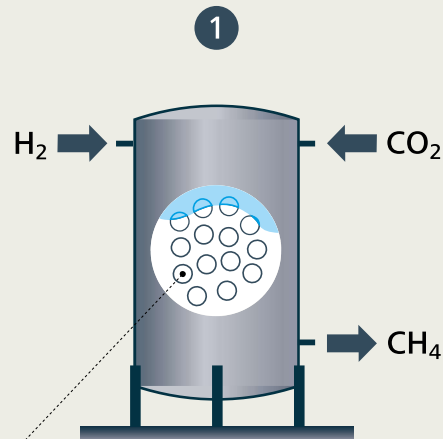
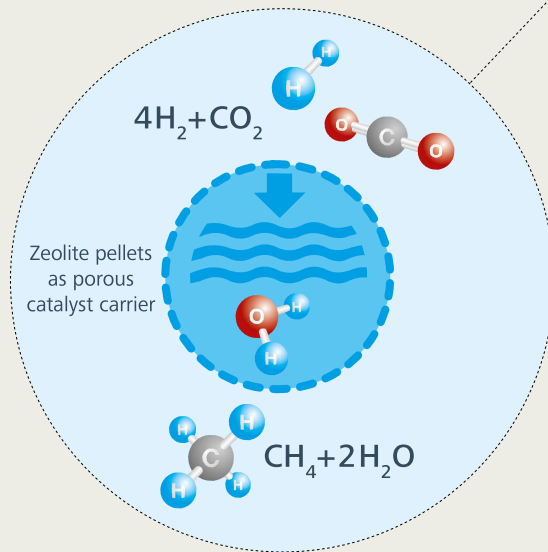

Sorption-enhanced methanation

Filling

Carbon dioxide (CO₂) and hydrogen (H₂) flow into the reactor vessel. The reactor is filled with zeolite pellets which contain the catalyst.



Chemical reaction

In the fixed-bed reactor, hydrogen and carbon dioxide are catalytically converted into methane (CH₄) and water (H₂O). The water adheres to the zeolite pellets and initially remains in the reactor. Only pure methane escapes from the reactor.

Drying and regeneration

To remove the water absorbed by the zeolite pellets from the fixed-bed reactor, the carbon dioxide supply is cut off and the reactor is flushed with hydrogen for drying. After drying, the process can start once again.

