

IIT-I develops cost-effective catalyst for hydrogen production at low temp

TIMES NEWS NETWORK

Indore: The Indian Institute of Technology, Indore (IIT-I), developed an environment friendly process to generate purified hydrogen, a pivotal alternative to fossil fuels in the transition to clean energy, from methanol at significantly reduced temperatures. This enhances the efficiency and cost-effectiveness of hydrogen production.

The research team at IIT-I, led by Professor Sanjay K Singh from the department of chemistry and PhD student Mahendra K Awasthi, developed a catalyst that produces purified hydrogen gas from methanol at tempe-



GETS PATENT

ratures as low as 130 degrees Celsius. This contrasts with traditional techniques that require temperatures exceeding 200 degrees Celsius.

This lower temperature process reduces energy consumption and operational expenses, making hydrogen production more economi-

cally viable for both industrial and commercial applications.

The innovation has the potential to substantially influence the hydrogen economy, aligning seamlessly with global initiatives to reduce carbon emissions and combat climate change, as stated by the institute.

Professor Singh said, "This catalyst can produce 1 kg of hydrogen from just 13 litres of methanol. It stands out from other methods due to its sustainability and lower cost. The process is expected to revolutionise hydrogen production and help in the wider adoption of hydrogen as a clean energy source."

The technology has received a patent and the team is currently engaged in discussions with prospective industry partners to introduce this revolutionary technology to the market.

"The societal impact of this technology is significant. By enabling more efficient hydrogen production, it supports the global shift to cleaner energy sources, reduces dependence on fossil fuels, and helps lower greenhouse gas emissions. With growing interest in methanol as a fuel blender (M30) in India, this process provides an alternative and sustainable use of methanol for hydrogen production," Singh said.