

E13 - ENGINE, NATURAL GAS FIRED, 2 CYCLE LEAN BURN, WITH SELECTIVE CATALYTIC REDUCTION

CALCULATION METHODS

$E_a = U_a \times EF$ (lbs/mmft³)

$E_h = U_h$ (scfm) \times (60/1000000) \times EF (lbs/mmft³)

NOTES:

- The trace organic factors listed below are based on detected AB 2588 compounds listed in AP-42 Table 3.2-1 (7/00).
- The AP-42 (7/00) emission factors have been converted into lbs/mmscf by assuming a natural gas BTU content of 1020 BTU/scf.
- PM10 and TSP emission factors include filterable and condensable PM in accordance with the District's definition of particulate matter.
- The listed AP-42 emission factors for 1,1,2-trichloroethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,2-dichloropropane, 1,3-dichloropropane, carbon tetrachloride, chloroform, ethylene dibromide, styrene, and vinyl chloride are NOT included since these values are based on nondetectable test results.
- The listed AP-42 emission factors for 1,1,2,2-tetrachloroethane, 1,2,4-trimethylbenzene, 2,2,4-trimethylpentane, 2-methylnaphthalene, acenaphthalene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, biphenyl, chlorobenzene, chrysene, cyclohexane, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, perylene, phenanthrene, and pyrene are NOT included since these values were based on insignificant and/or nondetectable test results.
- Trace metal emission factors were not reported in AP-42 and are NOT included since natural gas fired engines are not expected to emit metals.
- The AP-42 emission factors for 1,2,3-trimethylbenzene, 1,3,5-trimethylpentane, butane, butyr/isobutyraldehyde, cyclopentane, ethane, isobutane, methylcyclohexane, n-nonane, n-octane, n-pentane, and propane are not included since these are not listed toxic air contaminants.
- The AP-42 acrolein emission factor is NOT included since this value is based on test data and detection limits from incorrect sampling methods. A District factor based on local test results and adjusted for equipment VOC controls is considered more accurate than the AP-42 value.
- SCR controls create ammonia / ammonium hydroxide emissions which are considered PM10 by the District's definition. The PM factors below do NOT include ammonia slip. Site specific emission estimates should be quantified as ammonium hydroxide and added to the PM default PM factors where TSP and PM10 (filterable and condensible) data does not exist.

Pollutant	District Emission Factor (lbs/million ft ³ fuel burned)	EPA Reference Document	EPA Factor	Units	Comments
NOx	323.34	AP-42, Sect 3.2, 7/00, Table 3.2-1	3.17E+00	lbs/mmbtu	Assume SCR 90% control of NOx.
CO	393.72	AP-42, Sect 3.2, 7/00, Table 3.2-1	3.86E-01	lbs/mmbtu	
SOx	0.60	AP-42, Sect 3.2, 7/00, Table 3.2-1	5.88E-04	lbs/mmbtu	Assume a sulfur content of 0.05% and a fuel density of 7 lbs/gal
TOG	1672.80	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.64E+00	lbs/mmbtu	
ROG	122.40	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.20E-01	lbs/mmbtu	
TSP	49.28	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.83E-02	lbs/mmbtu	TSP includes filterable (3.84 E-02) and condensable (9.91 E-03) PM.
PM10	49.28	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.83E-02	lbs/mmbtu	PM10 includes filterable (3.84 E-02) and condensable (9.91 E-03) PM.
1,3-Butadiene	0.84	AP-42, Sect 3.2, 7/00, Table 3.2-1	8.20E-04	lbs/mmbtu	
Acetaldehyde	7.92	AP-42, Sect 3.2, 7/00, Table 3.2-1	7.76E-03	lbs/mmbtu	
Acrolein	0.10	AP-42, Sect 3.2, 7/00, Table 3.2-1	7.78E-03	lbs/mmbtu	Emission factor is based on SDAPCD source test results.

Ammonia					
Benzene	1.98	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.94E-03	lbs/mmbtu	
Ethylbenzene	0.11	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.08E-04	lbs/mmbtu	
Formaldehyde	56.30	AP-42, Sect 3.2, 7/00, Table 3.2-1	5.52E-02	lbs/mmbtu	
Hexane	0.45	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.45E-04	lbs/mmbtu	
Methanol	2.53	AP-42, Sect 3.2, 7/00, Table 3.2-1	2.48E-03	lbs/mmbtu	
Methylene Chloride	0.15	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.47E-04	lbs/mmbtu	
Naphthalene	0.10	AP-42, Sect 3.2, 7/00, Table 3.2-1	9.63E-05	lbs/mmbtu	
PAH	0.14	AP-42, Sect 3.2, 7/00, Table 3.2-1	1.34E-04	lbs/mmbtu	
Phenol	0.04	AP-42, Sect 3.2, 7/00, Table 3.2-1	4.21E-05	lbs/mmbtu	
Toluene	0.98	AP-42, Sect 3.2, 7/00, Table 3.2-1	9.63E-04	lbs/mmbtu	
Xylenes	0.27	AP-42, Sect 3.2, 7/00, Table 3.2-1	2.68E-04	lbs/mmbtu	

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