

# ADIABATIC

*Meaning: Adiabatic refers to a process in thermodynamics where no heat is transferred to or from a system during expansion or compression.*

1. The concept of adiabatic processes is fundamental in thermodynamics.
2. An adiabatic expansion occurs when a gas expands without exchanging heat with its surroundings.
3. In an adiabatic system, the internal energy of the gas changes solely due to work done on or by the gas.
4. The adiabatic cooling effect is often utilized in energy-efficient HVAC systems.
5. Scientists studied the adiabatic lapse rate to understand atmospheric temperature changes with altitude.
6. In a perfectly adiabatic process, no heat is lost, making it an idealized situation.
7. The compressor in the refrigeration cycle operates under adiabatic conditions to maximize efficiency.
8. During adiabatic compression, the temperature of the gas increases as its volume decreases.
9. The adiabatic theorem explains how quantum systems evolve without thermal interactions.
10. Understanding adiabatic processes is crucial for improving the performance of engines and turbines.

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