTERDAM          | Customer B                 |
| 3                                    | January             | 01/01/2019 | 23                      | NL                                | UTRECHT                   | NL                         | AMSTERDAM          | Customer C                 |
| 4                                    | January             | 01/01/2019 | 30                      | NL                                | ROTTERDAM                 | NL                         | UTRECHT            | Customer D                 |
| 5                                    | January             | 01/01/2019 | 29                      | NL                                | AMSTERDAM                 | NL                         | ROTTERDAM          | Customer E                 |



COUNTRY  
CITY

Cities/villages (country, name of city):  
the middle of the city is taken as the location.

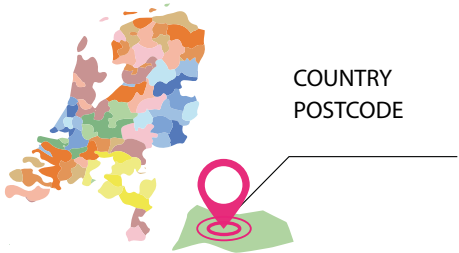


COUNTRY  
CITY  
POSTCODE  
STREET  
HOUSE NUMBER

Complete addresses:  
country, city, postcode, street, house number.

Location indication - postcode

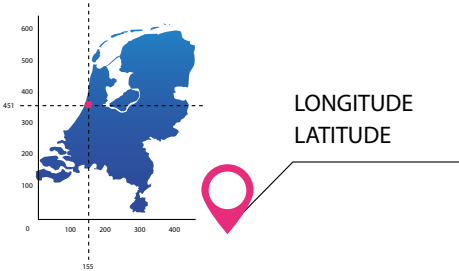
| Input data format - Location: postcode |                     |                             |                           |            |                    |                                   |                               |                            |                        |                            |
|--|---------------------|-----------------------------|---------------------------|------------|--------------------|-----------------------------------|-------------------------------|----------------------------|------------------------|----------------------------|
| Order number                           | Fuel period (month) | Energy consumption location | Energy consumption period | Date       | Quantity (pallets) | Departure location - country code | Departure location - postcode | Destination - country code | Destination - postcode | Customer/recipient (group) |
| 1223344                                | November            | 1                           | January                   | 05/11/2019 | 12                 | NL                                | 6042                          | NL                         | 7049                   | Customer A                 |
| 1334455                                | November            | 2                           | January                   | 05/11/2019 | 14                 | NL                                | 6042                          | NL                         | 7051                   | Customer B                 |
| 1445566                                | November            | 3                           | January                   | 05/11/2019 | 22                 | NL                                | 6042                          | NL                         | 6633                   | Customer C                 |
| 1556677                                | November            | 1                           | January                   | 06/11/2019 | 24                 | NL                                | 6042                          | NL                         | 1122                   | Customer D                 |
| 1778899                                | November            | 2                           | January                   | 06/11/2019 | 21                 | NL                                | 6042                          | NL                         | 3344                   | Customer E                 |



**Postcodes (country, postcode):**  
the middle of the postcode area is taken as the location.

Location indication - geocoordinates

| Input data format - Location: geocoordinates |                 |                         |                     |            |                 |                   |                    |                        |                         |                            |
|--|-----------------|-------------------------|---------------------|------------|-----------------|-------------------|--------------------|------------------------|-------------------------|----------------------------|
| Order number                                 | Mode            | Registration/vehicle ID | Fuel period (month) | Date       | Quantity (tons) | Latitude - origin | Longitude - origin | Latitude - destination | Longitude - destination | Customer/recipient (group) |
| 1  | Trucks          | 1-AAA-11                | January             | 01/01/2017 | 10              | 3.70              | 51.05              | 4.04                   | 51.50                   | Customer A                 |
| 2  | Inland shipping | Ship 123                | January             | 01/01/2017 | 10              | 9.34              | 78.14              | 9.04                   | 10.12                   | Customer B                 |
| 3  | Trucks          | 3-CCC-33                | January             | 01/01/2017 | 30              | 3.80              | 51.11              | 4.06                   | 51.52                   | Customer C                 |
| 4  | Trucks          | 1-AAA-11                | January             | 01/01/2017 | 30              | 3.85              | 51.14              | 4.07                   | 51.53                   | Customer D                 |
| 5  | Inland shipping | Ship 123                | January             | 01/01/2017 | 30              | 9.34              | 78.14              | 9.04                   | 10.12                   | Customer E                 |




**Geocoordinates:**  
(longitude and latitude).



Location indication - IATA

**Input data format - Location: IATA**

| Order number | Date       | Quantity<br>(cubic<br>meters) | IATA<br>code -<br>origin | IATA<br>code -<br>destination | Customer/<br>recipient<br>(group) | Emissions<br>(Kg CO <sub>2e</sub> ) |
|--------------|------------|-------------------------------|--------------------------|-------------------------------|-----------------------------------|-------------------------------------|
| 1            | 05/11/2019 | 4                             | ANW                      | AAF                           | Customer A                        | 8.10                                |
| 2            | 05/11/2019 | 12                            | AMS                      | RTM                           | Customer B                        | 8.20                                |
| 3            | 05/11/2019 | 7                             | AAB                      | AAF                           | Customer C                        | 8.30                                |
| 4            | 05/11/2019 | 4                             | AMS                      | RTM                           | Customer D                        | 8.40                                |
| 5            | 05/11/2019 | 10                            | AAB                      | AAF                           | Customer E                        | 8.50                                |



