

Non-GSE - Non-GSE Emission Factor

Table 1: Emission Factor (Except SO₂) of Non-GSE Vehicles

EMFAC Group ^[1]	Description	Average Travelling Speed (km/hr) ^[2]	Euro Emission Standard ^[3]	Fuel Type	Emission (g/km) ^[4]				
					VOC	CO	Nox	PM10	PM2.5
LGV (2.5-3.5t)	Light Goods Vehicles 2.5-3.5t	30	Euro V	Petrol	0.0946	9.3953	0.0231	0.0036	0.0033
LGV (2.5-3.5t)	Light Goods Vehicles 2.5-3.5t	30	Euro V	Diesel	0.0288	0.3753	0.7413	0.0117	0.0108
LGV (>3.5t)	Light Goods Vehicles>3.5t	30	Euro V	Diesel	0.1385	0.4490	1.4956	0.1064	0.0979
HGV (<=15t)	Heavy Goods Vehicles<=15t	30	Euro V	Diesel	0.2522	2.2636	1.5701	0.1866	0.1717
HGV (>15t)	Heavy Goods Vehicles >15t	30	Euro V	Diesel	0.2606	1.0663	2.9899	0.2567	0.2362
PrLB (<3.5t)	Private Light Bus <=3.5t	30	Euro V	Petrol	0.0858	5.5339	0.0324	0.0059	0.0055
PrLB (>3.5t)	Private Light Bus >3.5t	30	Euro V	Petrol	0.0995	10.5039	0.0007	0.0036	0.0034
PrLB (>3.5t)	Private Light Bus >3.5t	30	Euro V	LPG	1.3779	11.6561	0.8709	0.0000	0.0000
PrLB (>3.5t)	Private Light Bus >3.5t	30	Euro V	Diesel	0.1044	0.9479	0.8477	0.2005	0.1845
NFB (6.4t-15t)	Non-franchised Bus 6.4-15t	30	Euro V	Diesel	0.5440	3.6017	3.2492	0.5760	0.5300
NFB (>15t)	Non-franchised Bus >15t	30	Euro V	Diesel	0.2629	3.5338	5.0028	0.4235	0.3896

Note:

[1] Vehicles are classified into each EmFAC group based on their vehicles types, fuel types and weight.

[2] As advised by the operators, the travelling speed of vehicles within airport is around 25-35 km/hr. Hence, 30 km/hr is assumed.

[3] Assume all vehicles would be Euro V with age of 20 years during Year 2031. According to EPD implementation schedule, Euro V would be implemented in Year 2015.

[4] Extracted from EmFAC HK.

Table 2: Fuel Efficiency and SO₂ Emission Factor of Non-GSE Vehicles

Vehicles Group ^[5]	Vehicle Type	Fuel Type	Gross Vehicle Weight (Tonnes)	Fuel Efficiency (L/100km) ^[6]	Fuel Efficiency (km/L) ^[6]	SO ₂ Emission Factor (g/km) ^[7]
V12	Private Bus (Single Deck)	Diesel	-	23.9	4.2	0.0040
V15	Private Light Bus	Diesel	-	16	6.3	0.0026
V17	Private Light Bus	LPG	-	29.7	3.4	0.0652
V32	Light Goods Vehicle	Petrol	>1.9	12.2	8.2	0.0018
V33	Light Goods Vehicle	Diesel	<=2.5	11	9.1	0.0018
V34	Light Goods Vehicle	Diesel	2.51-4	11.3	8.8	0.0019
V35	Light Goods Vehicle	Diesel	4.01-5.5	15.6	6.4	0.0026
V37	Medium Goods Vehicle, Non-Tractors	Diesel	5.51-10	19.3	5.2	0.0032
V38	Medium Goods Vehicle, Non-Tractors	Diesel	10.01-15	25.8	3.9	0.0043
V39	Medium Goods Vehicle, Non-Tractors	Diesel	15.01-20	28.5	3.5	0.0047
V40	Medium Goods Vehicle, Non-Tractors	Diesel	20.01-24	41.5	2.4	0.0069
V41	Heavy Goods Vehicle	Diesel	24.01-38	46.2	2.2	0.0077

[5] Vehicles are classified into each group based on their vehicles types, fuel types and weight

[6] Extracted from Electrical and Mechanical Services Department (EMSD) Energy Consumption Indicator Database

[7] Emission Factor of SO₂ of individual vehicles is calculated from the equation below based on fuel efficiency and fuel characteristics in Table 3.

Emission Factor of SO₂ (g/km) = 1.96 x (Fuel Sulphur Content/100) x (Density of Fuel x 1000) x (Vehicle Fuel Efficiency (in L/100km)/100)

Example: For diesel private light bus (V15), Emission Factor of SO₂(g/km) = 1.96 x (0.001/100) x (0.845 x 1000) x (16/100) = 0.0026 (g/km)

Table 3: Fuel Properties

Fuel Type	Fuel Sulphur Content (Weight percentage)	Density of Fuel (kg/L)
Diesel	0.001	0.845
Petrol	0.001	0.770
LPG	0.020	0.560