EcoTransIT World

EcoTransIT World (Ecological Transport Information Tool for Worldwide Transports) calculates the environmental impacts for any freight transport service. EcoTransIT World provides energy consumption and GHG Emissions for trucks, trains, ships and airplanes in accordance with the European standard EN 16258:2012. Additionally carbon dioxide (CO2) and the most important air pollutants (nitrogen oxide, non-methane hydrocarbons, sulfur dioxide and particulates) can be calculated with EcoTransIT World. Below you will find all information about your transport service selected and data sources used as well as the results of your calculation.

General Information

Creation Date: 26.02.2023
Origin: [City district] [dk] Aarhus
Destination: [City district] [es] Sevilla
Cargo weight: 24 ton (t/TEU: 14.5)

Detailed description of the calculated transport services

Transport service TS 1 - 2,934.89 km

Origin: [City district] [dk] Aarhus
Truck (20-26 t,diesel,EURO 6,LF: 100.0%,ETF: 0%) - 2,934.89 km
Destination: [City district] [es] Sevilla

Energy consumption and greenhouse gases (GHG) in accordance with EN 16258

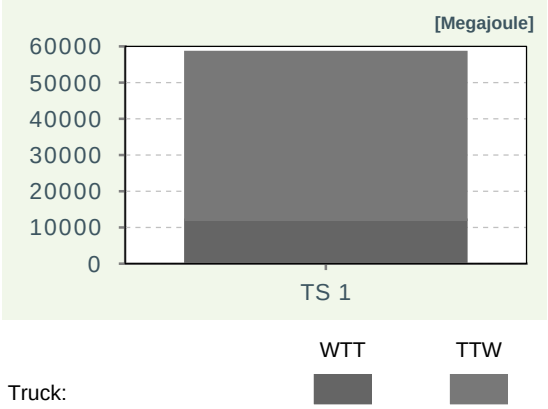
Energy consumption

WTW [Megajoule]

	TS 1
Truck	58,429
Sum	58,429

TTW [Megajoule]

	TS 1
Truck	46,295
Sum	46,295



Well-to-Wheel (WTW) = Well-to-Tank (WTT) + Tank-to-Wheel (TTW)

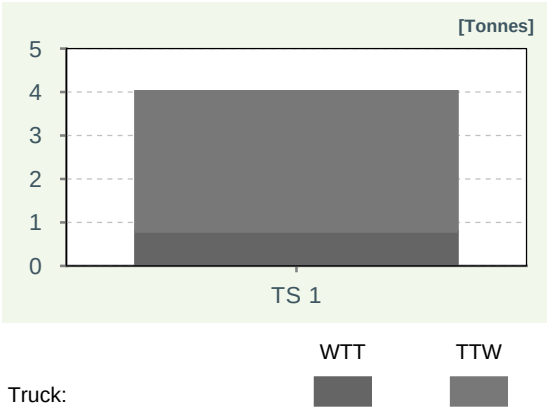
GHG emissions (calculated as CO2 equivalents)

WTW [Tonnes]

	TS 1
Truck	4
Sum	4

TTW [Tonnes]

	TS 1
Truck	3
Sum	3



Well-to-Wheel (WTW) = Well-to-Tank (WTT) + Tank-to-Wheel (TTW)

These four results (TTW and WTW energy consumption and TTW and WTW GHG emissions) have been established according to the standard EN 16258:2012. Please consult this standard to get further information about processes not taken into account, guidelines and general principles. If you wish to make comparisons between these results and other results calculated in accordance with this standard, please take particular care to review the detailed methods used, especially allocation methods and data sources.

Your selected parameters for the calculation of energy consumption and greenhouse gas emissions (GHG emissions) in EcoTransIT World are displayed above in the detailed description of the transport services. The energy and GHG conversion factors (e.g. MJ or kg CO2 equivalent per litre diesel) for the EcoTransIT World calculation are taken from the appendix A of the standard EN 16258 without changes. For European trucks a biofuel share of 5 % is considered for diesel. For train transports the European standard does not contains specific energy and GHG conversion factors. Therefore EcoTransIT World uses own country specific conversion factors which are documented within the methodology report [http://www.ecotransit.org/basis.en.html].

For the allocation of energy consumption and GHG emissions to the individual transport services the parameter tonne-kilometre (tkm) is used. But the European standard allows also other allocation parameters if this is common for the transport mode considered. EcoTransIT World uses deviant allocation parameters for container ships (TEU-km) and ferries (number of decks and vehicle length). All data sources used for the calculation are documented at the appendix of this document. A comprehensive documentation of all data sources and default values aew used for EcoTransIT World as well a detailed description of the methodology can be found in the scientific methodology report [http://www.ecotransit.org/basis.en.html].

