

Common atmospheric pollutants and their sources – GCSE Chemistry

1. **No.2**

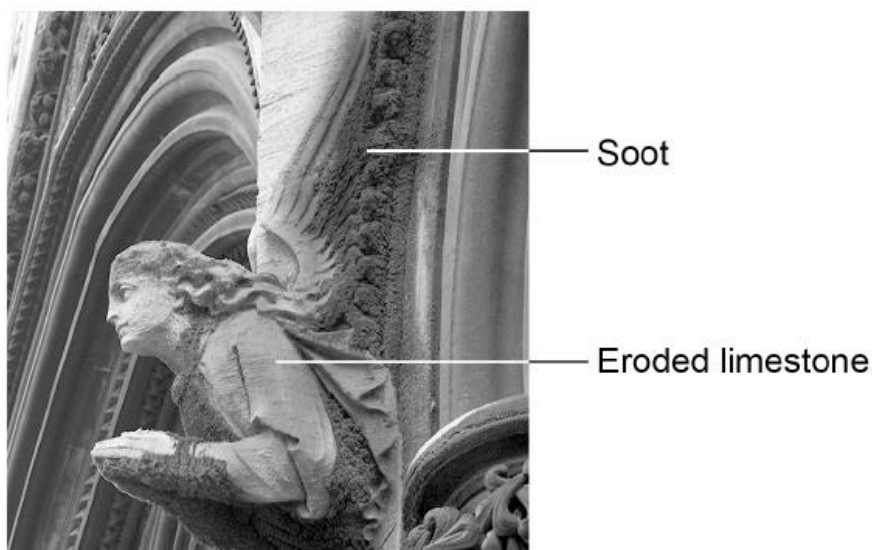
This question is about atmospheric pollution.

Figure 3 shows a limestone carving which has been damaged by atmospheric pollution.

The carving has been:

- blackened by soot
- eroded where the limestone has reacted with atmospheric pollutants.

Figure 3



What reacted with the limestone to cause the erosion?

[1 mark]

Tick (✓) **one** box.

Acid rain

☐

Ammonia

☐

Carbon monoxide

☐

Oxygen

☐

Soot is produced by the incomplete combustion of diesel oil.

Complete the sentences.

Choose answers from the box.

[2 marks]

ammonia	carbon	methane
nitrogen	oxygen	

Incomplete combustion happens when there is not enough _____.

Incomplete combustion produces particles of _____.

Complete the sentence.

[1 mark]

Particles of soot in the atmosphere cause global _____.

Carbon monoxide is produced by the incomplete combustion of methane.

Balance the equation for the reaction.

[1 mark]



Car engines work at high temperatures.

Complete the sentences.

Choose answers from the box.

[3 marks]

air	methane	oxides of nitrogen
oxygen	petrol	sulfur dioxide

In car engines, nitrogen is present.

The nitrogen in car engines comes from _____.

At high temperatures, the nitrogen reacts with _____.

This reaction produces _____.

2. No.10

This question is about hydrocarbons.

Hexane and hexene are hydrocarbons containing six carbon atoms in each molecule.

Hexane is an alkane and hexene is an alkene.

Draw **one** line from each hydrocarbon to the formula of that hydrocarbon.

[2 marks]

Hydrocarbon	Formula
	C₆H₈
Hexane	C₆H₁₀
	C₆H₁₂
Hexene	C₆H₁₄
	C₆H₁₆

Bromine water is added to hexane and to hexene.

What would be observed when bromine water is added to hexane and to hexene?

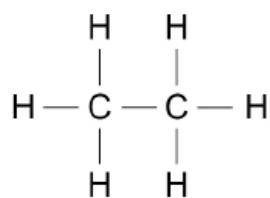
[2 marks]

Hexane _____

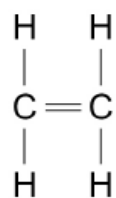
Hexene _____

Figure 8 shows the displayed structural formulae of ethane and of ethene.

Figure 8



Ethane



Ethene

Compare ethane with ethene.

You should refer to:

- their structure and bonding
- their reactions.

[6 marks]

[illegible]

3. No.6

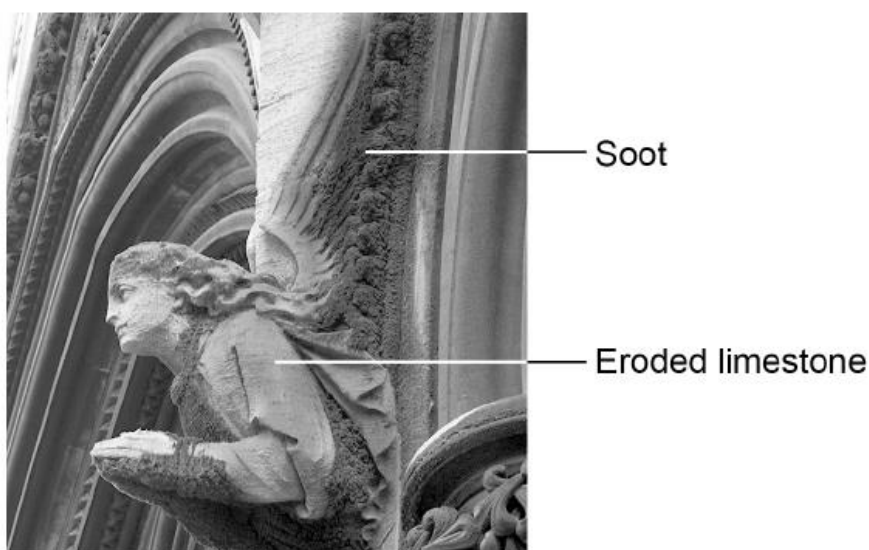
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Figure 3



Explain why soot is formed when some fossil fuels are burned.

[2 marks]

Fossil fuels are burned in car engines.

Explain how reducing the amount of sulfur in fossil fuels reduces the erosion of limestone.

[4 marks]

Oxides of nitrogen are atmospheric pollutants which are formed in car engines.

Explain why oxides of nitrogen are formed in car engines.

[2 marks]
