

Stand-alone Reverse Water-Gas Shift Produces CO and Potable Water

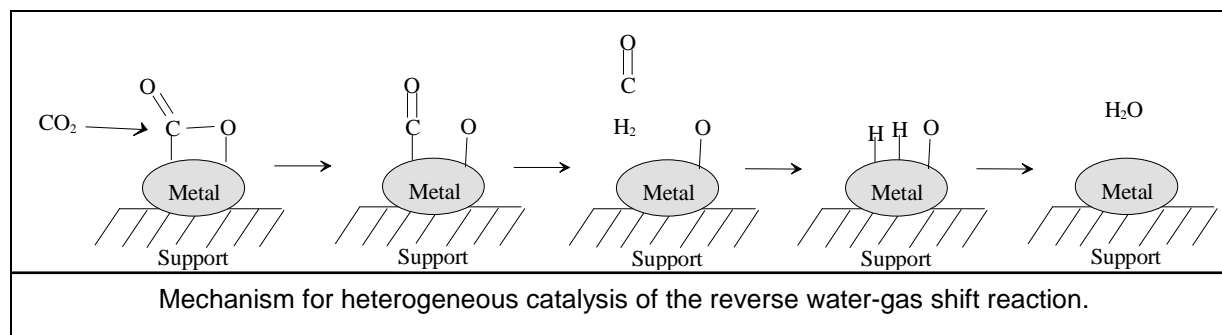
Benefits

- Catalysts with lifetimes of 6 months or more
- Low energy/ Low temperature process making conversion feasible at remote locations
- Produces valuable raw materials
- Process useful for greenhouse gas remediation efforts

Eltron has developed a family of catalysts and a process for converting CO₂ and hydrogen to CO and potable water. This technology can be used by itself or as a process step. It is especially effective if a non-fossil fuel energy source is available for generating hydrogen. The system achieves equilibrium conversion of CO₂ under conditions comparable to other catalysts and has shown lifetime no less than six months.

Catalysts researched include copper-exchanged zeolites as well as nickel, zinc and cobalt zeolites, which demonstrate increased activity at low temperatures. The process and system developed during research enables the production of water in remote locations. The energy required to operate the system is quite low, allowing it to be run on solar power.

The initial product from CO₂ processed via the RWGS reaction is carbon monoxide. Carbon monoxide is a versatile and valuable carbon feedstock due to its reactivity as an electrophile, ease of hydrogenation and usefulness as a reducing agent. In addition to producing a valuable, cost-effective raw material utilized for the industrial production of many commodity chemicals including methanol, formaldehyde, and acetic acid, Eltron's system could be applied in greenhouse gas remediation efforts.



Stage of Development

Eltron has a process prototype and pending US patents for this technology.

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