

Solutions

2.1 Carbon dioxide and water.

2.2 Sulfur dioxide.

2.3 It binds haemoglobin, reducing the blood's ability to transport oxygen.

3.1 Limited oxygen supply means the fuel cannot fully oxidise; carbon monoxide forms – toxic, binds haemoglobin; particulates/soot form – worsen breathing/respiratory problems and cause global dimming.

3.2 Fossil fuels contain sulfur impurities, which burn to sulfur dioxide; the flue gases pass through a neutralising spray/slurry – typically calcium oxide or calcium carbonate; which reacts with the SO_2 , forming calcium sulfate, so less reaches the air.

3.3 Engine temperatures are high enough for nitrogen and oxygen from the air to combine; forming NO and NO_2 ; consequence – acid rain or photochemical smog; remedy – catalytic converters convert NO_x back to N_2 and O_2 .