

Advanced Thermodynamics
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Effect of Pressure on equilibrium transformations: Clausius Clapeyron equation, phase diagram for unary system

Questions:

1. How is free energy expressed in terms of temperature and pressure?
2. Why we cannot use enthalpy or entropy to define stability of a phase?
3. How does the melting of Al, water, gray cast iron change with pressure?
Please give reasons for your answers.
4. Comment on the slopes of liquid and solid regimes of a cooling curve during solidification.
5. Based on Clasiun-Clayperon equation comment on the influence of pressure on graphite to diamond transformation and austenite to martensite transformation.
6. What do you understand from the sign of the slopes of phase boundaries in the phase diagram of H₂O?