Leidenfrost Effect as a Reactor for Direct Methanol Fuel Cell Catalyst

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Methanol could be turned into energy in the presence of an active catalyst. To obtain it, we recycle methanol and use the most active catalyst, which is Platinum. If it is used, it could produce them in large quantities that could be used in the future. We hypothesized that the 15% of platinum salt is more efficient than the 5%. Using a mixture of platinum salt, ascorbic acid and activated carbon is efficient, environmentally friendly and cheaper than what is usually used. This idea would be very efficient because tiny quantities of methanol produces piles of new energy. We prepared the three substances and added water to the ascorbic acid, which acts as a reducing agent for platinum 4+,then measured K2PtCl6 and added 10% Hydrochloric acid to it. We added activated carbon to the ascorbic acid mixture, then mixed it before placing them in the centrifuge and getting the samples.The energy is generated by the direct Methanol fuel cell. Our research aims to use methanol as a raw material to generate energy, to create a more environmentally friendly substance to be implemented as a catalyst as well as introducing new substances with less expenses, making methanol more accessible to other industries. The results show, the platinum catalyst we developed is a better catalyst than what is commercially used. We compared the samples with different mass composition of platinum. The 15% platinum was found to be more efficient.

Awards Won:

Qatar Foundation, Research &amp Development: Award of $1,000