

**T13 - TURBINE, DIGESTER GAS FIRED, UNCONTROLLED**

CALCULATION METHODS	<b>Annual Emissions:</b> $E_a = U_a \times EF$ (lbs/mmft <sup>3</sup> )
	<b>Hourly Emissions:</b> $E_h = U_h$ (scfm) x (60/1000000) x EF (lbs/mmft <sup>3</sup> )

**NOTES:**

- Control efficiencies must be included in emission factors since the calculation procedure will not refer to this data.
- No particulate speciation table exists for landfill gas combustion. The HCl factor was estimated using the chlorine content of raw gas (AP-42).
- Emission factors are based on a digester gas BTU content of 600BTU/scf.
- The TOG factor is based on an average CH<sub>4</sub> content of 60% and a DRE of 99.9%
- Individual pollutant factors are estimated using AP-42 (detected values) or Pt. Loma raw gas speciation (1996) and an assumed 98% destruction efficiency.

POLLUTANT	DISTRICT EMISSION FACTORS (lbs/ million ft <sup>3</sup> fuel burned)	EPA REFERENCE DOCUMENT	EPA-FACTOR	(UNITS)	COMMENTS
NOX	96.00	AP-42, Sect.3.1,4/00, Table 3.1-1	1.60E-01	lbs/million BTU	
CO	10.20	AP-42, Sect.3.1,4/00, Table 3.1-1	1.70E-02	lbs/million BTU	
SOX	2.00			lbs/million BTU	Based on Pt Loma raw gas sulfur content and a 98% conversion to Sox.
TOG	24.90			lbs/million BTU	Assumes 60% methane and 99.9% DRE.
ROG	3.48	AP-42, Sect.3.1, 4/00, Table 3.1-2b	5.80E-03	lbs/million BTU	
TSP	7.20	AP-42, Sect.3.1, 4/00, Table 3.1-2b	1.20E-02	lbs/million BTU	
PM10	7.20	AP-42, Sect.3.1, 4/00, Table 3.1-2b	1.20E-02	lbs/million BTU	
Acetaldehyde	0.0318	AP-42, Sect.3.1, 4/00, Table 3.1-7	5.30E-05	lbs/million BTU	
ACETONE	0.0007			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
AMMONIA	0.0048			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
ARSENIC		District's Approved Emission Factors		lb/MMscf	Landfills Operations, Sec 3.3.1
BENZENE	0.0277			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
CHLOROBENZENE	0.0002			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
DICHLOROBENZENE	0.0018			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
ETHYL BENZENE	0.0010			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
ETHYLENE DICHLORIDE	0.0014			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.

POLLUTANT	DISTRICT EMISSION FACTORS (lbs/ million ft <sup>3</sup> fuel burned)	EPA REFERENCE DOCUMENT	EPA-FACTOR	(UNITS)	COMMENTS
FORMALDEHYDE	0.135*	EPA VOC Speciation Profile # 1001 1/90.	0.81%	lbs/lb TOC	* When available, District's Approved Emission Factors will be used, Ref: Landfills Operations, Sec 3.3.2
HEXANE	0.0101			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
HYDROGEN CHLORIDE	0.6455			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
HYDROGEN SULFIDE	0.0215			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
METHYLENE CHLORIDE	0.0001			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
METHYL ETHYL KETONE	0.0001			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
PERCHLOROETHYLENE	0.0005			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
TOLUENE	0.0101	EPA VOC Specification Profile #1001 1/90	0.04%	lbs/lbs TOC	Based on Pt Loma raw gas content with a 98% DRE.
1,1,1-TRICHLOROETHANE	0.0001			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
TRICHLOROETHYLENE	0.0030			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.
XYLENES	0.0045			lbs/million BTU	Based on Pt Loma raw gas content with a 98% DRE.

Last Updated on 9/29/2021 By M. Abuelazaim