

Group 17 – the halogens

1) Why are the group 17 elements also known as the halogens?

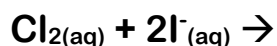
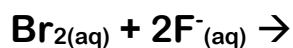
2) Describe the change in state of the group 17 elements down the group (under standard conditions).

3) Explain the meaning of the term *diatomic*.

4) Describe and explain the reactivity of the halogens down group 17.

5) Write a balanced symbol equation for the reaction of potassium and bromine.

6) Complete the equations for the following reactions (if there is no reaction, write 'no reaction').



Answers:

- 1) The term halogens mean 'salt formers'. The halogens from salts with the group 1 metals.**
- 2) F₂ and Cl₂ are gases, Br₂ is a liquid and I₂ is a solid (under standard conditions). Molecular mass increases down the group which increases the strength of the intermolecular forces between the molecules.**
- 3) The term 'diatomic' means that a molecule consists of 2 atoms (usually the same atoms, as in the halogens) bonded together.**
- 4) The reactivity decreases down a group. As the atomic radius increases down the group (more occupied energy levels) the attraction for the extra electron decreases. The increasing number of occupied energy levels also increases the electron shielding between the nucleus and the outer energy level. Fluorine has a small atomic radius and weak electron shielding between the nucleus and the outer energy level which results in a strong attraction for an extra electron.**



6)

