

Life Cycle Assessment (LCA)

Traffic Beam Barrier



Product information

The Traffic Beam Barrier has become the standard for medium-duty temporary barriers. The patented coupling device and replicable rails make it easy to place and assemble as a system and reduces the risk of exposing workers and others to accidents as assembly can take place from a machine or crane. The barrier exists in two lengths: 1450 mm and 2850 mm.

Table 1: Content declaration of **Traffic Beam Barrier 1450 mm**.

Product components	Weight (kg)
Steel S235	57
Concrete C30	165
Zink coating	3,5
Total	205

Table 2: Product declaration of **Traffic Beam Barrier 2850 mm**.

Product components	Weight (kg)
Steel S235	102
Concrete C30	346
Zink coating	7
Total	435

LCA information

Declared unit: 1 piece of Traffic Beam Barrier 1450 mm and Traffic Beam Barrier 2850 mm.

Reference service life: 30 years.

Geographical scope: Global raw material supply and Swedish sales.

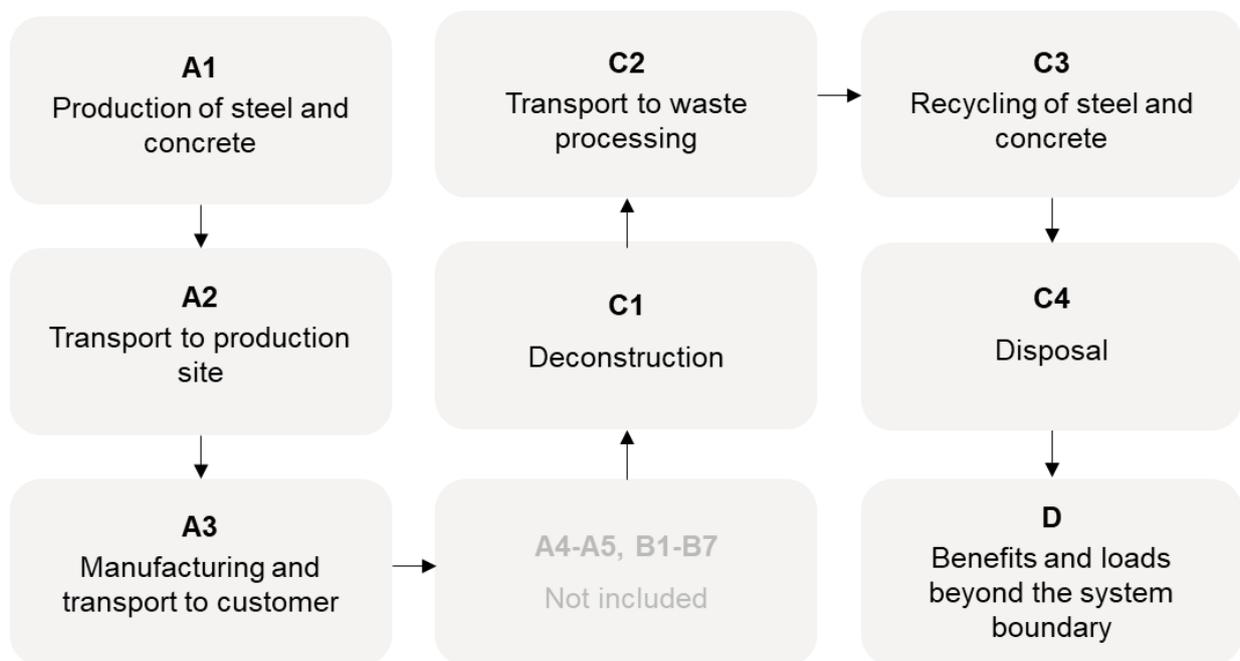
Database and LCA software used: Ecoinvent v3 and SimaPro.

Disclaimer: This LCA has been modelled for production in China, but the barrier is also produced in Poland and therefore the environmental impacts might be slightly lower than presented in this LCA.

System boundaries

Description of system boundaries: The choice of system boundaries is based on the obligatory modules for construction products according to EN 15804.

Figure 1: Visualization of the system boundaries.



Production stage (A1-A3)

This stage includes the extraction of raw materials and production of steel and concrete (A1), transportation to the factory gate and internal transport (A2), manufacturing of products and transport to customer (Ramuddens depots) (A3).

End-of-life stage (C1-C4)

At the end-of-life stage about 90% of the barriers are reused for other purposes. The remaining 10% are recycled which is presented in module C3. This stage also includes transportation of the discarded product to the recycling site and locations for reuse of the product (C2) and pre-treatment of concrete crushing before recycling.

