

Contents

Chem Activity	Topic	Page
	Gases	
G1	Gases (I)	1
G1A	The Maxwell-Boltzmann Speed Distribution Law	6
G1B	Average Values	9
G2	Gases (II)	11
	Thermodynamics	
T1	Work	16
T2	The First Law of Thermodynamics	17
T3	Enthalpy	18
T3A	Enthalpy	19
T4	Heat Capacity	21
T5	Temperature Dependence of the Enthalpy of Reaction	23
T6	Entropy	25
T7	Entropy Changes as a Function of Temperature	28
T8	The Third Law of Thermodynamics	32
T9	Gibbs Energy and Helmholtz Energy	34
T10	Gibbs Energy as a Function of Temperature and Pressure	35
T10A	Euler's Criterion	36
T11	Equilibrium	38
T12	Temperature Dependence of the Equilibrium Constant	43
T13	Temperature and Pressure Dependence of Phase Equilibria for Pure Phases	47
T14	Vapor Pressure and One Component Phase Diagrams	54
T15	The Ideal Solution	56
T16	Chemical Potential for a Component of a Solution	58
T17	Partial Molar Quantities	59
T18	Colligative Properties	61
T19	Osmotic Pressure	63
T20	The Phase Rule	64
T21	Solid-Liquid Phase Equilibria	65
T22	More Complicated Solid-Liquid Phase Equilibria	68
T23	Liquid-Vapor Phase Equilibria	70
	Electrochemistry	
E1	Electrolyte Solutions	73
E2	The Debye-Hückel Theory of Electrolyte Solutions	75
E3	The Structure of Electrolyte Solutions	77
E4	Electrode Potentials	80
E5	Electrochemical Cells	82
E6	Temperature Dependence of Cell Voltage	86
	Kinetics	
K1	Introduction to Chemical Kinetics	87
K2	Integrated Rate Laws	89

K3	The Method of Isolation for Determining Rate Laws	90
K4	Reaction Mechanism	92
K5	Activation Energy (I)	97
K5A	Activation Energy (II)	99
K6	Enzyme Kinetics	100
K6A	Collision Theory of Gas Phase Reactions	104
K6B	Analysis of a Gas Phase Chain Reaction	105
K7	Transition State Theory	107
MathActivity		
M1	Mathematics for Thermodynamics	110
