



Producing hydrogen directly from seawater

Slide by Neil Goalby. Available from rsc.li/401vSYs

Sea water can be electrolysed to produce hydrogen and oxygen. However, the energy costs of electrolysing sea water on a large scale are huge. Impurities in sea water can also damage electrolysis cells. The chloride ions in sea water will oxidise to produce corrosive chlorine gas.

The new process uses a low-energy method to overcome these problems. The cell has a membrane that allows water vapour to pass from the sea water into the electrolysis cell. The impurities cannot pass through the membrane. Once inside the cell, the water can be electrolysed.



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The process combines desalination and electrolysis to make energy

Questions

1. Suggest why scientists want to make hydrogen from sea water.
2. Explain why electrolysis has high energy costs.
3. Write a half equation to show how chlorine is produced from chloride ions.