

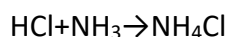
Answer on Question #65761 - Chemistry - Physical Chemistry

Question:

Question 10 : Which of the following statements describes an isolated system?

- No exchange of matter and energy with the surrounding is possible
- exchange of both matter and energy with the surrounding is possible
- only exchange of matter with the surrounding is possible
- only exchange of energy with the surrounding is possible

Question 11 : Calculate the ΔH value of the reaction:



ΔH_o values for HCl, NH_3 and NH_4Cl are -92.30, -80.29 and -314.4 respectively

- 486.99
- 252.88
- 141.8
- 141.8

Question 12 : Which of these is true of an isochoric system?

- Volume remains constant
- Heat is allowed into the system but not allowed out of the system
- Takes place at constant temperature
- Pressure is not constant

Solution:

Question 10: An isolated system is a thermodynamic system that does not exchange with the environment either substance or energy. So the correct answer: no exchange of matter and energy with the surrounding is possible.

Question 11: $\text{HCl} + \text{NH}_3 \rightarrow \text{NH}_4\text{Cl}$

The standard enthalpy change is calculated by the following formula:

$$\Delta H_r = \sum \Delta H_{0,products} - \sum \Delta H_{0,initial}$$

$$\Delta H_r = (-314.4) - (-92.30) - (-80.29) = -141.8 \text{ J}$$

So the correct answer: ΔH value is -141.8.

Question 12: Isochoric process – a thermodynamic process that occurs at constant volume. The pressure and temperature – variables. So the correct answer: volume remains constant and pressure is not constant.

Answer: Question 10: no exchange of matter and energy with the surrounding is possible;

Question 11: -141.8;

Question 12: volume remains constant and pressure is not constant.