



Chem!stry

Name: ()

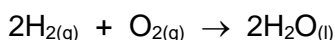
Class:

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Energy from Chemicals – Hydrogen Fuel Cells

In the future, hydrogen fuel cells may be used to power cars.

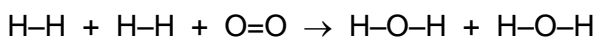
In a hydrogen fuel cell, the overall reaction is represented by the equation:



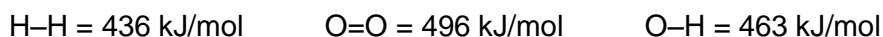
a) Explain why this reaction is exothermic in terms of bond breaking and bond formation.

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b) The overall reaction in a hydrogen fuel cell can also be represented in the following way:



Using the average bond energies given below, calculate the overall energy change for the reaction.



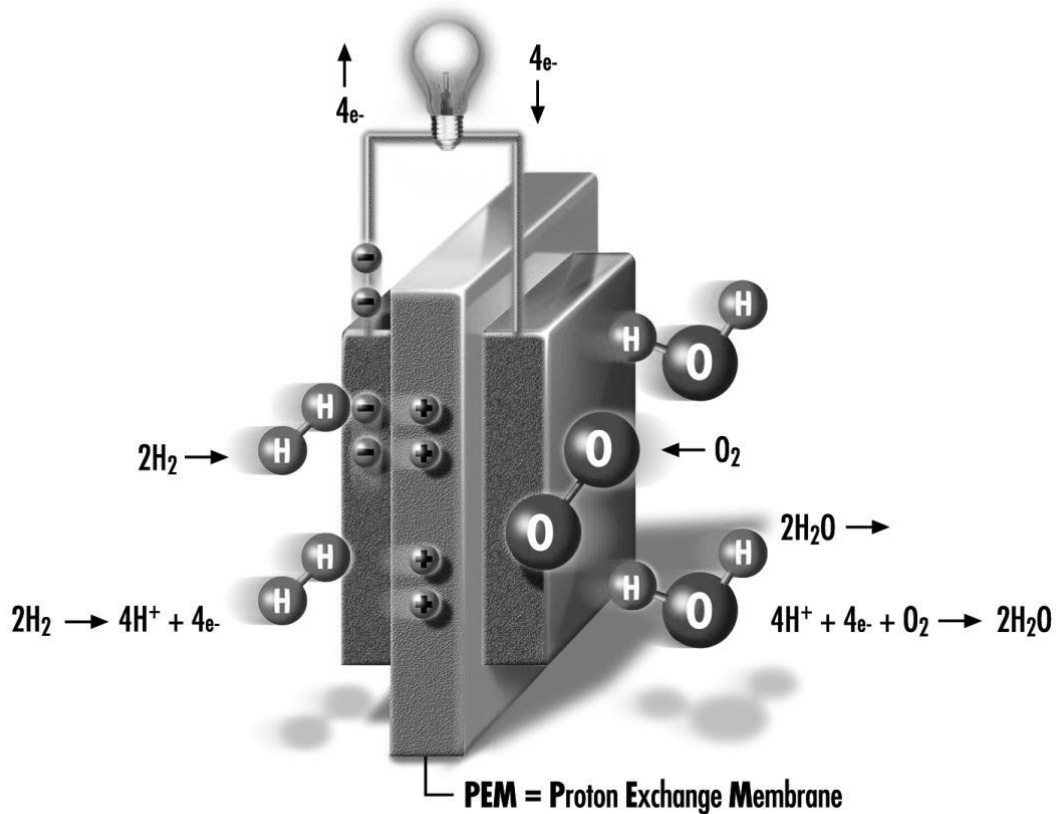
c) Why are fuel cells described as being a “source of clean energy”?

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d) In what form does the energy created by a fuel cell exist?

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e) Study the diagram of the hydrogen fuel cell shown below:



Describe the chemical changes taking place inside a hydrogen fuel cell that allow it to generate electrical energy.

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f) What are the possible problems associated with hydrogen fuel cells?

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- Scan the QR Code below for the answers to this assignment.



http://www.chemist.sg/energy_changes/hydrogen_fuel_cells_ans.pdf