The electrolysis of water consists of two partial reactions, which take place at the two electrodes (cathode and anode chambers).

Cathode space: \[ 2 \text{H}_2\text{O} + 2 \text{e}^- \rightarrow \text{H}_2 + 2 \text{OH} \]

Anode space: \[ 6 \text{H}_2\text{O} \rightarrow \text{O}_2 + 4 \text{H}_3\text{O}^+ + 4 \text{e}^- \]

The overall reaction scheme of this redox reaction is:

\[ 2 \text{H}_2\text{O}(l) \xrightarrow{\text{Electrolysis}} 2 \text{H}_2(g) + \text{O}_2(g) \]

In this process an alkaline electrolysis is used. KOH is added to raise the conductivity of hydrogen, which improves the efficiency factor.