

**U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF MOBILE SOURCES**

Automobile Emissions: An Overview

Cars and Pollution

Emissions from an individual car are generally low, relative to the smokestack image many people associate with air pollution. But in numerous cities across the country, the personal automobile is the single greatest polluter, as emissions from millions of vehicles on the road add up. **Driving a private car is probably a typical citizen's most "polluting" daily activity.**

THESE ARE THE THREE EXHAUST POLLUTANTS MEASURED AT EPA EMISSION TEST SITES.

1. HYDROCARBONS

Hydrocarbon emissions result when fuel molecules in the engine do not burn or burn only partially. **When hydrocarbons combine with NO_x and sunlight, ozone is formed. This is a serious form of air pollution and a key component of smog.** Ozone irritates the eyes, damages the lungs, and aggravates respiratory problems. **It is our most widespread and intractable urban air pollution problem.** A number of exhaust hydrocarbons are also toxic, with the potential to cause cancer.

2. NITROGEN OXIDES (NO_x) (One of the six main pollutants in the Kyoto Protocol)

Under the high pressure and temperature conditions in an engine, nitrogen and oxygen atoms in the air react to form various nitrogen oxides, collectively known as NO_x. Nitrogen oxides, like hydrocarbons, are precursors to the formation of ozone. They also contribute to the formation of acid rain, and contribute to global warming. **One member of the NO_x, nitrous oxide or N₂O, is a greenhouse gas.** It accumulates in the atmosphere with other greenhouse gasses causing a gradual rise in the earth's temperature. This will lead to increased risks to human health, a rise in the sea level, and other adverse changes to plant and animal habitat. **The primary manmade sources of NO_x are motor vehicles at 55%.**

3. CARBON MONOXIDE

Although you cannot see or smell carbon monoxide, this poisonous gas is a major air pollutant in many American cities. Carbon monoxide forms when carbon in fuel doesn't burn completely (incomplete combustion). The main source of carbon monoxide in our air is vehicle emissions. **As much as 95 percent of the carbon monoxide in typical U.S. cities comes from mobile sources, according to EPA studies.**

All emission information can be found at this EPA Web Site

<http://www.epa.gov/otaq/invntory/overview/pollutants/index.htm>