



CHEM 1212 General Chemistry II

Chapter 10. Liquids and Solids

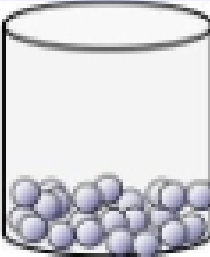
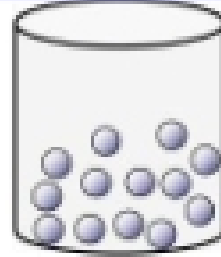
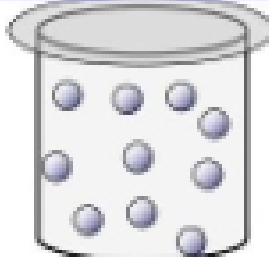
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Properties of Solids, Liquids, and Gases

• In Ch. 5 we saw that the properties of all ideal gases were the same, regardless of the chemical identity of the substance.

• The properties of liquid and solids have a dependence on the chemical identity of the substance.

Property	Solid	Liquid	Gas
			
Shape	Has definite shape	Takes the shape of the container	Takes the shape of its container
Volume	Has a definite volume High densities	Has a definite volume High densities	Fills the volume of the container Low densities
Bonding	Ionic, Metallic, Covalent	Covalent	Covalent
Arrangement of Particles	Fixed, very close Crystalline or amorphous	Random, close	Random, far apart, Collisions
Interactions <u>Between</u> Particles	<u>Very strong forces:</u> (i.e. Melting point, malleability, ductility, conductivity...)	<u>Strong forces:</u> (i.e. Boiling point, Surface Tension, Viscosity, Vapor pressure...)	Essentially none

States of Matter

- The fundamental difference between states of matter is the strength of the **intermolecular forces** of attraction.
- Stronger forces bring molecules closer together.
- Kinetic energy keeps them apart and moving.

