



Idling Action Research – Review of Emissions Data

Idling is defined as the continuous running of the engine, whilst the vehicle is stationary.

Our research quantifies the exhaust emissions produced when idling, applicable to the types of vehicle present in London today.

Existing data available from DfT (Department for Transport) was analysed. This included laboratory, track and RDE (Real Driving Emission) testing of petrol and diesel cars, vans and HGVs (Heavy Goods Vehicles).

The exhaust emissions considered in this study were:




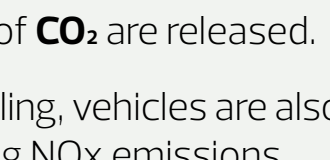
Oxides of nitrogen (NO_x = NO and NO₂) – long term exposure to these can cause airway inflammation, respiratory problems and decrease in lung function.

Carbon dioxide (CO₂) – common greenhouse gas that significantly contributes to climate change.

Particulate Matter data was not available and therefore was not included within this study

Sections of the trip were identified where the vehicle speed was less than **0.2 km per hour**, for **5 or more seconds**. During these stops, the average exhaust flow rate and composition were calculated.

In just **1 minute** of diesel engine idling:

- 30.3** ...grams of **CO₂** are released. 
- 10.1** ...grams of **CO₂** are released. 
- 27.7** ...grams of **CO₂** are released. 
- 68.6** ...grams of **CO₂** are released. 

Whilst idling, vehicles are also producing NO_x emissions. Although the values are small, cumulatively this will negatively impact the local air quality.

A diesel family sized car emits **0.07 mg** of NO_x per minute whilst idling.

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Idling outside the school gates for **5 mins**, each morning and afternoon emits **0.7 mg** a day.

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That means, in one academic year **133 mg are released.**

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Particularly in built up areas, the air pollution level **may well exceed** the limit set by the UK Government.

The total exhaust emissions for a given journey are presented in the table below

Vehicle Type	Exhaust flow (litres per minute)	
	Petrol	Diesel
Small	421	1,248
Family/Estate Car	-	1,167
4 x 4 SUV	504	1,388
LGV	-	1,451

Some vehicles within the DfT dataset had auto-stop start technology fitted. Using this information, we were able to investigate whether there is a greater output of pollutants when restarting an engine, rather than idling. For a given 30 second stop and an initial acceleration, our results suggest:

NO_x milligrams emitted:

Engine off	26.4	
	Idling	48.3

CO₂ grams emitted:

Engine off	15.1	
	Idling	27.3

Switching your engine off reduces the emission of pollutants