

### **Answer on Question #81016, Chemistry, General Chemistry**

According to Le Chatelier's principle, increased pressure will \_\_\_\_\_.

- A. always shift the equilibrium to a higher reaction rate
- B. shift the equilibrium toward the side with the largest number of gas molecules
- C. destroy the equilibrium if there are no gas molecules
- D. shift the equilibrium away from the side with the largest number of gas molecules
- E. destroy the equilibrium if the number of gas molecules is equal on both sides

#### **Solution:**

According to Le Chatelier's principle:

The equilibrium concentrations of the products and reactants do not directly depend on the total pressure of the system. They may depend on the partial pressures of the products and reactants, but if the number of moles of gaseous reactants is equal to the number of moles of gaseous products, pressure has no effect on equilibrium.

Changing total pressure by adding an inert gas at constant volume does not affect the equilibrium concentrations.

Changing total pressure by changing the volume of the system changes the partial pressures of the products and reactants and can affect the equilibrium concentrations.

So increased pressure will shift the equilibrium away from the side with the largest number of gas molecules.

**Answer: D.**