

Answer on Question #75770 - Chemistry - Physical Chemistry

Question: Inter mixing of ideal gas (at the same temperature) is example of and why?

- (a) reversible isothermal
- (b) irreversible isothermal and adiabatic
- (c) reversible adiabatic
- (d) none

Solution:

- (a) reversible isothermal

Assume that the partition is subtracted, so that the gases can freely diffuse throughout the volume. For an ideal gas, energy does not depend on volume, and for each gas there is no temperature change. (The energy of the general system does not change, both gas were at the same temperature at first, therefore the final temperature is the same as the initial temperature). The change in the entropy of each gas is thus the same as for a reversible isothermal expansion from the initial specific volume i to the final definite volume.

Answer: (a) reversible isothermal.