Marks
6

- Assume that NaCl is the only significant solute in seawater. A 1.000 L sample of seawater at 25 ℃ and 1 atm has a mass of 1.0275 kg and contains 33.0 g of NaCl. At what temperature would this seawater freeze? The freezing point depression constant of water is 1.86 ℃ kg mol^{-1}.

Answer:

The vapour pressure above pure H_2O is 23.76 mmHg at 25 ℃ and 1 atm. Calculate the vapour pressure above this seawater under the same conditions.

Answer:

The desalination of seawater by reverse osmosis has been suggested as a way of alleviating water shortages in Sydney. What pressure (in Pa) would need to be applied to this seawater in order to force it through a semi-permeable membrane, yielding pure H_2O?

Answer: