



BEFORE READING

Discuss the photograph:

- 1) What do you think combustion is? Can you say that in another way?
- 2) Imagine you are in the kitchen at home and a frying pan gets fire, we cover it with a rag, can you explain why people do it?
- 3) Why do we burn wood, gas and stuff like those?

Orain testua irakurri eta ...

WHILE READING

- 4) Look up the meaning of the words in bold.
- 5) Underline the most important ideas in each paragraph.
- 6) What is the substance we need to produce a combustion?
- 7) Complete combustion happens when there is a good supply of air. Why is that? What is there in the air necessary for those reactions?
- 8) What is the substance yielded during a combustion?
- 9) Is it an exothermic or an endothermic reaction?





Combustion of hydrocarbon fuels

When we burn **fuels**, we talk about fuels' combustion.

We say that fuels can undergo complete combustion or incomplete combustion, depending on the amount of oxygen available.

Complete combustion happens when there is a good supply of air. Carbon and hydrogen atoms in the hydrocarbon fuel react with oxygen in an exothermic reaction:

- carbon dioxide and water are produced
- energy is given out

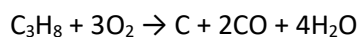
Carbon dioxide is an atmospheric **pollutant**. Incomplete combustion produces other pollutants.

Incomplete combustion

Incomplete combustion happens when the supply of air or oxygen is poor. Water is still produced, but carbon monoxide and carbon are produced. Less energy is released than during complete combustion.

For example, here is one possible equation for the incomplete combustion of propane:

propane + oxygen → carbon + carbon monoxide + water



Soot

The carbon is released as fine black particles. We see this in smoky flames, and it is deposited as **soot**. Soot can cause breathing problems and it blackens buildings. It may block boilers and other appliances, or cause a fire.

Carbon monoxide

Incomplete combustion produces smoke and invisible carbon monoxide. Carbon monoxide is a toxic gas. It is absorbed in the lungs and binds with the haemoglobin in the red blood cells. This reduces the capacity of the blood to carry oxygen. Carbon monoxide causes drowsiness, and affected people may fall unconscious or even die.

AFTER READING

- 10) Explain the relation between global warming and combustion? (Think of the products of those kind of reactions).
- 11) Find a gas whose combustion doesn't produce carbon dioxide.