Beyond the system boundaries (D)

This stage includes the avoided production of barriers due to reuse. As there is no specific time limit for how long the barriers can be reused, an assumption was made that they can be reused as long as their technical life length. This was modelled for 90% of the products as that is the share assumed to be reused.

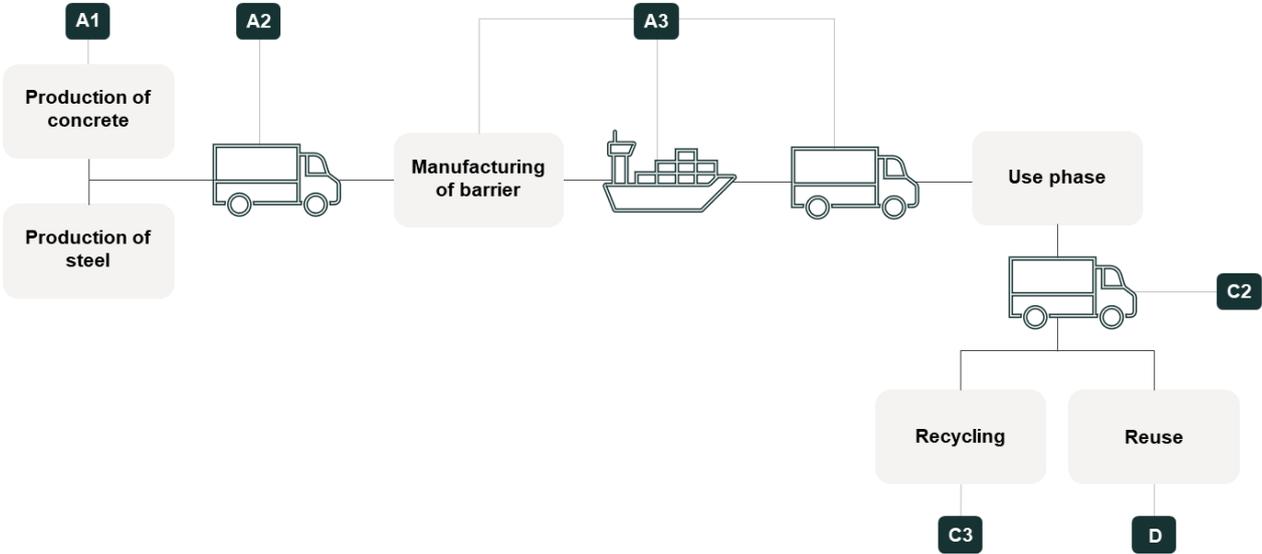
Main environmental impacts

Traffic Beam Barrier 1450 mm

Figure 2: Global warming potential from 1 piece of Traffic Beam Barrier 1450 mm.

Product stage			End-of-life stage				Beyond the system boundaries
A1	A2	A3	C1	C2	C3	C4	D
1,03E+02	1,08E+00	6,00E+01	0,00E+00	1,17E+00	4,30E-01	0,00E+00	- 4,89E+01
Cradle to gate 164 kg CO₂ eq			1,6 kg CO₂ eq				- 48,9 kg CO₂ eq
Cradle to grave 165,6 kg CO₂ eq							- 48,9 kg CO₂ eq
Total global warming potential (A1-D) 116,7 kg CO₂ eq							

Total global warming potential 117 kg CO₂e



Main environmental impacts

Traffic Beam Barrier 2850 mm

Figure 3: Global warming potential from 1 piece of Traffic Beam Barrier 2850 mm.

Product stage			End-of-life stage				Beyond the system boundaries
A1	A2	A3	C1	C2	C3	C4	D
1,98E+02	1,95E+00	1,28E+02	0,00E+00	2,48E+00	7,81E-01	0,00E+00	-9,46E+01
Cradle to gate 328 kg CO₂ eq			3,26 kg CO₂ eq				- 94,6 kg CO₂ eq
Cradle to grave 331 kg CO₂ eq							- 94,6 kg CO₂ eq
Total global warming potential 236 kg CO₂ eq							

