

T05 - TURBINES, MILITARY AIRCRAFT JET FUEL FIRED

CALCULATION METHODS

Ea = Ua x EF (lbs/1000 gallons)

Eh = Uh (gal/hr) x (1/1000) x EF (lbs/1000 gal)

NOTES:

- Trace organic emissions are based on detected AB 2588 compounds listed in Table 2 of the Navy AESO Report 12-90 received 4/10/2001.

- PM10 and TSP emission factors include filterable and condensable PM in accordance with the District's definition of particulate matter.

- Trace metal emission factors are based on District / Navy jet fuel analyses completed on 8/20/2001.

- Default emission factors for jet fuel fired turbines should be used for all related engine and fuel types unless more equipment specific information is available.

- Default emission factors for NOx, CO, TSP, and PM10 are from EPA, AP-42, Section 3.1, 4/00. Use equipment-specific factors in place of these default values when available.

- Other default factors are based on the following assumptions; 0.05% fuel sulfur content, a 7 lbs/gallon density, and 139,000 btu/gallon of fuel.

POLLUTANT	District Emission Factor	EPA REFERENCE	EPA	(UNITS)	COMMENTS
	(lbs/1000 gal fuel burned)	DOCUMENT	FACTOR		
NOx	122.32	AP-42, Sect 3.1, Table 3.1-1, 4/00	8.80E-01	lbs/MMBTU	Default factor based on AP-42, use engine specific NOx values where available
CO	0.46	AP-42, Sect 3.1, Table 3.1-1, 4/00	3.30E-03	lbs/MMBTU	Default factor based on AP-42, use engine specific CO values where available
SOx	7.00		0.05%	weight percent	Assume a sulfur content of 0.05% and a fuel density of 7 lbs/gal
TOG	96.78	AESO Report 12-90, Table 2, Revision B, 2/99	1.38E+01	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
ROG	96.78	AESO Report 12-90, Table 2, Revision B, 2/99	1.38E+01	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
TSP	1.60	AP-42, Sect 3.1, Table 3.1-2a, 4/00	1.15E-02	lbs/MMBTU	Default factor based on AP-42, use engine specific TSP values where available
PM10	1.60	AP-42, Sect 3.1, Table 3.1-2a, 4/00	1.15E-02	lbs/MMBTU	Default factor based on AP-42, use engine specific TSP values where available
1,3-Butadiene	2.14	AESO Report 12-90, Table 2, Revision B, 2/99	3.05E-01	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Acetaldehyde	3.29	AESO Report 12-90, Table 2, Revision B, 2/99	4.70E-01	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Acrolein	2.22	AESO Report 12-90, Table 2, Revision B, 2/99	3.18E-01	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Arsenic	4.7E-03	District / Navy / Marine Corp jet fuel testing for metals, 8/01	5.64E-01	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01
Benzene	1.82	AESO Report 12-90, Table 2, Revision B, 2/99	2.60E-01	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Cadmium	5.5E-05	District / Navy / Marine Corp jet fuel testing for metals, 8/01	6.63E-03	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01
Chromium, Hexavalent	3.7E-06	District / Navy / Marine Corp jet fuel testing for metals, 8/01	8.75E-03	mg/l	Assumed 5% of total chromium converted to Cr+6 per ARB recommendation
Chromium, Nonhexavalent	7.3E-05	District / Navy / Marine Corp jet fuel testing for metals, 8/01	8.75E-03	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01
Copper	1.5E-04	District / Navy / Marine Corp jet fuel testing for metals, 8/01	1.74E-02	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01
Ethylbenzene	0.21	AESO Report 12-90, Table 2, Revision B, 2/99	3.00E-02	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Formaldehyde	9.85	AESO Report 12-90, Table 2, Revision B, 2/99	1.41E+00	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Lead		District / Navy / Marine Corp jet fuel testing for metals, 8/01	not detected	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01
Manganese		District / Navy / Marine Corp jet fuel testing for metals, 8/01	not detected	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01
Naphthalene	0.61	AESO Report 12-90, Table 2, Revision B, 2/99	8.75E-02	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Nickel	4.7E-05	District / Navy / Marine Corp jet fuel testing for metals, 8/01	5.63E-03	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01

PAHs	0.70	AESO Report 12-90, Table 2, Revision B, 2/99	1.00E-01	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Phenol	0.33	AESO Report 12-90, Table 2, Revision B, 2/99	4.75E-02	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Selenium		District / Navy / Marine Corp jet fuel testing for metals, 8/01	not detected	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01
Styrene	0.37	AESO Report 12-90, Table 2, Revision B, 2/99	5.25E-02	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Toluene	0.67	AESO Report 12-90, Table 2, Revision B, 2/99	9.50E-02	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Xylenes	0.53	AESO Report 12-90, Table 2, Revision B, 2/99	7.50E-02	lbs/1000 lbs fuel	Based on AESO Report 12-90 average test results assuming 7 lbs/gal fuel density.
Zinc	9.1E-03	District / Navy / Marine Corp jet fuel testing for metals, 8/01	1.1E+00	mg/l	Based on SDAPCD / USMC / USN jet fuel average sample results, 8/01

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