



Emission Facts

The History of Reducing Tailpipe Emissions from Cars and Light Trucks

1970-1975: The First Standards

In 1970, Congress passed the Clean Air Act, which called for the first exhaust (tailpipe) emissions standards. The pollutants limited were carbon monoxide (CO), volatile organic compounds (VOC), and oxides of nitrogen (NO_x). The new standards took effect for the 1975 model year, with a NO_x standard for cars and light-duty trucks of 3.1 grams per mile (gpm).

1977-1988: Tightening Standards for the First Time

In 1977, Congress amended the Clean Air Act and tightened emission standards in two steps: First, between 1977 and 1979, the NO_x standard was lowered to 2.0 gpm for cars. Then in 1981, the NO_x standard for cars was reduced to 1.0 gpm. Effective in 1979, pursuant to the Clean Air Act requirements, EPA tightened NO_x standards for light-duty trucks to 2.3 gpm. Effective in 1988, EPA then set the first tailpipe NO_x standards for heavier light-duty trucks at 1.7 gpm, and revised the standard for lighter trucks to 1.2 gpm.

1990-1994: Tier 1 Standards

In 1990, Congress again amended the Clean Air Act, further tightening emission standards. The NO_x standard was set at 0.6 gpm for cars,

effective in 1994. The new standards -- known as "Tier 1" -- represent a 40 percent reduction from the 1981 standard. For light-duty trucks, the new standard ranged from 0.6 to 1.53 gpm, depending on the weight of the vehicle.

The Clean Air Act Amendments of 1990 also required EPA to assess the air quality need, cost effectiveness, and feasibility of tighter emission standards for the 2004 model year and beyond.

1998: Voluntary Agreement For Cleaner Cars

In 1998 the Clinton Administration, along with the automotive industry and the Northeastern states, reached an innovative, voluntary agreement to put cleaner cars on the road before they could be mandated under the Clean Air Act. The new cars are called National Low Emission Vehicles (NLEV). The first NLEV cars under the agreement reached consumers in New England in the 1999 model year, and will be available in the rest of the country for model year 2001. NLEV cars operate under a NOx standard of 0.3 gpm, an additional 50 percent reduction from the Tier 1 standards. The NLEV agreement also called for a 0.5 gpm NOx standard for the lighter light-duty trucks only, a 17 percent reduction from Tier 1 requirements for these vehicles.

In 1998, as required by the Clean Air Act Amendments of 1990, EPA issued the "Tier 2 Report to Congress." The report contained strong evidence of the need, cost-effectiveness and feasibility for tighter tailpipe emission standards in the future (beginning in the 2004 model year). Three main factors supported EPA's decision:

1. Highway vehicles currently account for 30 percent of smog-forming emissions (VOC and NOx) nationally, and because the total number of miles driven is increasing (up 127 percent since 1970), they will continue to be a significant contributor to pollution;
2. Larger, heavier vehicles, such as sport-utility vehicles (SUVs), that currently are not required to meet the same tailpipe emission standards as cars, pollute three to five times as much as do cars and make up 50 percent of the vehicles sold today; and
3. The technology to meet more stringent emission standards is available and cost-effective.

In 1998, EPA also determined that sulfur reductions in gasoline are needed to enable the full performance of low emission-control devices. (Sulfur is not an inherent or necessary component of gasoline, but rather is a contaminant introduced during the refining process; limiting the allowable levels of sulfur in gasoline will allow new technology catalytic converters to operate at their intended effectiveness and to continue to perform well for longer periods of time.)

2000: Tier 2

In 2000, EPA finalized the Tier 2 tailpipe emissions standards, to take effect beginning in the 2004 model year. This represents the first time that both cars and light-duty trucks will be subject to the same national pollution control requirements. The new standard is 0.07 gpm for nitrogen oxides, a 77 percent reduction for cars, and a 86-95 percent reduction for light trucks, beyond the NLEV agreement. EPA also proposed a reduction in average sulfur levels to 30 parts per million (ppm), with a maximum allowable sulfur level of 80 ppm, to achieve the full performance of vehicle emission control technologies.

As part of these new standards, EPA has included several measures to ensure maximum flexibility and cost-effectiveness. These include:

- emissions averaging within each manufacturer's fleet to achieve the 0.07 standard;
- allowing additional time for larger light trucks (those between 6000 and 8500 pounds gross vehicle weight (GVW)), and smaller petroleum refiners, to meet their respective standards; and
- allowing for a market-based credit trading-and-banking system for both industries to reward those who lead the way in reducing pollution.

Cars

Model Year	1975	1977	1981	1994	1999/2001 (NLEV)	2004-2007
NOx Standard (gpm)	3.1	2	1.2	0.6	0.3	0.07
NOx reduction (from previous standard)		35%	50%	40%	50%	77%

Smaller SUVs, Minivans, and Light Trucks (Up to 6000 lbs)

Model Year	1975	1979	1988	1994	1999/2001 (NLEV)	2004-2007
NOx Standard (gpm)	3.1	2.3	1.2	0.6	0.5	0.07
Reduction (from previous standard)		26%	48%	50%	17%	86%

Larger SUVs, Vans, and Heavier Trucks (Between 6001 and 8500 lbs)

Model Year	1988	1994	2004-2007	2008-2009
NOx Standard (gpm)	1.7	1.53	0.2	0.07
Reduction (from previous standard)		10%	87%	65% (95% from the 1994 standard)

For More Information

You can access additional documents on emission standards for cars and light trucks electronically from the Office of Transportation and Air Quality web site at:

<http://www.epa.gov/otaq/ld-hwy.htm>

More information on the Tier 2 standards is available on the Tier 2 home page at:

<http://www.epa.gov/otaq/t2home.htm>

You can also contact the National Vehicle and Fuel Emissions Laboratory's library for additional information and documents, by mail or phone, at:

U.S. Environmental Protection Agency
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