

Appendix 3.1 Calculation of Emission Rates of Organic Waste Treatment Facilities

Emissions from Centralized Air Pollution Control Unit

Temperature at emission point	=	308 K
Flow rate at 308K	=	130000 m ³ /hr
Flow rate at 273K	=	115227 Nm ³ /hr [^]
Exit velocity	=	18 m/s
Diameter	=	1.6 m
Stack height	=	18 m

Air Pollutant	Emission Level*	Emission Rate
	(mg/Nm ³) Hourly	(g/s) Hourly
VOCs	680	2.18E+01
RSP	6	1.92E-01
Odour**	300	9.60E+03

note: * values are provided by design engineer

** The unit for emission level is ou/Nm³ and the unit for emission rate is ou/s

[^] Nm³ / hr is the flow rate at standard condition for temperature (273K) and pressure (1 atm)

Emission from Gas Engines

Number of unit	=	3
Flow rate per unit	=	3090 Nm ³ /hr [^] (dry basis)
Oxygen concentration of flue gas, Oa	=	6 %
Oxygen concentration of standard, Os	=	6 %
Pressure of flue gas at emission point, Pa	=	1 atm
Standard Pressure, Ps	=	1 atm
Temperature of flue gas at emission point, T _e	=	733 K
Standard Temperature, T _s	=	273 K
Exit velocity	=	15 m/s
Diameter	=	0.5 m
Stack height	=	8 m

Air Pollutant	Emission Level*	Emission Rate
	(mg/Nm ³) Hourly	(g/s) Hourly
RSP	15	1.29E-02
NOx	300	2.58E-01
SO ₂	50	4.29E-02
VOCs	150	1.29E-01
HCl	10	8.58E-03
HF	1	8.58E-04

Note: * values are provided by design engineer. All values refer to an oxygen content of 6% and dry basis.

[^] Nm³ / hr is the flow rate at standard condition for temperature (273K) and pressure (1 atm)

Emission from Standby Flaring Gas Unit

Number of unit	=	1
Flow rate per unit	=	8700 Nm ³ /hr [^] (dry basis)
Oxygen concentration of flue gas, Oa	=	11 %
Oxygen concentration of standard, Os	=	11 %
Pressure of flue gas at emission point, Pa	=	1 atm
Standard Pressure, Ps	=	1 atm
Temperature of flue gas at emission point, T _e	=	1173 K
Standard Temperature, T _s	=	273 K
Exit Velocity	=	3.5 m/s
Diameter	=	2.5 m
Stack height	=	8 m

Air Pollutant	Emission Level*	Emission Rate
	(mg/Nm ³) Hourly	(g/s) Hourly
RSP	5	1.21E-02
NOx	200	4.83E-01
SO ₂	50	1.21E-01
VOCs	20	4.83E-02
HCl	10	2.42E-02
HF	1	2.42E-03

Note: * values are provided by design engineer. All values refer to an oxygen content of 11% and dry basis.

[^] Nm³ / hr is the flow rate at standard condition for temperature (273K) and pressure (1 atm)