Marks 3

- Acetylene, C_2H_2, is an important fuel in welding. It is produced in the laboratory when calcium carbide, CaC_2, reacts with water:

$$CaC_2(s) + 2H_2O(l) \rightarrow C_2H_2(g) + Ca(OH)_2(s)$$

For a sample of C_2H_2 collected over water, the total gas pressure was 748 mmHg and the volume was 543 mL. At the gas temperature (23 ^oC), the vapour pressure of water is 21 mmHg. What mass of acetylene was collected?

Answer:

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