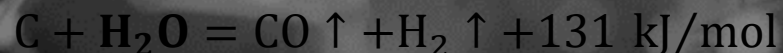


CHEMICAL DECOMPOSITION is carried out using the energy of fossil fuels. Two very important methods fall into this category:

- i. **Steam methane reforming**, which today accounts for as much as 60% of industrial hydrogen production:

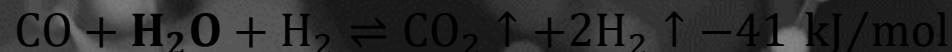


- ii. **Coal gasification**, more precisely the conversion of steam over incandescent coal, at around 1000 °C:



The energy required for these decomposition reactions, whose values are given in the above chemical equations, is supplied by methane or coal, respectively.

The intermediate product of both reactions—a mixture of carbon monoxide and hydrogen called *synthetic gas* or *syngas*—is transformed, in the presence of water as a feedstock, into a mixture of carbon dioxide and hydrogen:



This exothermic reaction provides part of the heat necessary for the preceding endothermic processes.



CHEMICAL DECOMPOSITION

