Atmospheric pollutants from fuels: Worksheet 9.10.2

The products of combustion

1. Gas boilers and gas cookers are useful because hydrocarbon fuels such as methane transfer a lot of energy and are easy to transport. Write an equation for the complete combustion of a hydrocarbon fuel.

1. A faulty gas burner may not take in enough oxygen for complete combustion. If the flame is yellow it contains unburned carbon (soot). Write another word equation for a fuel burning with a sooty flame.

1. A sooty flame is cooler than a blue flame because the fuel does not burn completely. It can also be dangerous – incomplete combustion can make carbon monoxide. Write another word equation for a fuel producing carbon monoxide.

1. Some of the power stations in the UK burn coal instead of gas. This contains sulfur as well as hydrocarbons. Sulfur burns in a similar way to carbon. Predict the name and formula of the product formed and write an equation for this reaction.

1. Nitrogen is a very unreactive gas but the high temperature in a car’s internal combustion engine allows it to react with oxygen. One of the gases formed is nitrogen dioxide. Write an equation for this reaction.