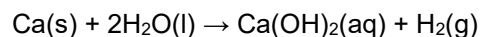


Theory v practice: do they compare?

The aim of this problem is to examine the reaction of calcium metal with water from both a theoretical and a practical viewpoint.

The reaction to be investigated is:



Theoretical value

Draw up an energy cycle for the reaction. The cycle should include the electron affinity of the hydroxide radical ($\text{OH}\cdot$) which has a value of $-176.5 \text{ kJ mol}^{-1}$. The other enthalpy values should be those quoted in standard data books.

Experimental value

Devise an accurate method of measuring the temperature change during the reaction and use this value to determine the enthalpy values for the reaction. You must have your proposed method checked for safety before you start. The aim is to ensure that the most accurate experimental result is achieved.

Health a& Safety

Eye protection must be worn.

In contact with water calcium releases flammable gases

The use of a safety screen or fume cupboard should be mandatory.

In planning this activity, you should consider health and safety. Check your plans with your teacher before implementing them.

Credits

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Health & safety checked May 2018

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