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Date: 22nd June 2022

Cook Stove Performance Test Report

Name of stove: Spectra Bio-Mass Pellet Stove
Client: Spectra Industries Lanka (pvt) Ltd, Mahakeliya, Kurunegala
Test: Water boiling test
Results: The results are shown in the table below. The values are the averages of the three steps of the water boiling test. The three steps are high power cold start, highpower hot start and simmer at the boiling point.

Parameter	Description	Value	Units
Thermal efficiency	The average percentage of heat received by the contents of the pot compared to heat supplied by the fire.	58	%
Burning rate	Mass of fuel burnt in the stove per minute	9	g/min
Specific fuel consumption (SFC)	Mass of fuel burnt to boil one kg of water	83	g/kg of water
Fire power	Power rating of the stove	1.9	kW

Air quality	Emissions	Value	Unit
Exhaust gases measured at 30 cm from the stove	CO2 concentration	454	ppm
	CO concentration	0	ppm
	PM2.5	67	µg/m3
	PM10	69	µg/m3
Ambient air measured at 3m away from the stove	CO2 concentration	413	ppm
	CO concentration	0	ppm
	PM2.5	0.73	µg/m3
	PM10	1.73	µg/m3
WHO recommended limits for in-door air quality	CO2 concentration	450	ppm
	CO concentration	0	ppm
	PM2.5	25	µg/m3
	PM10	50	µg/m3

It is recommended to install a hood and an exhaust pipe or provide ventilation by opening windows to remove exhasut gases.

Date: 22/06/2022
Laboratory: Thermodynamics Laboratory
Institution: Department of Mechanical Engineering, University of Moratuwa

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