

Data on Biomass Boilers

Ir Ravi Menon*

The following data on biomass boilers were gathered and published in PIPOC 1999 by John de Kock and David Yap of Flosep Sdn Bhd. These data should be of interest to those who would like to venture into designing devices for trapping particulates with sizes exceeding 0.15 gm m^{-3} .

FLUE GAS CHARACTERISTICS IN A TYPICAL PALM OIL MILL BOILERS

PARAMETERS	UNITS	STUDY 1	STUDY 2	STUDY 3	STUDY 4	STUDY 5
Boiler Capacity	t hr ⁻¹	27	18	14	11	4
Steam Turbine load	kW	650	480	Na	290	300 (error)
Inlet dust load	gm N m ⁻³	3.20	3.80	2.76	4.30	1.49
Outlet dust load	gm N m ⁻³	0.24	1.15	0.52	1.70	0.24
Inlet particle size	μm	4.88	56.70	46.43	38.41	38.24
Outlet particle size	μm	4.48	34.40	8.53	na	4.11
Type of duct collector		Multi cyclone	Multi cyclone	Flosep TAS50	Multi cyclone	Flosep TAS50
Emission Factor	kg t ⁻¹	3.25	1.5	0.65	3.03	0.42

BOILER FLUE GAS CHARACTERISTICS UNDER DIFFERENT CONDITIONS

PARAMETERS	UNITS	NORMAL CONDITON		OVERLOAD CONDITION		RACKING IN PRO0GRESS	
		Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
Flue gas temperature	°C	214	167	236	178	217	172
Dust Concentration	g Nm ⁻³	1.75	0.40	2.60	1.50	2.80	1.40
Moisture content	% V/V	7.40	7.35	7.96	7.81	7.85	7.84
Particle size (median)	μm	52.02	6.66	6.89	1.11	22.06	2.52
Below 10 μm	% Mass	7.90	64.30	57.60	100.00	39.00	98.20
Below 1 μm	% Mass	0.64	18.20	15.20	44.6	4.10	19.60

* Ravindranathan Palmtech Solutions
No. 77 Jalan 22/37
47400 Petaling Jaya, Selangor
E-mail: nravimenon41@gmail.com