

Chapter 4 The Gaseous State

I. States of Matter and Fluids

II. Atmospheric Pressure

cause

density of air

2 factors involved in changing atmospheric pressure

Standard Atmospheric Pressure

vacuum

barometer

Principles of Liquids that	
Do Apply to Gases	Do NOT Apply to Gases

III. Gas Laws

Boyle's Law

Charles's Law

Combined Gas Law

Avogadro's Law

The gram mass of 1 mole of a pure substance is equal to its molecular weight.

General Gas Law

pneumatic device

Examples:

1. 750 cm^3 of oxygen is confined in a cylinder at 1.0 atm of pressure. The pressure is increased to 860 torr. What is its new volume of oxygen?
2. A car tire is inflated to a pressure of 33 lb/in^2 at 300.0 K. After driving the tire's pressure has increased to 38 lb/in^2 . What is the new temperature of the tire assuming the volume remains constant?
3. How many moles of oxygen gas can be held in a 25.0 L container at 300 K and a pressure of 54.0 lb/in^2 ? How many grams of O_2 do you have?