

CHAPTER OVERVIEW

22: Helmholtz and Gibbs Energies

22.1: Helmholtz Energy

22.2: Gibbs Energy Determines the Direction of Spontaneity at Constant Pressure and Temperature

22.3: The Maxwell Relations

22.4: The Enthalpy of an Ideal Gas is Independent of Pressure

22.5: Thermodynamic Functions have Natural Variables

22.6: The Standard State for a Gas is an Ideal Gas at 1 Bar

22.7: The Gibbs-Helmholtz Equation

22.8: Fugacity Measures Nonideality of a Gas

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