

On-Road Diesel Engine Emissions Standards

EPA Exhaust Emission Certification Standards for On-Road Heavy-Duty Diesel Engines (grams per brake horsepower-hour)					
Model Year	NMHC+NOx	NOx	HC	CO (1)	Particulates
1984-87	N/A	10.7	1.3	15.5	N/A
1988-89	N/A	10.7	1.3	15.5	0.60
1990	N/A	6.0	1.3	15.5	0.60
1991-93	N/A	5.0	1.3	15.5	0.25
1994-97	N/A	5.0	1.3	15.5	0.10
1998-03	N/A	4.0	1.3	15.5	0.10
2004-06 (2)	2.5	N/A	N/A	15.5	0.10
2007 (3)	N/A	~1.2 – 1.5	0.14	15.5	0.01
2010 (3)	N/A	0.2	0.14	15.5	0.01

- (1) Heavy-duty diesel engines certify well below the CO standard. Generally in the range of 1-2 g/bhp-hr.
- (2) Manufacturers had the choice of certifying engines to either 2.5 g/bhp-hr NMHC + NOx with a limit of 0.5 g/bhp-hr on NMHC or 2.4 g/bhp-hr NMHC + NOx.
- (3) NOx & HC standards applied to 50% of new engines for 2007-2009 resulting in manufacturers meeting the standards through averaging. NOx & HC standards apply to 100% of new engines beginning in 2010. Particulate standard applies to 100% of new engines in 2007 and after.

Note: Particulate standards for new urban bus engines equaled 0.10 g/bhp-hr in 1993, 0.07 g/bhp-hr in 1994-1995, and 0.05 g/bhp-hr beginning in 1996. NMHC = non-methane hydrocarbons

On-Road Diesel Fuel Standards

EPA On-Road Diesel Fuel Standards		
	Sulfur Content (ppm)	Other Fuel Properties
October 1, 1993 (1)	500	Minimum 40 cetane number or maximum 35% aromatics
October 15, 2006 (2)	15	

- (1) Estimated sulfur levels prior to initial regulation was approximately 2,500 ppm
- (2) 20% of the highway diesel sold through 2009 could remain at 500 ppm