

15.1 WATER AND ITS PROPERTIES

Section Review

Objectives

- Explain the high surface tension and low vapor pressure of water in terms of the structure of the water molecule and hydrogen bonding
- Describe the structure of ice

Vocabulary

- surface tension
- surfactant

Part A Completion

Use this completion exercise to check your understanding of the concepts and terms that are introduced in this section. Each blank can be completed with a term, short phrase, or number.

Each O—H bond in a water molecule is highly 1. Oxygen 1. polar
acquires a partial 2 charge, while hydrogen acquires a 2. negative
partial 3 charge. Because the H—O—H bond angle is 105° , 3. positive
the water molecule as a whole is 4. 4. polar
Water molecules are attracted to each other by intermolecular 5. hydrogen
5 bonds. This bonding accounts for many properties 6. low
of water, such as its 6 vapor pressure and 7 7. high
boiling point. Hydrogen bonding is also responsible for the high 8. surface
8 tension of water. Liquids tend to minimize their surface 9. spherical
area and form 9 droplets because of their surface tension. 10. surfactant
The surface tension of water can be reduced by adding a 10 11. ice
11 floats in liquid water. This is because it is less 12. dense
12 than water. Ice has a rigid open structure, which is also 13. hydrogen bonding
due to 13.

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.