

Data entry - Mass Limited Truck

1 Specification of the vehicle

Initial mass of vehicle at full load - before ligh-weighing (kg)	40,000
Initial mass of empty vehicle - before ligh-weighing (kg)	14,000
Energy consumption of vehicle per 100 km	
Litres Diesel at full load	40.0
Litres Diesel at below full load	35.0
Percentage biofuel in gasoline or diesel	0%
primary energy for biofuel in MJ/l	20.1
life cycle GHG emissions for biofuel in kgCO2/l	1.46
Mass sensitive fuel consumption (%)	60%
Fuel savings (liter/100km/100kg)	0.129
Life time driving distance (km)	1,200,000
Percentage life time distance at full load	80%

2 Specification of the Component

Component	Tank	
Mass of component (kg)	Aluminium 1442	Steel 2499
Portion of the component (%)		
...gained from aluminium sheet w/o continous heat treatment	100%	
...gained from aluminium sheet with continous heat treatment	0%	
...gained from extruded aluminium	0%	
...gained from forgings	0%	0%
...gained from castings	0%	0%
...produced from untreated flat mild steel		0%
...produced from hot-dip galvanized flat mild steel		0%
...produced from untreated long and special steel		0%
...produced from hot-dip galvanized long and special steel		100%

3 Production stage

Percentage of generated process scrap from forming and machining	5%	5%
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4 Recycled content of final component

Recycled content	Aluminium 50%	Steel 50%
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4 End-of-life stage

Recycling route	Aluminium Dismantling	Steel Dismantling
Total recycling rate	98%	95%

Results- Mass Limited Truck

1 Component information

Type of component	Tank		
Material option	Aluminium		Steel
Mass of the component (kg)	1442.00		2499.00
Mass difference (kg)		1057.00	

2 Car information

Initial car mass - before light-weighting (kg)	40000
Life time driving distance (km)	1,200,000
Average fuel consumption (l/100km)	75
Average natural gas or LPG consumption (Nm3/100km)	0

Fraction of fuel consumption sensitive to the car mass (%)	60%
Fuel savings (litres/100km/100kg)	0.129

3 Recycling Information

Material option	Aluminium		Steel
Recycled content of component	50%		50%
End-of-life recycling rate of component	98%		95%
Credits for end-of-life recycling	48%		45%

4 Non-renewable primary energy for the full life cycle of the component (MJ)

	Aluminium	Steel	Savings (incl. use stage)	Relative savings per kg Al (incl. use stage)
Primary metal supply	100,940	31,612	69,328	
Recycled metal supply	4,013	8,352	-4,339	
From ingot to finished product	24,707	33,586	-8,879	
Use stage	NA	NA	-657,076	-456
Total (cradle to gate)	129,660	73,551	-600,967	-417
Credits for end-of-life recycling	-93,244	-20,934	-72,309	
Total (life cycle)	36,416	52,616	-673,276	-467

5 GHG emissions (carbon footprint) for the full life cycle of the component (kg CO2-equiv.)

	Aluminium	Steel	Savings (incl. use stage)	Relative savings per kg Al (incl. use stage)
Primary metal supply	7,498	2,525	4,973	
Recycled metal supply	233	525	-292	
From ingot to finished product	1,340	2,340	-1,000	
Use stage	NA	NA	-47,856	-33
Total (cradle to gate)	9,071	5,390	-44,175	-31
Credits for end-of-life recycling	-6,989	-1,800	-5,189	
Total (life cycle)	2,082	3,590	-49,364	-34