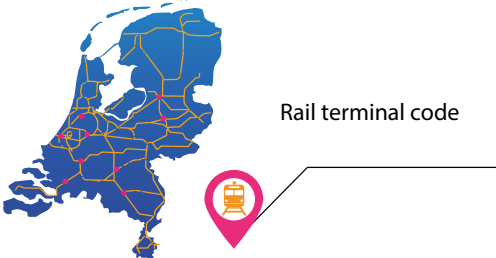
IATA CODE

**Airport code:**  
IATA.

Location indication - rail terminals

**Input data format - Location: rail terminals**

| Order number | Transporter   | Fuel<br>period<br>(year) | Date       | Quantity<br>(tons) | Rail terminal -<br>origin          | Rail terminal -<br>destination | Customer/<br>recipient<br>(group) |
|--------------|---------------|--------------------------|------------|--------------------|------------------------------------|--------------------------------|-----------------------------------|
| 1            | Transporter A | 2017                     | 04/11/2019 | 10                 | AT - Container Terminal<br>Bludenz | AT - Kopfenberg                | Customer A                        |
| 2            | Transporter A | 2017                     | 04/11/2019 | 20                 | AT - Container Terminal<br>Bludenz | AT - Railport Salzburg         | Customer B                        |
| 3            | Transporter A | 2017                     | 04/11/2019 | 30                 | AT - Container Terminal<br>Bludenz | AT - Kopfenberg                | Customer C                        |
| 4            | Transporter A | 2017                     | 04/11/2019 | 40                 | AT - Container Terminal<br>Bludenz | AT - Railport Salzburg         | Customer D                        |
| 5            | Transporter A | 2017                     | 04/11/2019 | 50                 | AT - Container Terminal<br>Bludenz | AT - Kopfenberg                | Customer E                        |



Rail terminal code

**Rail terminal code.**

Location indication - maritime terminals

| Input data format - Location: UN/LOCODE |                 |            |                 |                    |                        |                         |                             |                             |                                  |
|---|-----------------|------------|-----------------|--------------------|------------------------|-------------------------|-----------------------------|-----------------------------|----------------------------------|
| Order number                            | Mode            | Date       | Quantity (tons) | UN/LOCODE - origin | Terminal code - origin | UN/LOCODE - destination | Terminal code - destination | Customer/ recipient (group) | Emissions (Kg CO <sub>2e</sub> ) |
| 1                                       | Trucks          | 05/11/2019 | 22              | ATENA              | OENNS                  | ATKRE                   | OOMER                       | Customer A                  | 8.10                             |
| 2                                       | Inland shipping | 05/11/2019 | 22              | ATENA              | OENNS                  | ATLNZ                   | OOMER                       | Customer B                  | 8.20                             |
| 3                                       | Trucks          | 05/11/2019 | 21              | ATENA              | OENNS                  | ATVIE                   | OWIEW                       | Customer C                  | 8.30                             |
| 4                                       | Inland shipping | 05/11/2019 | 28              | ATENA              | OENNS                  | BEANR                   | OWIEK                       | Customer D                  | 8.40                             |
| 5                                       | Trucks          | 05/11/2019 | 28              | ATENA              | OENNS                  | BEZEE                   | OOMER                       | Customer E                  | 8.50                             |



UN/LOCODE

**Maritime terminal codes :**  
UN/LOCODE.



UN/LOCODE extended

**Inland shipping terminal codes container:**  
UN/LOCODE extended.

**Inland shipping terminal codes bulk:**  
UN/LOCODE addition\*  
\* in development

# Carbon Footprint guidelines

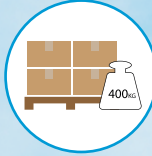
0. Measuring, calculating, allocating and reducing



1. Allocating



2. Cargo



3. Origin and destination



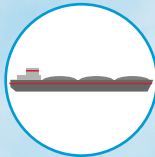
4. Fuel



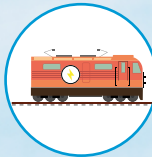
5. Inland shipping - containers



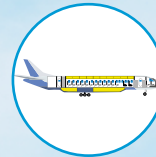
6. Inland shipping - bulk



7. Freight transport by rail



8. Air freight



9. Maritime and short sea shipping



10. Transshipment



11. Storage



12. Parcel transport and post



13. General road transport



14. Perishable and temperature controlled



15. Outsourced transport



16. Repositioning and empty kilometers



17. (Inter)national supply chains



18. Benchmarking



19. Intermediaries and platforms



20. Auditors and accountants



21. Data quality



22. The relationship between social goals and corporate goals

