

# EFFICIENT HYDROGEN SULFUR CYCLE PRECURSOR FOR H<sub>2</sub> PRODUCTION

US Patent #7,645,437

Technology Readiness Level:5

Key elements of the technology have been proven to work as expected in a laboratory environment

## TECHNOLOGY DESCRIPTION

With the growing pressure placed on energy efficiency and reliance on fossil fuels, alternative sources of energy are increasingly important. The primary function can be used for the production of hydrogen but a similar process can be applied to create ammonia, propane, or thermal energy storage.

Our technology integrates three main components in the production process by integrating the boiler, superheater, and decomposition functions of sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) to create sulfur dioxide (SO<sub>2</sub>) into a single unit. Additionally, our design solves the problem of corrosion due to the high temperatures and concentrated sulfuric acid with the combining the three processes into a single operation and using corrosion resistant components. The integration also makes the process highly efficient & economical by recovering and reusing the acid in the closed-loop process. This process can be further used for storage media and solar applications.

## TECHNOLOGICAL BENEFITS

- Ideal for high temperature, corrosive environments
- Avoids corrosion issues found in other processes
- Integrates three functions of SO<sub>2</sub> production for greater decomposition efficiency
- Scalable design

## POTENTIAL APPLICATIONS

- Hydrogen production
- Renewable energy
- Energy storage
- Agricultural
- Automotive/Transportation
- Alternative energy production

## CONTACT US

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