

## What is RET?

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Radiant Energy Transfer (RET\*) technique is a new process technology that has the potential of being the most efficient methodology for converting water into hydrogen.

This method relies on water's unique molecular structure and intrinsic bond energy characteristics. By optimizing the efficient absorption of energy to break the oxygen-hydrogen bond, it is possible to reach theoretical thermodynamic yields. By matching the energy distribution from the source to the energy distribution spectrum of dissociation of water, it is possible to maintain extremely high-energy transfer rates and utilization. It is possible to have efficiencies greater than 90% using the RET method. RET technology provides a means of separating hydrogen and oxygen efficiently so that recombination back to water is avoided.

### Other Process Technologies

Other process technologies utilizing water as the primary source, suffer from energy inefficiencies. For example, electrolytic methods have inherent deficiencies such as mass transfer resistances at the electrodes, dielectric resistance and power loss. Methods to improve the efficiency, such as raising the temperature or increased pressure, is limited by thermodynamic and materials considerations. Thermo-chemical techniques do not have the above limitations, but have other requirements. For each separate chemical reaction, modification of the process chemistry is needed so that the required amounts of the products are available for the next step without any waste or loss of energy. Other issues impacting on process viability, such as other chemical side reactions not part of the main reaction, availability of raw materials, chemical leakages, separation of reactants and products, and space requirements for heat transfer equipment still need to be addressed and solved before any commercialization is attempted.