

CO₂

E-MISSION TEAM



Kris Schildermans
VOLVO CARS

Zuzana Tryznova
CEVA / GEFCO

Gyula Bodo
LAGERMAX

Tibor Török
VEGA INT. CAR
TRANSPORT

Sebastiano Cirnigliaro
GRIMALDI
GROUP

Maximilian Mierzwa
WALLENIUS
WILHELMSSEN

OUR GOAL



The primary unit for the quantity of freight shall be mass. It may be accompanied by a complementary unit, especially if it is directly relevant to the specific TOC or HOC activities and the equipment's physical capacity or throughput, for example volume, twenty-foot equivalent unit (TEU), **number of units** (e.g. parcels, containers,) etc.

➤ Emission /
unit



DATA SOURCE



Tachograph

Fleet Tracking

Fleet Board

Fuel consumption meter



Place

Place

Fuel consumption

Fuel consumption

Odometer

Odometer

Odometer

Time

Time

Time

Time

PRIMARY DATA

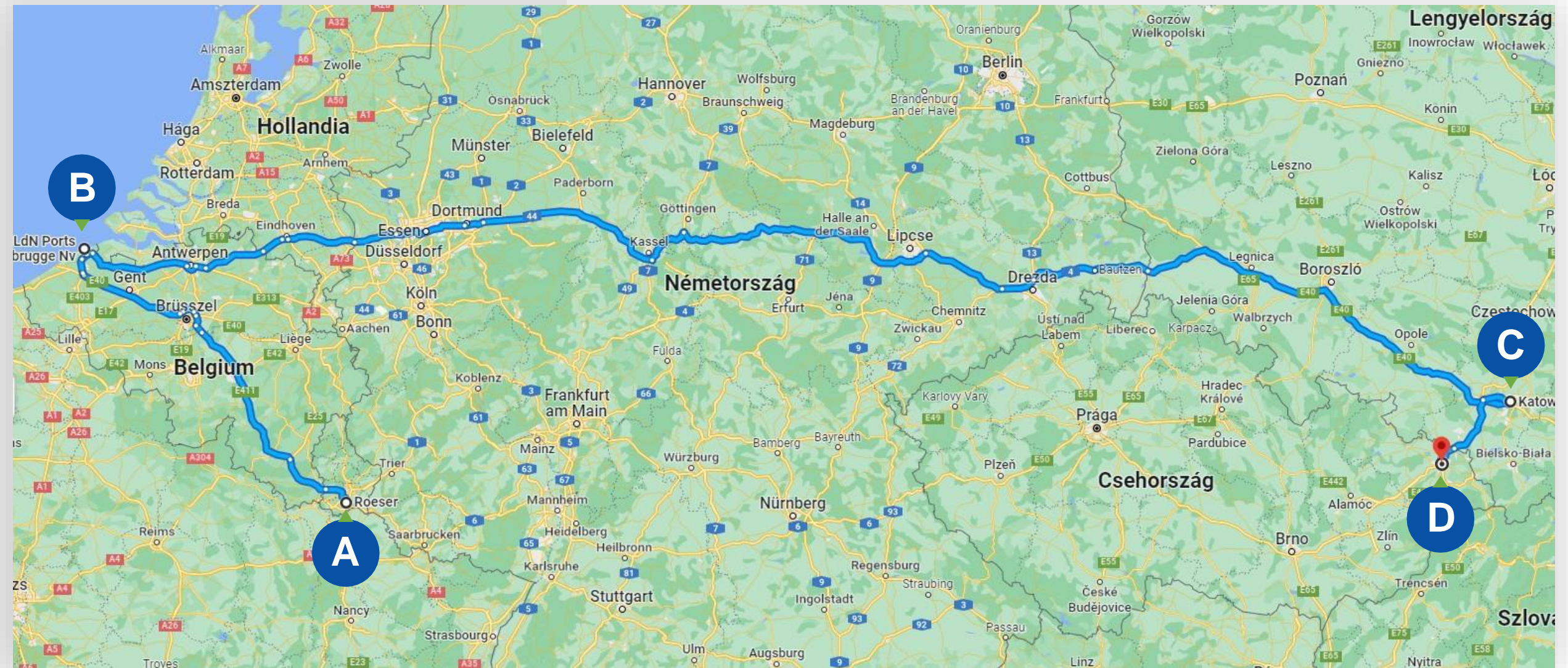
WITHOUT ANY PREVIOUS OPTION



➤ Full tank to full tank.

➤ Average fuel consumption between two filling station.

A	Filling station in L
B	Collection - Zeebrugge
C	Destination – Katowice
D	Filling station in CZ



➤ Secondary data



CALCULATION OF TRANSPORT (ZEEBRUGGE-KATOWICE) GHG EMISSIONS

Average fuel consumption: 31,4 litres / 100 km

Distance: 1276 km

Fuel used: 400,664 liters

QA: liters x density(kg/l)

