

Catering - Sample Calculation

Catering Emission = Fuel Consumption * Emission Index

Table 1: Fuel Consumption Information

Facility	Fuel	2031 Fuel Consumption	Unit	Fuel Sulphur Content (%)
CPCS [1]	Towngas	0.0	1000 m³	
	Diesel	6457.7	m³	0.001
New Catering Facility [2]	Diesel	4804.8	m³	0.001

Note:

[1] Fuel consumption information provided by Cathay Pacific Catering Service (CPCS) through questionnaires

[2] According to the latest master layout plan, there will be an additional catering facility in the North Eastern Supporting area to cater for the additional 200,000 ATM for the proposed three runway system (i.e. 620,000 (3 runway maximum ATM) – 420,000 (2 runway maximum ATM)). As a conservative approach, diesel fuel is assumed for the new catering facility.

According to Cathay Pacific's Annual Report (http://download3.cathaypacific.com/cx/investor/annualreports/2011_annual-report_en.pdf), CPCS had a 64% share of the flight catering market in Hong Kong in 2011. Hence diesel consumption at the new catering facility is assumed to be 200,000/(420,000 * 64%) = 74.4% of diesel consumption at CPCS facility

Table 2a: Emission Indices (from AP-42)

	Boiler Type	CO	THC	NO _x	SO ₂ [3]	RSP	Unit
Towngas	Natural Gas: Residential Furnace	0.64000	0.18000	1.50400	0.00960	0.12000	kg/1000 m³
Diesel	Fuel Oil: Industrial Boiler <100 Millions BTU/hr, Distillate Oil	0.60000	0.03024	2.40000	17.04000	0.12000	kg/m³

Note:

[3] SO₂ emission index of diesel is in terms of kg/(m³ - % sulphur content)

Table 2b: Conversion Factors (from EDMS)

	THC/TOG	VOC/TOG	RSP/FSP
Towngas	0.92000	0.44000	1.00000
Diesel	0.51300	1.00000	0.25000

Table 3: Emission from Catering

Facility	Fuel	CO (kg)	THC (kg)	VOC (Kg)	TOG (Kg)	NO _x (kg)	SO ₂ (kg) [4]	RSP (kg)	FSP (kg) [5]
CPCS	Towngas	0	0	0	0	0	0	0	0
	Diesel	3875	195	381	381	15498	110	775	194
New Catering Facility	Diesel	2883	145	283	283	11532	82	577	144
	Total (3 runway system)	6758	341	664	664	27030	192	1352	338
	Total (2 runway system) [6]	3875	195	381	381	15498	110	775	194

Note:

[4] SO₂ Emission from diesel burning = Fuel Consumption * Emission Factor * Fuel Sulphur Content

[5] To convert RSP to FSP, the conversion factor is 1.0 for Natural Gas and 0.25 for Fuel Oil. (Referenced from EDMS v5.1.4.1)

[6] Catering emission under 2 runway system consists of emission from existing CPCS facility only