Carbon emissions and air pollutants

The European standard EN 16258 does not contain methodological guidelines for the calculation of CO2 and air pollutants. For comparability with the results for energy consumption and GHG emissions the calculation of CO2 and air pollutants is based on the same methodology as the European standard. Further information about the calculation approach used by EcoTransIT World for CO2 and air pollutants can be found in the scientific methodology report [http://www.ecotransit.org/basis.en.html].

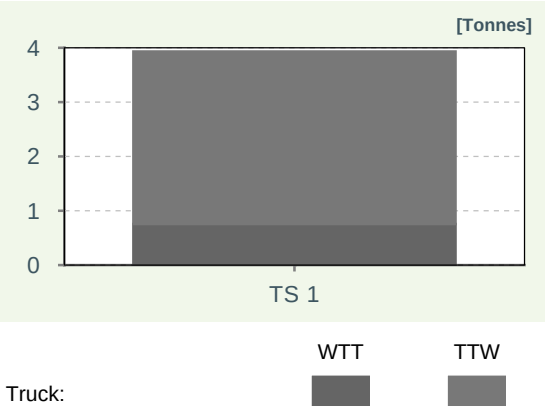
Carbon dioxide (CO2)

WTW [Tonnes]

	TS 1
Truck	4
Sum	4

TTW [Tonnes]

	TS 1
Truck	3
Sum	3



Well-to-Wheel (WTW) = Well-to-Tank (WTT) + Tank-to-Wheel (TTW)

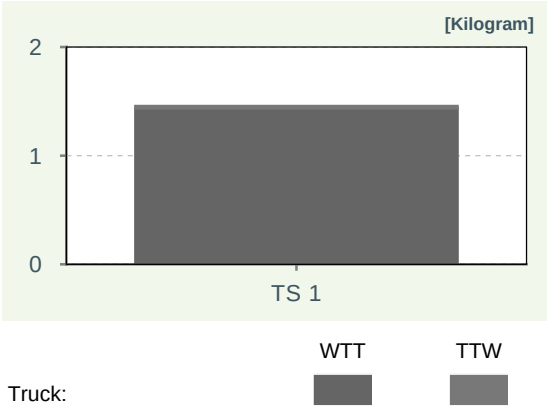
Sulfur dioxide (SO2)

WTW [Kilogram]

	TS 1
Truck	1
Sum	1

TTW [Kilogram]

	TS 1
Truck	0.02
Sum	0.02



Well-to-Wheel (WTW) = Well-to-Tank (WTT) + Tank-to-Wheel (TTW)

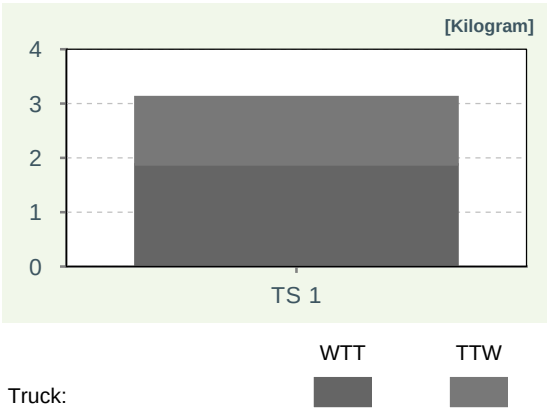
Nitrogen oxides (NOx)

WTW [Kilogram]

	TS 1
Truck	3
Sum	3

TTW [Kilogram]

	TS 1
Truck	1
Sum	1



Well-to-Wheel (WTW) = Well-to-Tank (WTT) + Tank-to-Wheel (TTW)

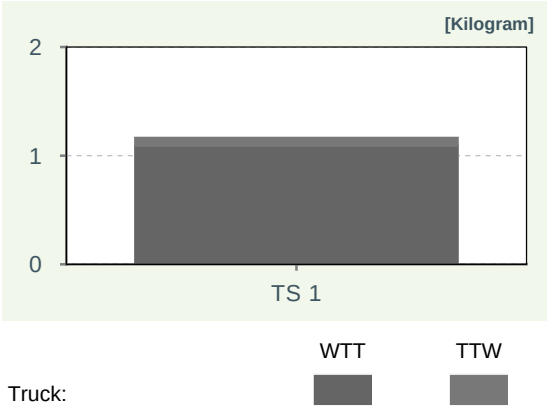
Non-methane hydrocarbon (NMHC)

WTW [Kilogram]

	TS 1
Truck	1
Sum	1

TTW [Kilogram]

	TS 1
Truck	0.07
Sum	0.07



Well-to-Wheel (WTW) = Well-to-Tank (WTT) + Tank-to-Wheel (TTW)

