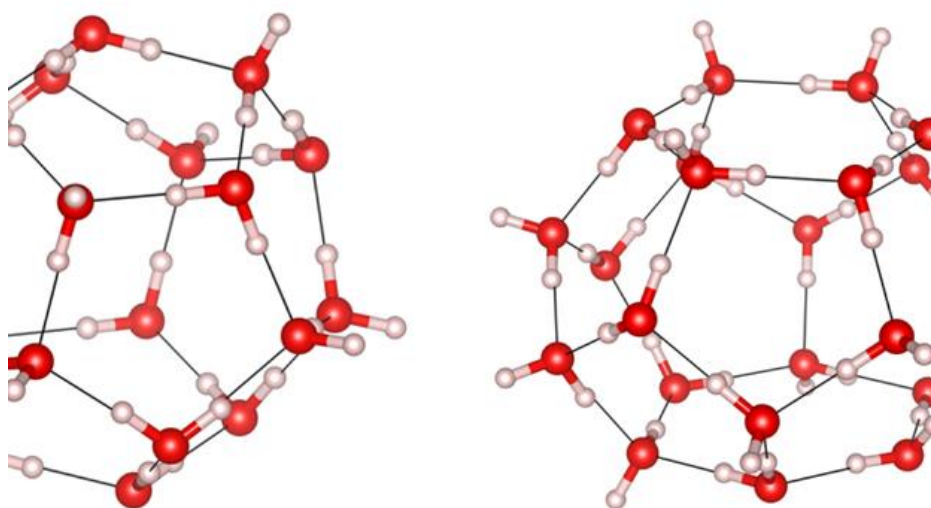




Method and Process to Solve Hydrogen Storage and Transport Challenge

- Addresses issue of costs and loss of Hydrogen during processing



Opportunity:

A major challenge for the Hydrogen economy and Hydrogen as an energy source is a lack of an efficient, controllable and economic method to store and transport hydrogen. Existing technologies are problematic for a range of reasons, including cost, loss of Hydrogen during processing and chemical instability.

Researchers at University College Dublin have developed a new method and process, using clathrate hydrates (crystalline ices made up of water and non-stoichiometric amounts of small non-polar molecules), to address the Hydrogen storage and transportation challenge.

Applications:

Hydrogen production can take advantage of abundant renewable energy sources, including wind, solar, hydroelectric and geothermal energy.

Key Features/Advantages:

- Use of electromagnetic fields, coupled with a control scheme, to regulate the uptake and release of gases such as Hydrogen in hydrate clathrates
- Temperature and pressure conditions in the storage volume may be selected to optimise a balance between gas leakage from the clathrate hydrate structure and the energy costs associated with maintaining those temperature and pressure conditions
- Technology allows for a filtering effect whereby in a source gas mixture the larger gases will be filtered out as they are too large to enter the cavities

Value Proposition:

Efficient and scalable storage, transportation and release of Hydrogen and other gases

Market:

Energy and gas supply, storage and transportation companies

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