

11 The halogens – Part 1 — Answers

Answers

Work through these after trying the questions yourself.

11.1 (a) pale green gas \ (b) grey-black solid.

11.2 Volatility decreases (boiling point rises) down the group; the molecules get larger with more electrons, so the van der Waals' forces between them are stronger and harder to break.

11.3 It gains an electron (from another species), so the other species is oxidised.

11.4 It decreases down the group.

11.5 $\text{Cl}_2 + 2\text{KBr} \rightarrow 2\text{KCl} + \text{Br}_2$; the colourless solution turns orange (bromine is displaced).

11.6 Yes. Bromine is a stronger oxidising agent than iodine, so it displaces iodine:
 $\text{Br}_2 + 2\text{KI} \rightarrow 2\text{KBr} + \text{I}_2$. The solution turns brown as iodine forms.