Aprovecho Research Center
Advanced Studies in Appropriate Technology Laboratory
P.O. Box 156 Creswell, OR 97426 541-895-5677

CO/CO2 Ratio in the Charcoal Stoves
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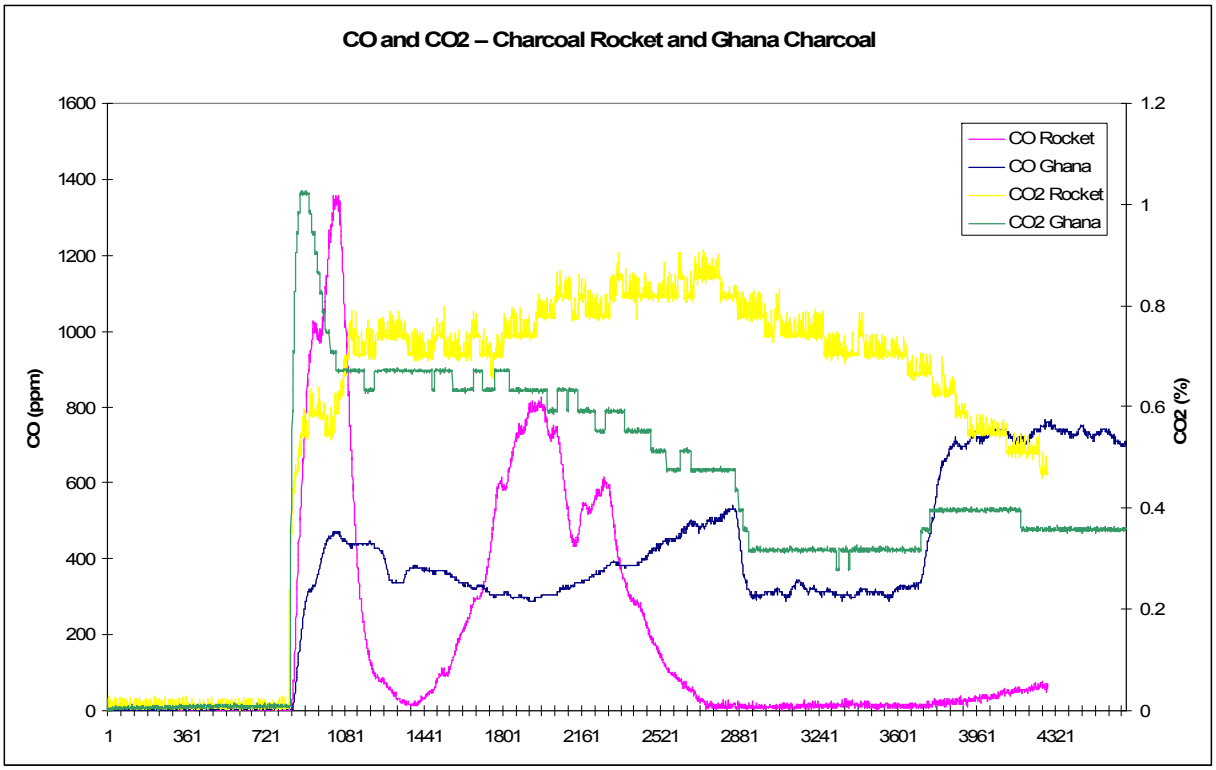
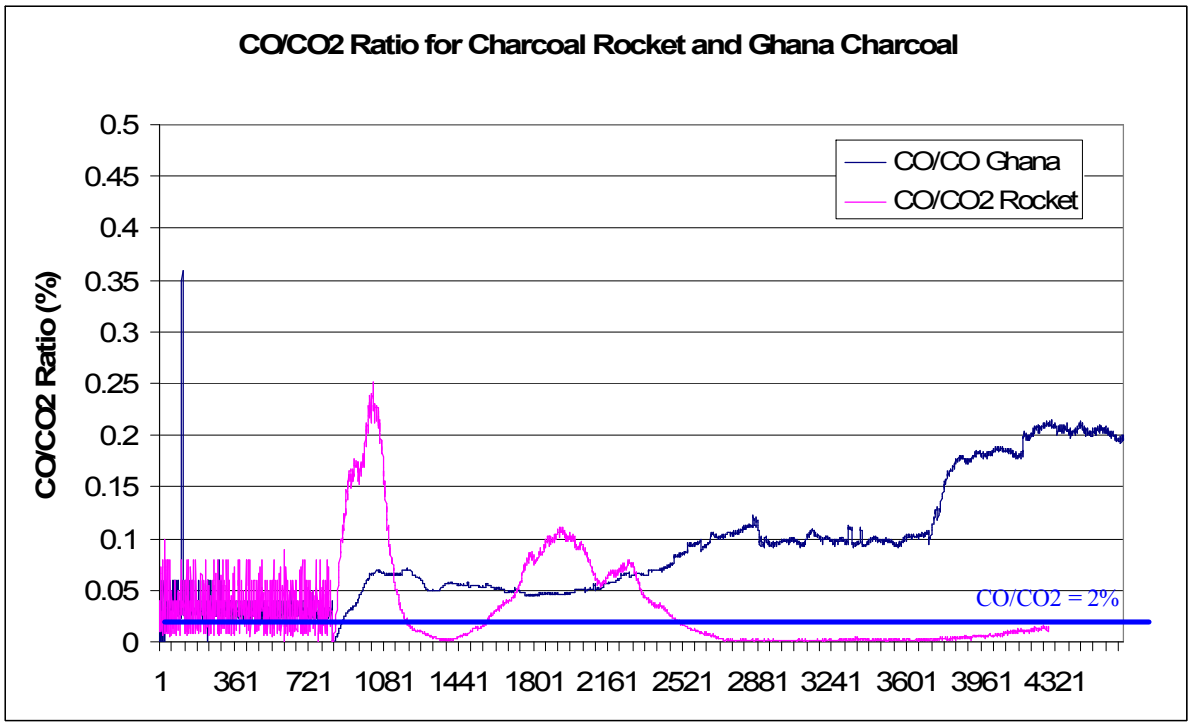
The following graph plots the levels of CO and CO2 during one test each of the charcoal burning rocket stove and Jiko-type charcoal stove from Ghana. A higher level of CO2 suggests a higher burn rate of fuel.



It can be seen that even though the CO level for the rocket drops below 10 ppm, the CO2 level remains high suggesting a high firepower continues. The Ghana charcoal stove has a lower level of CO2 with a considerably higher level of CO.

The following graph plots the ratio of CO to CO2 for each stove, showing how cleanly the stove is burning the fuel. A lower CO/CO2 ratio indicates a cleaner-burning stove.



Higher ratios mean the stove was making more CO and less CO2. Perfectly efficient combustion would produce all CO2 and no CO because the CO is combusted and changed into CO2.

The CO/CO2 ratio has been suggested as another method for determining how cleanly a stove is burning. It may be possible to use the CO/CO2 ratio as a benchmark for stove combustion efficiency. The South African Bureau of Standards suggests that the CO/CO2 ratio from paraffin (kerosene) stoves should be 2% or less. The blue line drawn across the graph above shows this level. Over the duration of the test, the charcoal rocket does not meet the standard but it is interesting that the ratio dropped below 2% after the stove reached 725 degrees C.