

Vehicle emissions standards: Regulations

The present document lists regulations on emissions from mobile sources, first for the EU, then for the USA. Finally, there is a very important section with **References**. The present document does not provide full detail on the very complex issue of emission standards.

It is highly recommended to consult the last section in the document - **References** - in order to access detailed information.

A companion document in the current database lists values (["Vehicle emission standards: Values"](#)).

Regulation in the EU

For the EU, emissions from mobile sources are regulated in the following directives which can be accessed through the page <http://europa.eu.int/comm/environment/air/legis.htm>

Road vehicles

Light Vehicles

- Directive 70/220/EEC on the approximation of the laws of the Member States relating to measures to be taken against air pollution by gases from positive-ignition engines of motor vehicles.

Amendments to Directive 70/220/EEC:

- Council Directive 74/290/EEC
- Commission Directive 77/102/EEC
- Commission Directive 78/665/EEC
- Council Directive 83/351/EEC
- Council Directive 88/76/EEC
- Council Directive 88/436/EEC
- Council Directive 89/458/EEC
- Council Directive 91/441/EEC
- Council Directive 93/59/EEC
- European Parliament and Council Directive 94/12/EC
- Commission Directive 96/44/EEC
- European Parliament and Council Directive 96/69/EC
- European Parliament and Council Directive 98/69/EC
- Commission Directive 99/102/EC
- European Parliament and Council Directive 2001/1/EC
- European Parliament and Council Directive 2001/100/EC

Heavy Duty Vehicles

- Directive 88/77/EEC on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous pollutants from diesel engines for use in vehicles

Amendments to Directive 88/77/EEC:

- Council Directive 91/542/EEC (this provides the Euro 1 and Euro 2 emission standards)
- Commission Directive 96/1/EC
- European Parliament and Council Directive 1999/96/EC (this provides the Euro 3 (from October 2000), Euro 4 (from October 2005) and Euro 5 (from October 2008) emission standards)
- Commission Directive 2001/27/EC

Motorcycles and mopeds

- Directive 97/24/EC on certain components and characteristics of two or three-wheel motor vehicles
- Amendments to Directive 97/24/EC (to be published soon)

Roadworthiness of vehicles:

- Directive 96/96/EC on the approximation of the laws of the Member States relating to roadworthiness tests for motor vehicles and their trailers
- Directive 2000/30/EC as regards speed limiters and exhaust emissions of commercial vehicles

Non-road mobile machinery

- Directive 97/68/EC on the approximation of the laws of the Members States relating to roadworthiness tests for motor vehicles and their trailers.
- Directive 2002/25/EC on action to be taken against the emission of gaseous and particulate pollutants by engines intended to power agriculture or forestry tractors and amending Council Directive 74/150/EEC
- Directive 2002/88/EC amending Directive 97/68 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non road mobile machinery

The above mentioned directives can be accessed through the page <http://europa.eu.int/comm/environment/air/legis.htm>

Regulation in the USA

Emissions from mobile sources are regulated according to the table below.

The legislation is grouped under the headings:

- Passenger cars and light duty vehicles
- Heavy duty vehicles
- Non-road mobile machinery

LEGISLATION (PRODUCT STANDARDS) ON EMISSIONS FROM MOBILE SOURCES; UNITED STATES			
Legislation (in chronological order within sections)	Deadline for implementation of specific measures	Specific measures	Atmospheric pollutant addressed
PASSENGER CARS AND LIGHT DUTY VEHICLES			
Corporate Average Fuel Economy (CAFE): Title V, "Improving Automotive Efficiency," added to the Motor Vehicle Information and Cost Savings Act by the Energy Policy Conservation Act, 1975	Passenger car standards: Model year 1978 Light-truck standards: Model year 1979	<ul style="list-style-type: none">• Establishes passenger car fuel efficiency standards ranging from 18 miles per gallon (mpg) in model year (MY) 1978 to 27.5 mpg for 1985 and after.• Requires that light-truck standards be set at the maximum feasible level for model year 1979 and adjusted accordingly for following model years. 1979 standard set at 17.2 mpg for 2-wheel drive, 15.8 mpg for 4-wheel drive.• Light-truck standards increased until 1996, when they were frozen at 20.7 mpg. New standards issued on 31 March 2003 set at 21.0 mpg for MY 2005, 21.6 mpg for MY 2006, and 22.2 mpg for MY 2007.	
Gasoline and Sulfur Emissions Reduction Program: Automotive Standards under the Clean Air Act Amendments of 1990, December 1999 (Tier 2)	2004	<ul style="list-style-type: none">• Requires that all passenger cars and light trucks be covered by the same emission standards, that vehicles be treated as a system, and emission standards apply to all vehicles regardless of the type of fuel• Specifies set of emission standards to which a vehicle must be certified, known as "bins."	Primarily NOx

