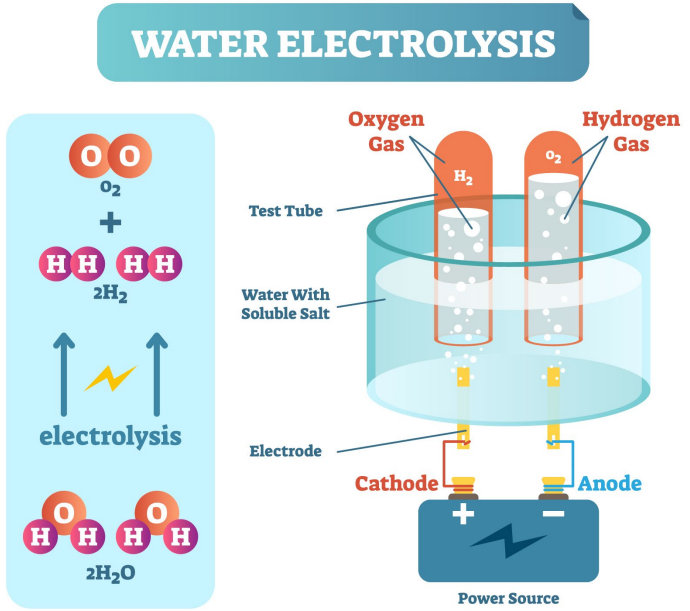
Producing hydrogen from thin air

Written by Neil Goalby. Available from rsc.li3EiwCjr

A new electrolyser has harvested water from the air, split it and collected hydrogen for green energy. The device was powered by solar energy and can operate in dry air in low humidity.

Water was captured from the atmosphere without the need for power. A porous medium was soaked in an electrolyte such as potassium hydroxide. The water was absorbed into the KOH. A voltage of 3 V was applied, to split water into hydrogen ions and hydroxide ions. The hydrogen ions formed hydrogen at the cathode, while oxygen formed at the anode.



Questions

1. Explain why hydrogen ions are attracted to the cathode.
2. Explain why this process could produce green energy.
3. Write out the half-equations for the reactions at the cathode and anode.