

Chemistry

Name _____

Mrs. Pavlovich

Mon/Thurs Period _____

Quiz – Reading a graph

Use Table H to answer the following questions:

1. What is the title of the graph?
2. What quantity is graphed on the x axis? What units is it measured in?
3. What is the range of temperatures?
4. What quantity is shown on the y axis?
5. Looking at Table A, what is important about 101.3 kPa?
6. What is the vapor pressure of propanone at 45°C?
7. What is the vapor pressure of ethanol at 90°C?
8. What is the vapor pressure of each substance at 75° C?
ethanoic acid _____
water _____
ethanol _____
propanone _____
9. What is the temperature corresponding to 101.3 kPa for each of the substances?
ethanoic acid _____
water _____
ethanol _____
propanone _____

10. Draw the structure of water.

11. Draw 2 molecules of water showing the hydrogen bonding between molecules.

12. Looking at Table R, draw the structure of propanone, ethanol, and ethanoic acid.

13. Draw 2 molecules of ethanoic acid showing the hydrogen bonding between molecules.

14. Does propanone exhibit hydrogen bonding? Why or why not?

15. What is the vapor pressure of water at 100°C?

16. What is the normal boiling point of water?

17. Combine questions 15 and 16 into a general statement about vapor pressure and atmospheric pressure.

Ans: The “normal boiling point” of a substance is the temperature at which the vapor pressure of the substance equals sea level atmospheric pressure (101.3 kPa).

18. Combine questions 8, 11, 13, and 14 into a general statement about intermolecular forces and vapor pressure.

Ans: When IMF's are stronger, the vapor pressure is lower and the boiling point is higher. Hydrogen bonding

Definitions:

Vapor – A gas formed by boiling or evaporating a liquid. A gas that is usually a liquid at room temperature.

Vapor pressure – the pressure exerted by the molecules of a vapor. The pressure exerted by a vapor when it is in contact with its liquid form in a closed container.

Fun facts about vapor pressure:

Higher vapor pressure is an indication of a liquid's higher evaporation rate. Ex. Which evaporates more quickly, acetone (nail polish remover aka propanone) or water?

Adding solute to a substance **LOWERS** the vapor pressure, just like it lowers the freezing point and raises the boiling point.

