Teacher's Tools® Chemistry
Gases and Stoichiometry: Non Ideal Gases: Worksheet 3

1. Real gases deviate from ideal gas behavior. Using ideas of kinetic-molecular theory, explain how the ideal gas assumptions break down for non-ideal gases.

2. At STP, which of the following gases shows the greatest deviation from ideal behavior? Give two reasons for your choice.

CCl_4, SO_2, Br_2, CO_2

3. Under what conditions do real gases approach ideal gas behavior?

4. The van der Waals equation of state a real gas is as follows:

$$\left(P + a\left(\frac{n}{V}\right)^2\right)(V - nb) = nRT$$

Describe which physical properties of a molecule determine the magnitudes of the constants a and b.