

O01-A09 - ASPHALT PLANT, BATCH MIX, NATURAL GAS FIRED, BAGHOUSE**CALCULATION METHODS****Ducted emissions:**

$$E_a = U_a \text{ (tons/year)} \times EF \text{ (lbs/ ton production)}$$

$$E_h = U_h \text{ (tons/hr)} \times EF \text{ (lbs/ ton production)}$$

NOx and CO emissions:

$$E_a = U_a \text{ (million ft}^3\text{/year)} \times EF \text{ (lbs/mmft}^3\text{)}$$

$$E_h = U_h \text{ (ft}^3\text{/hr)} / 1000000 \text{ (ft}^3\text{/mmft}^3\text{)} \times EF \text{ (lbs/mmft}^3\text{)}$$

TSP/PM10 Fugitive emissions:

$$E_a = U_a \text{ (tons/year)} \times 0.018 \text{ (lb/ton of production)} \times (1\text{-drop zone collection efficiency (\%)})$$

$$E_h = U_h \text{ (tons/hr)} \times 0.018 \text{ (lb/ton of production)} \times (1\text{-drop zone collection efficiency (\%)})$$

Notes:

- NOx and CO emissions are based on fuel usage (million ft³/hr or yr). Emission factors are lbs/million ft³ gas burned.
- NOx and CO factors are from the D. Smith memo (6/26/97) or site specific source test results, or AP-42 Section 11.1 (3/04).
- TOG, VOC, SOx, TSP, PM10, and trace toxic emissions are based on production (tons asphalt/hr or yr). Emission factors are lbs/ton asphalt.
- TOG, VOC, SOx, TSP, PM10, and trace toxic emissions factors are from site specific source test results or AP-42 Section 11.1 (3/04).
- TSP and PM10 uncontrolled drop zone emissions are assumed to be 0.018 lbs/ton of production as specified in the M. Lake memo (3/20/96).
- Drop zone emissions are unspciated at this time. The factors listed below are for the control system exhaust only and do not include fugitive drop zone emissions.

POLLUTANT	DISTRICT EMISSION FACTORS (lbs/mmft ³ or lbs/ton production)	EPA REFERENCE DOCUMENT	EPA FACTOR	(UNITS)	COMMENTS
NOX	150.00	AP-42 factor in lbs/ton not used as default.	0.0250	lbs/ton	Emission factor in (lbs/million ft ³) per D Smith memo (6/26/97).
CO	500.00	AP-42 factor in lbs/ton not used as default.	0.4000	lbs/ton	Emission factor in (lbs/million ft ³) per D Smith memo (6/26/97).
SOX	0.0046	AP-42, Sect. 11.1 (3/04), Table 11.1-5	0.0046	lbs/ton	Sulfur sources may include the fuel, aggregate, and asphalt oil/slurry.
TOG	0.0150	AP-42, Sect. 11.1, (3/04) Tables 11.1-6	0.0150	lbs/ton	TOG value = VOC value + methane in Table 11.1-6.
VOC	0.0082	AP-42, Sect. 11.1, (3/04) Tables 11.1-6	0.0082	lbs/ton	Sum of organics in Table 11.1-9 falls slightly below VOC value.
TSP	0.0420	AP-42, Sect. 11.1 (3/04), Table 11.1-1	0.0420	lbs/ton	Use site specific TSP test information if available.
PM10	0.0270	AP-42, Sect. 11.1 (3/04), Table 11.1-1	0.0270	lbs/ton	Use site specific PM10 test data if available. PM10 should not exceed TSP
ACETALDEHYDE	3.20E-04	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	3.20E-04	lbs/ton	
ARSENIC	4.60E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	4.60E-07	lbs/ton	
BARIUM	1.50E-06	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	1.50E-06	lbs/ton	
BENZENE	2.80E-04	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	2.80E-04	lbs/ton	

POLLUTANT	DISTRICT EMISSION FACTORS (lbs/mmft3 or lbs/ton production)	EPA REFERENCE DOCUMENT	EPA FACTOR	(UNITS)	COMMENTS
BERYLLIUM	1.50E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	1.50E-07	lbs/ton	
CADMIUM	6.10E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	6.10E-07	lbs/ton	
CHROMIUM HEXAVALENT	4.80E-08	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	4.80E-08	lbs/ton	
TOTAL CHROMIUM	5.70E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	5.70E-07	lbs/ton	
COPPER	2.80E-06	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	2.80E-06	lbs/ton	
CROTONALDEHYDE	2.90E-05	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	2.90E-05	lbs/ton	
ETHYL BENZENE	2.20E-03	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	2.20E-03	lbs/ton	
FORMALDEHYDE	7.40E-04	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	7.40E-04	lbs/ton	
LEAD	8.90E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	8.90E-07	lbs/ton	
MANGANESE	6.90E-06	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	6.90E-06	lbs/ton	
MERCURY	4.10E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	4.10E-07	lbs/ton	
METHANE	7.40E-03	AP-42, Sect. 11.1, (3/04) Tables 11.1-6	7.40E-03	lbs/ton	
NICKEL	3.00E-06	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	3.00E-06	lbs/ton	
2-METHYLNAPHTHALENE	7.10E-05	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	7.10E-05	lbs/ton	
ACENAPHTHENE	9.00E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	9.00E-07	lbs/ton	
ACENAPHTHYLENE	5.80E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	5.80E-07	lbs/ton	
ANTHRACENE	2.10E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	2.10E-07	lbs/ton	
BENZO(A)ANTHRACENE	4.60E-09	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	4.60E-09	lbs/ton	
BENZO(A)PYRENE	3.10E-10	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	3.10E-10	lbs/ton	
BENZO(B)FLUORANTHENE	9.40E-09	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	9.40E-09	lbs/ton	
BENZO(G,H,I)PERYLENE	5.00E-10	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	5.00E-10	lbs/ton	
BENZO(K)FLUORANTHENE	1.30E-08	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	1.30E-08	lbs/ton	
CHRYSENE	3.80E-09	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	3.80E-09	lbs/ton	
DIBENZO(A,H)ANTHRACENE	9.50E-11	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	9.50E-11	lbs/ton	
FLUORANTHENE	1.60E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	1.60E-07	lbs/ton	
FLUORENE	1.60E-06	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	1.60E-06	lbs/ton	
INDENO(1,2,3-CD)PYRENE	3.10E-10	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	3.10E-10	lbs/ton	
NAPHTHALENE	3.60E-05	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	3.60E-05	lbs/ton	
PHENANTHRENE	2.60E-06	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	2.60E-06	lbs/ton	
PYRENE	6.20E-08	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	6.20E-08	lbs/ton	
QUINONE	2.70E-04	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	2.70E-04	lbs/ton	

POLLUTANT	DISTRICT EMISSION FACTORS (lbs/mmft ³ or lbs/ton production)	EPA REFERENCE DOCUMENT	EPA FACTOR	(UNITS)	COMMENTS
SELENIUM	4.90E-07	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	4.90E-07	lbs/ton	
TOLUENE	1.00E-03	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	1.00E-03	lbs/ton	
XYLENES	2.70E-03	AP-42, Sect. 11.1, (3/04) Tables 11.1-9	2.70E-03	lbs/ton	
ZINC	6.80E-06	AP-42, Sect. 11.1, (3/04) Tables 11.1-11	6.80E-06	lbs/ton	

Last Updated on 07/06/23 H. Fritschen