**Total Global Warming
Potential 236 kg CO₂e**

Total environmental impact

Traffic Beam Barrier 1450 mm

Table 3: Environmental impacts from Traffic Beam Barrier 1450 mm.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Global warming potential - Fossil	kg CO2 eq	1,64E+02	0,00E+00	1,17E+00	4,30E-01	0,00E+00	-4,88E+01
Global warming potential - Biogenic	kg CO2 eq	1,71E-01	0,00E+00	6,25E-04	4,70E-05	0,00E+00	-8,15E-02
Global warming potential - Land use and LU change	kg CO2 eq	9,01E-02	0,00E+00	4,14E-04	3,73E-05	0,00E+00	-2,81E-02
Global warming potential - Total	kg CO2 eq	1,64E+02	0,00E+00	1,17E+00	4,30E-01	0,00E+00	-4,89E+01
Ozone depletion potential	kg CFC11 eq	1,47E-06	0,00E+00	2,43E-08	6,58E-09	0,00E+00	-2,80E-07
Acidification potential	mol H+ eq	3,01E+00	0,00E+00	2,76E-03	3,88E-03	0,00E+00	-7,37E-01
Eutrophication potential - Freshwater	kg P eq	4,07E-02	0,00E+00	8,22E-05	1,26E-05	0,00E+00	-1,74E-02
Eutrophication potential - Marine	kg N eq	4,83E-01	0,00E+00	7,24E-04	1,80E-03	0,00E+00	-6,35E-02
Eutrophication potential - Terrestrial	mol N eq	1,03E+01	0,00E+00	7,83E-03	1,97E-02	0,00E+00	-2,93E+00
Photochemical ozone formation	kg NMVOC eq	1,41E+00	0,00E+00	4,79E-03	5,87E-03	0,00E+00	-1,61E-01
Abiotic depletion potential - Minerals and metals	kg Sb eq	4,06E-03	0,00E+00	3,26E-06	1,53E-07	0,00E+00	-1,79E-03
Abiotic depletion potential - Fossils fuels	MJ	1,69E+03	0,00E+00	1,75E+01	5,62E+00	0,00E+00	-4,46E+02
Water deprivation potential	m3 depriv.	4,04E+01	0,00E+00	8,35E-02	1,22E-02	0,00E+00	-1,73E+01

“E” means exponent (10^x). For example, 1,64E+02 means 1,64*10² and can be read as 164.

Total environmental impact

Traffic Beam Barrier 2850 mm

Table 4: Environmental impacts from Traffic Beam Barrier 2850 mm

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Global warming potential - Fossil	kg CO2 eq	3,27E+02	0,00E+00	2,48E+00	7,81E-01	0,00E+00	-9,44E+01
Global warming potential - Biogenic	kg CO2 eq	3,98E-01	0,00E+00	1,33E-03	8,53E-05	0,00E+00	-1,89E-01
Global warming potential - Land use and LU change	kg CO2 eq	1,74E-01	0,00E+00	8,78E-04	6,78E-05	0,00E+00	-5,21E-02
Global warming potential - Total	kg CO2 eq	3,27E+02	0,00E+00	2,48E+00	7,81E-01	0,00E+00	-9,46E+01
Ozone depletion potential	kg CFC11 eq	2,98E-06	0,00E+00	5,17E-08	1,19E-08	0,00E+00	-5,31E-07
Acidification potential	mol H+ eq	5,89E+00	0,00E+00	5,85E-03	7,04E-03	0,00E+00	-1,34E+00
Eutrophication potential - Freshwater	kg P eq	7,53E-02	0,00E+00	1,74E-04	2,28E-05	0,00E+00	-3,19E-02
Eutrophication potential - Marine	kg N eq	9,93E-01	0,00E+00	1,54E-03	3,27E-03	0,00E+00	-1,20E-01
Eutrophication potential - Terrestrial	mol N eq	1,98E+01	0,00E+00	1,66E-02	3,58E-02	0,00E+00	-5,28E+00
Photochemical ozone formation	kg NMVOC eq	2,92E+00	0,00E+00	1,02E-02	1,07E-02	0,00E+00	-3,10E-01
Abiotic depletion potential - Minerals and metals	kg Sb eq	7,29E-03	0,00E+00	6,92E-06	2,78E-07	0,00E+00	-3,21E-03
Abiotic depletion potential - Fossil fuels	MJ	3,36E+03	0,00E+00	3,72E+01	1,02E+01	0,00E+00	-8,41E+02
Water deprivation potential	m3 depriv.	7,86E+01	0,00E+00	1,77E-01	2,21E-02	0,00E+00	-3,35E+01

“E” means exponent (10^x). For example, 3,27E+02 means 3,27*10² and can be read as 327.