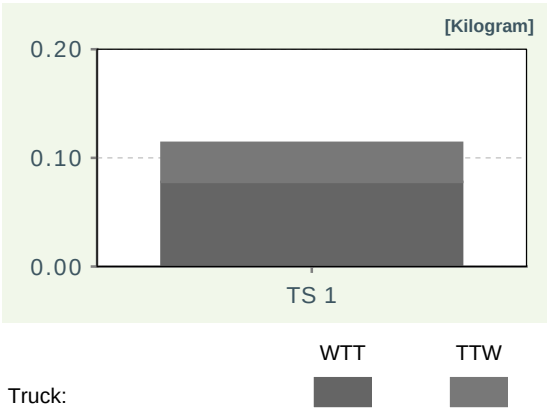
Particulate matter (PM10)

WTW [Kilogram]

	TS 1
Truck	0.1
Sum	0.1

TTW [Kilogram]

	TS 1
Truck	0.04
Sum	0.04



Well-to-Wheel (WTW) = Well-to-Tank (WTT) + Tank-to-Wheel (TTW)

EcoTransIT World entries

Input mode:	Extended
Ferry routing:	Normal
Version ETW:	Unknown (Unknown)
Version data base:	etw_db_2022r6v1 (2023-02-26 12:33:15.000)

Appendix: Documentation of the data sources used (in accordance with EN 16258)

The following table summarizes in accordance with the standard EN 16258 the data categories (individual measured values, specific value of the shipper, fleet values of the shipper, default values) and data sources of default values used. A detailed description of the methodology, the data sources and the default values can be found in the scientific methodology report [http://www.ecotransit.org/basis.en.html]. If the user changed the default values of EcoTransIT World, it will be shown at the following table as Customer specific values.

	Truck	Train	Barge	Sea ship	Ferry	Airplane
General information						
Freight details: Weight, Unit, Amount TEU, t/TEU	Customer specific values	Customer specific values	Customer specific values	Customer specific values	Customer specific values	Customer specific values
Transport distance	Calculated with EcoTransIT (consideration of street type and topography)	Calculated with EcoTransIT (consideration of traction type, topography and line type)	Calculated with EcoTransIT (port-to-port distance, consideration of inland waterway classes)	Calculated with EcoTransIT (port-to-port distance, consideration of canal sizes)	Calculated with EcoTransIT (port-to-port distance)	Calculated with EcoTransIT (airport-to-airport distance)
Transport mode specific data						
Emission standards	Country specific emission standards based on analyses of ETW	No differentiation on emission standards (at diesel traction)	No differentiation on emission standards	No differentiation on emission standards	No differentiation on emission standards	Emission standard depends indirectly from the plane type
Load factor	Assumptions based on statistical data	Based on data from European railway companies	Assumptions based on statistical data	Based on data from UNCTAD Maritime Reviews	Assumptions based on statistical data	Data based on International Civil Aviation Organisation, DEFRA und aviation companies
Empty trip factor	Customer specific values	Based on data frin European railway companies	Empty trips are considered within the load factor	No empty trips	No empty trips	No empty trips
Maximum payload	Europe: Handbook Emission Factors for Road Transport (HBEFA 3.2); USA: Department of Transport; Other countries: Application of HBEFA values	Results directly from the train type, based on the data of European railway companies	Vessel type depends on the river type and is automatically selected by ETW	Ship type depends on trade lane and is automatically selected by ETW	Data from Network for Transportation and Environment (NTM)	Based on specifications from IATA
Miscellaneous		Traction type: Electrified (Calculated by ETW according to the selected route)		Speed reduction: Analyses based on data from searate.com		Mix Bellyfreight/ freigter based on data from IATA

	Truck	Train	Barge	Sea ship	Ferry	Airplane
Fuel consumption						
Specific energy consumption (Diesel, Heavy fuel oil, Kerosene, Electricity)	Europe: Handbook Emission Factors for Road Transport (HBEFA 3.2), USA: Motor Vehicle Emission Simulator (MOVES), Other countries: Application of HBEFA values	Europe: Based on data of European railway companies; train types outside Europe: literature review	Based on own ETW calculation (compare methodology report)	Based on own ETW calculation (compare methodology report)	Average of the applied ferry type	Data from Small Emitters Tool of Eurocontrol
Share of biofuel	Europe: 5% biofuel content in conventional diesel; outside of Europe: biofuels aren't considered	no biofuel	no biofuel	no biofuel	no biofuel	no biofuel
Energy and GHG emission factors	EN 16258	Diesel: EN 16258 Electricity: ETW calculated based on Ecoinvent	EN 16258	EN 16258	EN 16258	EN 16258