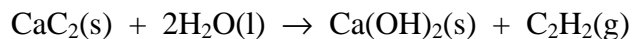


Marks
4

- Acetylene, C_2H_2 , can be produced by reacting calcium carbide, CaC_2 , with water:



A 1.000 g sample of CaC_2 is placed in a sealed vessel that contains 250.0 mL of $H_2O(l)$ and 250.0 mL of $N_2(g)$ at 1.000 atm, and allowed to react completely with the water. The final pressure in the sealed vessel at 22.0 °C is 2.537 atm. Determine the vapour pressure of water in the sealed vessel at 22.0 °C. Give your answer in mmHg. Ignore any change in the volume of the water.

Answer:

The solubility of acetylene in water at 22.0 °C is small. If the temperature were raised, would you expect this solubility to increase or decrease?