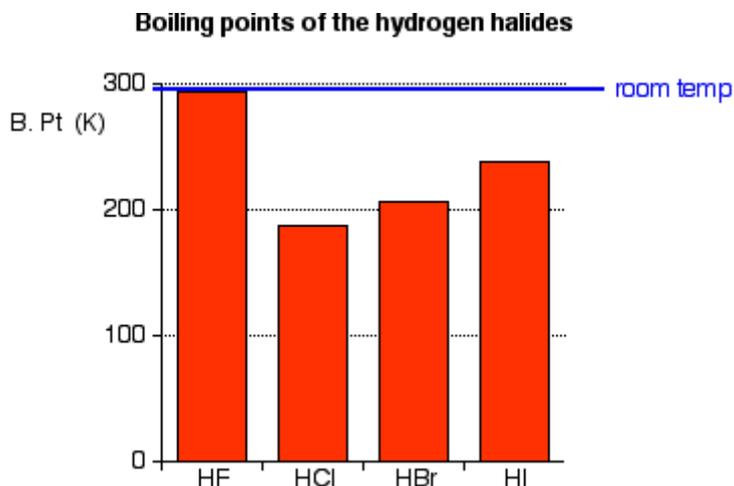


Chemguide – questions

GROUP 7: THE HYDROGEN HALIDES

1. The boiling points of the hydrogen halides are shown in this diagram from the Chemguide page:



Explain why the HF value is so much out of line with the trend in the rest of the group.

2. a) Hydrogen chloride can be made by adding concentrated sulphuric acid to solid sodium chloride in the cold.
- How would you recognise that hydrogen chloride was being formed?
 - Write the equation for the reaction.
- b) If you add concentrated sulphuric acid to sodium bromide, the hydrogen bromide is contaminated by orange fumes of bromine. If you add concentrated sulphuric acid to sodium iodide, you get mainly iodine formed and little hydrogen iodide. Explain what is happening.
- c) Hydrogen bromide and hydrogen iodide can be produced without problem by adding concentrated phosphoric(V) acid to a bromide or an iodide. Explain why that is possible.
3. a) Hydrogen chloride is a Bronsted-Lowry acid. Explain what that means and write an equation for its reaction with water to illustrate it.
- b) Hydrogen chloride is a strong acid. Use the equation that you have written in part (a) to explain what that means.
- c) Hydrogen bromide and hydrogen iodide are also strong acids, but hydrogen fluoride is a weak acid. Explain why hydrogen fluoride is a weak acid.