

## Answer on Question #43874, Chemistry, Physical Chemistry

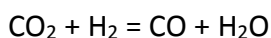
### Question:

flask A of volume 10litre containin 2ogm of hydrogen and flask B of volume 10litre containing 88gm of carbon dioxide are connected by a connector having negligible volume. when volve of the connector is opened what is the composition of the gases in flask B after opening the volve?

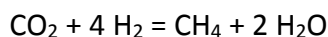
### Answer:

As the conditions are not specified, the products may be different.

At first, the carbon dioxide can be reduced to carbon monoxide:



Also, according to the Sabatier process at elevated temperatures and pressures in the presence of a nickel catalyst carbon dioxide with hydrogen produce methane and water:



The reaction above is exothermic and runs with energy release. Thus, the flask B can contain carbon dioxide, carbon monoxide and water. The presence of methane and other products, like methanol, is very doubtful. As these processes are equilibriums, so the presence of both oxides is very likely.