

**Renewable Biomass Group
Potential Emission Calculations**

Table C-18. Tar Buildup Control Burner Potential HAP Emissions

Pollutant	Natural Gas Combustion Emission Factor ¹ (lb/MMscf)	Control Efficiency ² (%)	Potential Emissions ³	
			(lb/hr)	(tpy)
Arsenic Compounds	2.10E-03		1.03E-05	4.51E-05
Benzene	2.10E-03	95%	5.15E-07	2.25E-06
Beryllium Compounds	1.21E-05		5.93E-08	2.60E-07
Cadmium	1.10E-03		5.39E-06	2.36E-05
Chromium Compounds	1.40E-03		6.86E-06	3.01E-05
Cobalt Compounds(CoC)	8.40E-05		4.12E-07	1.80E-06
Formaldehyde	7.50E-02	95%	1.84E-05	8.05E-05
Hexane	1.80E+00	95%	4.41E-04	1.93E-03
Lead	5.00E-04		2.45E-06	1.07E-05
Manganese	3.80E-04		1.86E-06	8.16E-06
Mercury	2.60E-04		1.27E-06	5.58E-06
Naphthalene	6.10E-04	95%	1.50E-07	6.55E-07
Nickel Compounds	2.10E-03		1.03E-05	4.51E-05
Selenium Compounds	2.40E-05		1.18E-07	5.15E-07
Toluene(Methylbenzene)	3.40E-03	95%	8.33E-07	3.65E-06
<i>Polycyclic Organic Matter (POM) *</i>				
<i>Polycyclic Aromatic Compounds (PAC)**</i>				
2-Methylnaphthalene*	2.40E-05	95%	5.88E-09	2.58E-08
3-Methylchloranthrene**	1.80E-06	95%	4.41E-10	1.93E-09
7,12-Dimethylbenzo(a)anthracene**	1.60E-05	95%	3.92E-09	1.72E-08
Acenaphthene*	1.80E-06	95%	4.41E-10	1.93E-09
Acenaphthylene*	1.80E-06	95%	4.41E-10	1.93E-09
Anthracene*	2.40E-06	95%	5.88E-10	2.58E-09
Benzo(a)anthracene**	1.80E-06	95%	4.41E-10	1.93E-09
Benzo(a)pyrene**	1.20E-06	95%	2.94E-10	1.29E-09
Benzo(b)fluoranthene**	1.80E-06	95%	4.41E-10	1.93E-09
Benzo(k)fluoranthene**	1.80E-06	95%	4.41E-10	1.93E-09
Benzo(g,h,i)perylene*	1.20E-06	95%	2.94E-10	1.29E-09
Chrysene(Benzo(a)phenanthrene)**	1.80E-06	95%	4.41E-10	1.93E-09
Dibenzo(a,h)anthracene**	1.20E-06	95%	2.94E-10	1.29E-09
Fluoranthene*	3.00E-06	95%	7.35E-10	3.22E-09
Fluorene*	2.80E-06	95%	6.86E-10	3.01E-09
Indeno(1,2,3-cd)pyrene**	1.80E-06	95%	4.41E-10	1.93E-09
Phenanthrene*	1.70E-05	95%	4.17E-09	1.83E-08
Pyrene*	5.00E-06	95%	1.23E-09	5.37E-09
Total HAP			5.00E-04	2.19E-03

1. Uncontrolled emission factors for natural gas combustion from AP-42, Section 1.4 - Natural Gas Combustion, Table 1.4-1,3 (9/03).

2. Organic HAP emissions are controlled by an RTO, thus a 95% control efficiency has been applied to all organic HAP.

3. Potential emissions are calculated as follows:

Emissions (lb/hr) = [Natural Gas Combustion EF (lb/MMBtu) × Heat Input Capacity (MMBtu/hr)] × (1 - Control efficiency (%))

Emissions (tpy) = Hourly emissions (lb/hr) × Operation (hr/yr) / 2,000 (lb/ton)