

## Answer on Question #45678, Chemistry, Other

Why burning in an open air is preferred?

### Answer:

About 21% of the air is oxygen. When a fuel burns in plenty of air, it receives enough oxygen for complete combustion.

Complete combustion needs a plentiful supply of air so that the elements in the fuel react fully with oxygen.

Fuels such as natural gas and petrol contain hydrocarbons. These are compounds of hydrogen and carbon only. When they burn completely:

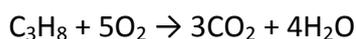
- the carbon oxidises to carbon dioxide
- the hydrogen oxidises to water (remember that water, H<sub>2</sub>O, is an oxide of hydrogen).

In general, for complete combustion:

hydrocarbon + oxygen → carbon dioxide + water

Here are the equations for the complete combustion of propane, used in bottled gas:

propane + oxygen → carbon dioxide + water



Incomplete combustion occurs when the supply of air or oxygen is poor. Water is still produced, but carbon monoxide and carbon are produced instead of carbon dioxide.

In general for incomplete combustion:

hydrocarbon + oxygen → carbon monoxide + carbon + water

The carbon is released as soot. Carbon monoxide is a poisonous gas, which is one reason why complete combustion is preferred to incomplete combustion.

Thus, when burning of any hydrocarbon releases CO<sub>2</sub> and CO which can easily escape out in atmosphere and there is no fear for the formation of acidic gases. On the other hand, when this process is carried out in closed system, formation of CO is excess that creates suffocation and ultimately causes death.

That's why, burning in open air is preferred.