

# IIT-I's push for clean energy; hydrogen generated from methanol water sans CO<sub>2</sub>

TIMES NEWS NETWORK

**Indore:** Indian Institute of Technology (IIT), Indore, has developed a process to generate hydrogen gas from methanol water at a lower temperature eliminating the byproduct — carbon dioxide — and bringing down sharply the cost of purification.

Researchers claimed that hydrogen produced from methanol at a higher temperature generated carbon dioxide as a side product leading issues with purification of hydrogen.

Hydrogen gas, considered the fuel of the future, can be used in fuel-cell based vehicles, charge battery vehicles and generate electricity.

PhD students Mahendra



K Awasthi and Rohit K Rai led the research under supervision of associate professor of Chemistry at IIT Indore Dr Sanjay K Singh.

Researchers have developed ruthenium catalysts for large scale production of hydrogen gas from methanol in water. The team has filed for a patent for this process.

Singh said, "We aim at addressing the issue of carbon dioxide by generating hydrogen at a lower temperature, where the by-product is formic acid, which is a va-

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luable product. Throughout the world, hydrogen is in focus to control the carbon dioxide emission."

The research team working on this project for the last two years claimed that the developed process generated high content of hydrogen per molecule of methanol at a relatively lower temperature of less than 150 °C. The team is also working on other projects for producing hydrogen production.

Singh said, "This method is very much in line with ef-

forts of India towards clean energy, where purified hydrogen gas will be used as a fuel in H<sub>2</sub>-powered fuel-cell based vehicles. Methanol can be produced from biomass waste and other sources and government is also encouraging production of methanol to be used as a gasoline blender."

Singh stressed that hydrogen had a very good future, but major bottlenecks were its efficient production, storage and utilization using fuel cells.