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# Biogas as Fuel for a Fuel Cell System: Investigations and First Experimental Results for a Molten Carbonate Fuel Cell

*The environmental benefits related to fuel cells can be enhanced if hydrogen is produced through an environmental friendly practice. Gasification has been widely used for decades for syngas production from coal, by the so called Integrated Gasification Combined Plants (IGCC), allowing a dramatic emissions reduction, compared to combustion. For these two reasons, several authors have analyzed the possibility of realizing gasification plants coupled with fuel cell systems and, eventually a bottoming cycle. If the gas, however, is produced using a renewable source of energy, such as biomass, the related emissions reduction and fossil fuel preservation represent a further improvement for the environmental performance of the system. In the present study, advantages of an MCFC biogas fueled system is discussed, along with the technical problems related with the integration of the FC section with a Gasifier. Finally, experimental results conducted on a single cell are reported. [DOI: 10.1115/1.1782923]*