**Water Gas Shift Reactions on SOFC Cells**

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It is well known that sulfur in the fuel stream can significantly degrade the electrochemical performance of nickel-cermet, anode supported solid oxide fuel cells when operated in hydrogen fuels. When using hydrocarbon reformate fuels which contain both hydrogen and carbon monoxide, the cell electrochemical performance is even more significantly impacted by the presence of sulfur in the reformate. Sulfur is found to preferentially inhibit the ability of the cell to utilize the CO fraction of the reformate by impeding the water gas shift reaction. However, a stable water gas shift catalyst can be used to minimize the degradation and improve performance similar to that measured from sulfur-poisoned hydrogen fuels alone.