

GEHS 7500

Air Sampling & Analysis

- General gas properties

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General Gas Properties

1. Ideal Gas Law
2. Dalton's Law
3. Fick's Law
4. Henry's Law
5. Clausius-Clapeyron & Antoine Equations
6. Concentration units

Ideal Gas Law

The equation of state for an ideal gas:

$$PV = nRT$$

$$R = 0.082056 \text{ L} \cdot \text{atm} / \text{mole} \cdot ^\circ\text{K}$$

n = number of moles of gas

since R & n are constants,

$$nR = \frac{PV}{T} = \text{constant}$$

and

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2} \quad \& \quad V_2 = V_1 \frac{P_1}{P_2} \frac{T_2}{T_1}$$

