CO Poisoning Effect on the Cell Performance in Proton Exchange Membrane Fuel Cell

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PEMFC (Proton Exchange Membrane Fuel Cell) generates current by the hydrogen oxidation reaction on the anode and oxygen reduction reaction on the cathode. When a reformate gas feeds on the anode instead of the pure hydrogen gas, the cell is affected by the carbon monoxide in the reformate gas. The carbon monoxide absorbs on the catalytic site where an electro-chemical reaction occurs. As a result, performance of the cell is diminished. As containing ratio of the carbon monoxide in the reformate gas increases, performance of the cell is diminished. And beyond a limit of the containing ratio it diminishes sharply. We refer to these effects as "CO poisoning" and in this research we developed a CFD model of the PEMFC concerning a CO poisoning, we could analyze effects inside the cell.