

Stove type/model		Tungku Grabah UB	Tungku Grabah UB	Tungku Grabah UB
Location		Dian Desa Foundation	Dian Desa Foundation	Dian Desa Foundation
Wood species		average hardwood	average hardwood	average hardwood
Date		13-7-2012	17-7-2012	09-08-2012
<b>Basic Operation</b>		Standard Rocket Stove	Standard Rocked Stove	Standard Rocked Stove
COLD START	units			
Time to boil Pot # 1	min	40	28	29
Burning rate	g/min	13.7020709	16.09073246	16.87950105
Thermal efficiency	--	0.198638751	0.229369293	0.215612032
Specific fuel consumption	g/liter	116.0617895	95.89720006	102.8674024
Temp-corrected specific consumption	g/liter	121.6750659	101.729703	106.4145542
Firepower	watts	4205.165559	4938.245791	5180.318872
Equivalent Dry Wood Consumed	g	548.082836	450.5405088	489.5055304
HOT START	units			
Time to boil Pot # 1	min	22	20	22
Burning rate	g/min	18.77175646	15.93657696	20.22846318
Thermal efficiency	--	0.248455383	0.319034749	0.220829352
Specific fuel consumption	g/liter	85.06104322	66.2405855	91.94475626
Temp-corrected specific consumption	g/liter	89.47515065	69.48313164	95.11526509
Firepower	watts	5761.052058	4890.935469	6208.115351
Equivalent Dry Wood Consumed	g	412.9786421	318.7315392	445.0261901
SIMMER	units			
Burning rate	g/min	15.56818585	18.83282639	16.06651415
Thermal efficiency	--	0.166216188	0.159580446	0.147423601
Specific fuel consumption 45 min	g/liter	180.7451918	227.8777057	182.4818618
Firepower	watts	4777.876237	5779.794418	4930.813191
Turn down ratio	--	1.042954769	0.850305439	1.154823128
Equivalent Dry Wood Consumed	g	700.5683633	847.4771874	722.9931366
<b>Energy Consumption</b>				
Net Calorific Value (dry)	kJ/kg	18414	18414	18414
Moisture Content	%	0.14	0.14	0.14
COLD START				
Temp-Corrected Time to Boil	min	41.93458205	29.7029703	30
Energy Consumption Rate	kJ/min	252.3099336	296.2947475	310.8191323
Temp-Corr Specific Energy Consumption	kJ/liter	2240.524664	1873.250752	1959.517601
Dry Wood Consumed		578.16	475.08	517.1
Total Energy Consumed	kJ	10646.23824	8748.12312	9521.8794
HOT START				
Temp-Corrected Time to Boil	min	23.14165498	20.97902098	22.75862069
Energy Consumption Rate	kJ/min	345.6631235	293.4561281	372.4869211
Temp-Corr Specific Energy Consumption	kJ/liter	1647.595424	1279.462386	1751.452491
Dry Wood Consumed		437.12	337.48	470.66
Total Energy Consumed	kJ	8049.12768	6214.35672	8666.73324
SIMMER				
Energy Consumption Rate	kJ/min	286.6725742	346.7876651	295.8487915
Temp-Corr Specific Energy Consumption	kJ/liter	3328.241961	4196.140072	3360.221004
Dry Wood Consumed	g	732.6	886.82	754.4
Total Energy Consumed	kJ	13490.0964	16329.90348	13891.5216
<b>Total Emissions</b>				
COLD START		(cold start)	(cold start)	(cold start)
CO	grams	26.77338089	23.97359166	23.05787459
CO2	grams	936.2718323	683.6138631	604.237294
appx PM	mg	1182.729099	683.9911626	568.7677518

HOT START			(hot start)	(hot start)	(hot start)
CO	grams		19.06585801	17.72556151	15.16008908
CO2	grams		665.6548517	622.6501765	563.4398699
appx PM	mg		910.7831394	721.4028307	484.4788634
SIMMER			(simmer)	(simmer)	(simmer)
CO	grams		27.94076378	31.09469185	27.15220421
CO2	grams		933.6652651	1085.531887	904.4475139
appx PM	grams		1193.254583	698.773236	454.4784931
<b>Specific Emissions</b> (Corrected for starting temp, moisture content, and char and water remaining)					
COLD START	Correction Factor		0.146420055	0.15004381	0.15004381
CO	gr/liter		3.920159909	3.597089027	3.459691349
CO2	gr/liter		137.0889734	102.5720284	90.66206561
appx PM mg	mg/liter		173.1752601	102.6286399	85.34008037
HOT START			0.134145653	0.13413732	0.13413732
CO	gr/liter		2.557601976	2.377659312	2.033533717
CO2	gr/liter		89.29470485	83.52062583	75.578314
appx PM mg	mg/liter		122.1775991	96.76704218	64.98669623
SIMMER			0.204231855	0.209639104	0.209639104
CO	gr/liter		5.706394019	6.518663329	5.692163752
CO2	gr/liter		190.6841891	227.5699319	189.6075661
appx PM mg	mg/liter		243.7005971	146.4901949	95.27646392
<b>Emission per kg Fuel</b>					
COLD START					
g CO/kg dry fuel consumed	g/kg		46.30790938	50.46222038	48.53471961
g CO2/kg dry fuel consumed	g/kg		1619.399184	1438.944732	1271.864305
mg PM/kg dry fuel consumed	g/kg		2.045677839	1.439738913	1.197204159
HOT START					
g CO/kg dry fuel consumed	g/kg		43.6169885	52.52329474	44.92144448
g CO2/kg dry fuel consumed	g/kg		1522.819481	1844.998745	1669.550403
mg PM/kg dry fuel consumed	g/kg		2.083599788	2.137616542	1.435578
SIMMER					
g CO/kg dry fuel consumed	g/kg		38.1391807	35.06313779	30.61749194
g CO2/kg dry fuel consumed	g/kg		1274.454361	1224.072402	1019.877217
mg PM/kg dry fuel consumed	g/kg		1.628794135	0.787953853	0.512481104