HEAVY DUTY VEHICLES			
Heavy-Duty Engines and Vehicle Standards, 40 Code of Federal Regulations (CFR) 69, 80, 86, 18 January 2001 (see Reference list for Web reference to the regulations)	PM standard: Model year 2007 NOx and NMHC standard: 2007-2010	<ul style="list-style-type: none"> Sets emission standards for new heavy-duty engines and vehicles Particulate matter (PM) emission standard for new heavy-duty engines set at 0.01 grams per brake-horsepower-hour (g/bhp-hr). Sets NOx and non-methane hydrocarbon (NMHC) engine standards at 0.20 g/bhp-hr and 0.14 g/bhp-hr, respectively, to be phased in together Sets standards for complete vehicles at 0.02 grams per mile (g/mi) for PM and ranging from 0.2-0.4 g/mi NOx, 0.195-0.230 g/mi NMHC, and 0.016-0.021 g/mi formaldehyde according to gross vehicle weight rating above 8,500 pounds. 	PM NO _x NMHC Formaldehyde
NON-ROAD MOBILE MACHINERY			
Non-Road Diesel Rule	Engine horsepower (hp) <25: 2008 175 < hp: 2011 75 < hp < 175: 2012 25 < hp < 75: 2013 hp > 750: 2015	<ul style="list-style-type: none"> Sets emission standards for non-road engines according to engine size Includes locomotive and marine applications Standards range from 0.01-0.30 grams per horsepower-hour (g/hp-hr) for PM and 0.30-3.5 g/hp-hr for NOx 	PM NO _x

References

- As noted above, **EU legislation** on emission standards is available through <http://europa.eu.int/comm/environment/air/legis.htm>
- Details on **US regulations** for **On-Road vehicles** can be found in Title 40--Protection of Environment Chapter I -- Environmental Protection Agency, Part 86--Control of emissions from new and in-use highway vehicles and engines through the links http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=a03ef02f6a5a36138cb6fa9c3c58a9c8&tpl=/ecfrbrowse/Title40/40cfr86b_main_02.tpl and (a continuation of the above) http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=58bdf55c73b0ffa4277fbd9dd9e5b276&tpl=/ecfrbrowse/Title40/40cfr86c_main_02.tpl For **US regulations** for **Off-Road vehicles** consult Title 40--Protection of Environment Chapter I --Environmental Protection Agency, Subchapter C - Air Programs http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?sid=a03ef02f6a5a36138cb6fa9c3c58a9c8&c=ecfr&tpl=/ecfrbrowse/Title40/40cfrv19_02.tpl
- Worldwide specifications of **emission standards for diesel vehicles** (and to some extent petrol vehicles) can be found on **Dieselnet**, <http://www.dieselnet.com/standards.html>
- The **Asian Development Bank** provides an entry page to information about **worldwide emission standards** for vehicles at <http://www.adb.org/vehicle-emissions/General/standards.asp>
- Concawe** at <http://www.concawe.be> publishes highly relevant reports, notably Report no. 9/04 'Motor vehicle emission regulations and fuel specifications - part 1: 2002/2003 update'. There is also a companion report, part 2, no. 2/01 'Motor vehicle emission regulations and fuel specifications - part 2: detailed information and historic review (1996-2000)'. These reports are not available on the Internet, but can be bought on paper from Concawe.
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- Information on **Japanese regulations** for motor vehicle exhaust emission standards can be found in <http://www.env.go.jp/en/lar/regulation/mv.html>
- In the Annexes of the case studies conducted under the current project on *Assessment of the effectiveness of European air quality policies and measures*, there are sections entitled "Legislation and Measures Implemented". These sections describe how and why standards have developed in EU, US, and to some extent Canada and Japan.