QA: 400,664 x 0,832 = 333,35kg

Car: 1393 kg

GVO,A: QA×efVO,A

GVO,A: 333,35kg x 3.22 CO₂e/kg = 1073,38 CO₂e/kg = 1 073 387g

1 car = 134 173,37 grams CO₂



CALCULATION OF GHG EMISSION INTENSITY VALUE FOR TOC ZEEBRUGGE-KATOWICE

$$gj\ toc = \frac{Gj, toc}{Ttoc}$$

$$Ttoc = \sum Mi \times si$$

$$Ttoc = 11,144\ tonnes \times 1276\ km = 14\ 219,74$$

$$gj\ toc = \frac{1073387}{14.219,74} = 75,48\ grams\ CO_2/tkm \quad gj\ toc = \frac{grams}{tonne \times km}$$

$$gj\ toc = \frac{Gj, toc}{Ttoc}$$

gj toc= 75,48 grams CO₂/tkm

MULTI-DROPS



Zeebrugge-Katowice, Katowice-Ostrava

Example with 2 drops: Katowice + Ostrava (extra 100 km)



Vehicle A-Katowice	1393 kg	12,50 %	134173,375 grams	Vehicle A				
Vehicle B-Katowice	1393 kg	12,50 %	134173,375 grams	Vehicle B				
Vehicle C-Katowice	1393 kg	12,50 %	134173,375 grams	Vehicle C				
Vehicle D-Ostrava	1393 kg	12,50 %	134173,375 grams	Vehicle D	1393 kg	33,33%	26611,66667 grams	160785,0417
Vehicle E-Ostrava	1393 kg	12,50 %	134173,375 grams	Vehicle E	1393 kg	33,33%	26611,66667 grams	160785,0417
Vehicle F-Ostrava	1393 kg	12,50 %	134173,375 grams	Vehicle F	1393 kg	33,33%	26611,66667 grams	160785,0417
Vehicle D-Katowice	1393 kg	12,50 %	134173,375 grams	Vehicle G				
Vehicle E-Katowice	1393 kg	12,50 %	134173,375 grams	Vehicle H				
Total:	11144 kg			Total:	4179 kg			
Total emission	1073387 grams			Total emission	79835 grams			

ONLINE CALCULATOR

CO₂ calculator

Trip details*

Zeebrugge-Katowice

Please provide the departure and the destination place. (i.e. Zeebrugge-Katowice)

Superstructure*

Kaessbohrer Metago-Intago

Please provide the make of the superstructure. (i.e. Kaessbohrer Metago-Intago or Rolfo FLX etc.)

Average fuel consumption (litres)

*

29,81

Please provide the average fuel consumption.

Distance

*

1240

Please provide the distance in km

Cars

Weight of the 1st car

- 1410 +

Weight of the 3rd car

- 1410 +

Weight of the 5th car

- 1250 +

Weight of the 7th car

- 1630 +

Total weight of the load

12970 kg

Weight of the 2nd car

- 1520 +

Weight of the 4th car

- 1680 +

Weight of the 6th car

- 1870 +

Weight of the 8th car

- 2200 +

ONLINE CALCULATOR

Summary

Total CO2 Emission

990,29106176 kg

Total intensity value

61,57454309946029 grams CO2 / tkm

Emissions

The CO2 emissions allocated to the 1st car

107,65693115509639 kg

The CO2 emissions allocated to the 2nd car

116,05569883386278 kg

The CO2 emissions allocated to the 3rd car

107,65693115509639 kg

The CO2 emissions allocated to the 4th car

128,27208818479568 kg

The CO2 emissions allocated to the 5th car

95,44054180416346 kg

The CO2 emissions allocated to the 6th car

142,77905053902853 kg

The CO2 emissions allocated to the 7th car

124,45446651262915 kg

The CO2 emissions allocated to the 8th car

167,9753535753277 kg

Submit





RESULTS

RESULTS

Car	Weight (kg)	LF		
Weight of the 1st car	1920	8	Trip details	Koper-Budaörs
Weight of the 2nd car	1920	8	Superstructure	Metago-Intago
Weight of the 3rd car	1550	8	Avarage fuel consumption (litres)	33.37
Weight of the 4th car	1550	8	Distance	577
Weight of the 5th car	1550	8	Total CO2 Emission	515.8354888959999 kg
Weight of the 6th car	1550	8	Total intensity value	68.03619847792997 grams CO2 / tkm
Weight of the 7th car	1550	8	Total weight of the load	13140 kg
Weight of the 8th car	1550	8		
Weight of the 1st car	1686	3	Trip details	Koper-Budaörs
Weight of the 2nd car	1686	3	Superstructure	Metago-Intago
Weight of the 3rd car	2200	3	Avarage fuel consumption (litres)	33.42
			Distance	607
			Total weight of the load	5572 kg
			Total CO2 Emission	543.4684469760001 kg
			Total intensity value	160.68470351758796 grams CO2 / tkm

SEA TRANSPORT

(ZEEBRUGGE-GDYNIA)



- **Time:**
52,2 hour
- **Fuel consumption:**
 $52,2 \text{ hour} \times 2 \text{ tonnes/hour} = 104,4 \text{ t}$
- **GHG emissions:**
 $104\,400 \text{ kg} \times 3,17 \text{ (MGO-CO}_2\text{/kg)}$
 $= 330\,948 \text{ grams CO}_2$
- **Transport Activity:**
 $913 \text{ nautical miles} = 1690.876 \text{ km}$
 $\times (\text{Weight of one small car}) \times 1\,393 \text{ tonnes} \times 900 \text{ (pcs of cars)} = 2\,119\,851,1 \text{ Tkm}$
- **Intensity value:**
 $330\,948 \text{ grams} / 2\,119\,851,1 \text{ tkm} = 156\,118 \text{ grams CO}_2 / \text{Tkm}$

1 car = 367 720 grams CO₂



THANK
YOU

