

Table EC-055 Non-Road Engine Emission Factors

Equipment Description	Equipment Type ^(a)	Year of Purchase ^(b)	U.S. EPA Emission Standard	Transient Factor ^(c)			Deterioration Factors ^(d)			SO ₂ EF Calculation				EF ^(e)				Horsepower ^(k)	Load Factor ^(l)
				NO _x	CO	PM ₁₀	NO _x	CO	PM	BSFC ₂₅ (lb fuel/hp-hr) ^(e)	BSFC TAF ^(f)	HC Emission Factor [g/hp-hr] ^(g)	Fraction S Converted to PM ^(h)	NO _x (g/hp-hr)	CO (g/hp-hr)	PM ₁₀ (g/hp-hr) ⁽ⁱ⁾	SO ₂ emission factor (g/hp-hr) ^(j)		
Caterpillar TL943C	Crawler Dozer	2013	Tier 3	1.04	1.53	1.47	1.01	1.15	1.47	0.37	1.01	0.18	0.02	2.50	0.87	0.22	0.00493	111	0.58
Caterpillar D6T	Crawler Dozer	2013	Tier 3	1.04	1.53	1.47	1.01	1.15	1.47	0.37	1.01	0.18	0.02	2.50	0.75	0.15	0.00493	230	0.58
Caterpillar 349E	Crawler Dozer	2013	Tier 3	1.04	1.53	1.47	1.01	1.15	1.47	0.37	1.01	0.17	0.02	2.50	0.84	0.15	0.00493	396	0.58
Caterpillar 740B EJ	Crawler Dozer	2013	Tier 3	1.04	1.53	1.47	1.01	1.15	1.47	0.37	1.01	0.17	0.02	2.50	0.84	0.15	0.00493	489	0.58
Caterpillar 988H FE Loader	Rubber-tired Loader	2013	Tier 3	1.04	1.53	1.47	1.01	1.15	1.47	0.37	1.01	0.17	0.02	2.50	0.84	0.15	0.00493	555	0.48

Notes: (a) Equipment type assigned based on the equipment description provided by client. Equipment type obtained from *Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling NR-005c, Table 10* (US EPA 2004).

(b) Non-road Engine equipment assumed to be purchased in 2013.

(c) Transient factors obtained from *Exhaust and Crankcase Emission Factors for Nonroad Engine Modelling – Compression Ignition – Report No. NR-009C, Table A3* (US EPA 2004).

(d) Deterioration factors obtained from *Exhaust and Crankcase Emission Factors for Nonroad Engine Modelling - Compression-Ignition Report No. NR-009d, Table A6* (US EPA 2010).

(e) Brake Specific Fuel Consumption obtained from *Exhaust and Crankcase Emission Factors for Nonroad Engine Modelling – Compression Ignition – Report No. NR-009C, Appendix A, Table A2* (US EPA 2004).

(f) Brake Specific Fuel Consumption Transient Adjustment Factor obtained from *Exhaust and Crankcase Emission Factors for Nonroad Engine Modelling – Compression Ignition – Report No. NR-009C, Table A3* (US EPA 2004).

(g) Emission factors obtained from *Exhaust and Crankcase Emission Factors for Nonroad Engine Modelling – Compression Ignition – Report No. NR-009C, Table A2* (US EPA 2004).

(h) Fraction of Fuel Sulphur to PM conversion obtained from *Exhaust and Crankcase Emission Factors for Nonroad Engine Modelling – Compression Ignition – Report No. NR-009C, page 20 & Appendix C* (US EPA 2004).

(i) PM₁₀ to PM_{2.5} ratio = 0.97, as provided in *Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling - Compression-Ignition - Report No. NR-009d* (US EPA 2010). TSP assumed to be the same as PM10.

(j) Sulphur content in fuel estimated to be as high as 15 ppmw, based on Sulphur in Diesel Fuel Regulations (ECCC) for non-large vessels, effective June 1, 2014.

(k) Horsepower information obtained from manufacturer's specification sheet based on equipment description.

(l) Load factor information obtained from *Median Life, Annual Activity, and Load Factor Values for Nonroad engine Emissions Modeling – Report No. NR-005C, Table 9* (US EPA 2010).