

## Heavy-Duty Highway Compression-Ignition and Spark-Ignition Engines: Evaporative Emission Standards

	Engine Type	Year	Gross Vehicle Weight (lbs)	Conventional Diurnal + Hot Soak (g/test) <sup>a</sup>	Three-Diurnal Test Sequence (g/test) <sup>b</sup>	Supplemental Two-Diurnal Test Sequence (g/test) <sup>c</sup>	Running Loss (gpm) <sup>c</sup>	Spitback (g/test) <sup>c</sup>	Useful Life <sup>d</sup>
Federal	SI	1991-95	≤ 14,000	3.0	-	-	-	-	8 / 110,000
			> 14,000 <sup>e</sup>	4.0	-	-	-		
		1996-2007 (Enhanced) <sup>f</sup>	≤ 14,000	-	3.0	3.5	0.05	1.0	10 / 120,000
			> 14,000 <sup>e</sup>	-	4.0	4.5		-	
		2008+ (Enhanced)	8500-14,000	-	1.4	1.75	0.05	1.0	11 / 110,000
			> 14,000 <sup>e</sup>	-	1.9	2.3		-	
	CI	1996-97	≤ 14,000	-	3.0	-	-	-	LHDDE: 8 / 110,000 MHDDE: 8 / 185,000 HHDDE: 8 / 290,000
			> 14,000 <sup>e</sup>	-	4.0	-	-		
		1998+ (Enhanced) <sup>g</sup>	≤ 14,000	-	3.0	3.5	0.05	1.0	
			> 14,000 <sup>e</sup>	-	4.0	4.5		-	

### Notes:

- a** Applies to gasoline and methanol engines. Standard is hydrocarbon (HC) for gasoline engines, total hydrocarbon equivalent (THCE) for methanol engines.
- b** For spark-ignition (SI) engines, standard applies to gasoline, methanol, natural gas, and liquefied petroleum gas engines. For compression-ignition (CI) engines, standard applies to methanol, natural gas, and liquefied petroleum gas engines. Standard is THCE for methanol engines, HC for others.
- c** For SI engines, standard applies to gasoline and methanol engines. For CI engines, standard applies to methanol engines. Standard is THCE for methanol engines, HC for others.
- d** Useful life is expressed in years or miles, whichever comes first.
- e** Vehicles over 26,000 pounds gross vehicle weight may demonstrate compliance with an engineering design evaluation in lieu of testing.
- f** A new enhanced evaporative test procedure applies, which is considerably more stringent than the previous test procedure despite the fact that the standard values do not change from prior years. Gasoline and methanol engines are phased in at the following rates of a manufacturer's sales for the specified model year: 1996: 20 percent; 1997: 40 percent; 1998: 90 percent; 1999: 100 percent.
- g** A new enhanced evaporative test procedure applies, which is considerably more stringent than the previous test procedure despite the fact that the standard values do not change from prior years. Methanol-fueled vehicles are phased in at a rate of 90 percent of a manufacturer's production in 1998 and 100 percent in 1999.

### Code of Federal Regulations (CFR) citations:

- 40 CFR 86.008-10(b) - Evaporative emission standards for gasoline-fueled, natural gas-fueled or liquefied petroleum gas-fueled engines
- 40 CFR 86.004-11(b)(3) - Evaporative emission standards for methanol-fueled diesel engines