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Office of Transportation and Air Quality

Emission Facts

Average Annual Emissions and Fuel Consumption for Passenger Cars and Light Trucks

The figures presented in this document are averages only. Individual vehicles may differ in miles traveled and pollution emitted per mile than indicated here. Emission rates and fuel consumption totals may differ slightly from original sources due to rounding.

Background

The emission rates for hydrocarbons (HC), carbon monoxide (CO), and oxides of nitrogen (NOx) shown in the following tables are from U.S. Environmental Protection Agency (EPA) highway vehicle emission factor models. They assume an average, properly maintained vehicle on the road in July 2000, operating on typical gasoline on a warm summer day (72-96°F). Emissions may be higher in very hot (especially HC) or very cold (especially CO) weather.

The calculations for Total Annual Pollution Emitted and Fuel Consumed are based on an average annual passenger car mileage of 12,500 miles and an average annual light truck mileage of 14,000 miles. Fuel consumption is based on fleetwide average in-use fuel economy of 21.5 miles per gallon (mpg) for passenger cars and 17.2 mpg for light trucks, as reported in the 19th edition of the “Transportation Energy Data Book,” prepared for the U.S. Department of Energy.

Passenger Car

Component	Emission Rate and Fuel Consumption per mile (mi)[1]	Calculation	Total Annual Pollution Emitted and Fuel Consumed
Hydrocarbons	2.80 grams (g)	(2.80 g/mi) x (12,500 mi) x (1 lb/454 g)	**77.1 pounds of hydrocarbons**
Carbon Monoxide	20.9 grams	(20.9 g/mi) x (12,500 mi) x (1 lb/454g)	**575 pounds of carbon monoxide**
Oxides of Nitrogen	1.39 grams	(1.39 g/mi) x (12,500 mi) x (1 lb/454g)	**38.2 pounds of oxides of nitrogen**
Carbon Dioxide[2]	0.916 pound (lb)	(0.916 lb/mi) x (12,500)	**11,450 pounds of carbon dioxide**
Gasoline	0.0465 gallon	(0.0465 gallon/mi) x (12,500 mi)	**581 gallons of gasoline**

Light Truck

Component	Emission Rate and Fuel Consumption per mile (mi)[1]	Calculation	Total Annual Pollution Emitted and Fuel Consumed[3]
Hydrocarbons	3.51 grams (g)	(3.51 g/mi) x (14,000 mi) x (1 lb/454 g)	**108 pounds of hydrocarbons**
Carbon Monoxide	27.7 grams	(27.7 g/mi) x (14,000 mi) x (1 lb/454g)	**854 pounds of carbon monoxide**
Oxides of Nitrogen	1.81 grams	(1.81 g/mi) x (14,000 mi) x (1 lb/454g)	**55.8 pounds of oxides of nitrogen**
Carbon Dioxide[2]	1.15 pounds (lb)	(1.15 lb/mi) x (14,000 mi)	**16,035 pounds of carbon dioxide**
Gasoline	0.0581 gallon	(.0.581 gallon/mi) x (14,000 mi)	**813 gallons of gasoline**

Notes:

1. These emission factors and fuel consumption rates are averages for the entire in-use fleet. Newer cars and trucks will emit less pollution and use less gasoline; older cars and trucks may emit more pollution and use more gasoline.

2. Carbon dioxide, while not regulated as an emission, is the transportation sector's primary contribution to climate change. Carbon dioxide emissions are directly proportional to fuel economy – each 1% increase (decrease) in fuel consumption results in a corresponding 1% increase (decrease) in carbon dioxide emissions.

3. The total annual emissions and fuel consumption are greater for light trucks than was presented in the April 1998 version of this fact sheet. This reflects the increasing trend toward the largest, heaviest light trucks, which currently and in the past have

had less stringent emission standards and lower fuel economy than do the lighter light trucks and cars. The new “Tier 2” emission standards taking effect starting with the 2004 model year will bring all light trucks into compliance with the same emission standards as cars (for HC, CO, and NOx).

For More Information

You can access many additional documents on emissions and fuel consumption of passenger cars and light trucks electronically from the Office of Transporation and Air Quality web site at:

http://www.epa.gov/otaq

You can also contact the National Vehicle and Fuel Emission Laboratory library for document information, by mail or phone at:

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