



CHEMISTRY

CHEAT SHEET

EQUILIBRIUM

EQUILIBRIUM CHEAT SHEET

Chemical Equilibrium occurs when the concentrations of the chemical species remain the same with time (dynamic equilibrium). Equilibrium reactions are represented by the reaction:

<p>General Representation of Equilibrium</p> <p>Chemical Equilibrium occurs when the concentrations of the chemical species remain the same with time (dynamic equilibrium). Equilibrium reactions are represented by the reaction:</p> <p>For the reaction: $aA + bB \rightleftharpoons cC + dD$</p> <p>The equilibrium constant is defined as:</p> $K_c = \frac{[C]^c [D]^d}{[A]^a [B]^b}$	<p>Equilibrium Constant</p> <p>For the reaction: $aA + bB \rightleftharpoons cC + dD$</p> <p>The equilibrium constant is defined as:</p> $K_c = \frac{[C]^c [D]^d}{[A]^a [B]^b}$									
<p>Equilibrium Constant, K_c</p> <p>The equilibrium constant, K_c, is defined as the ratio of the concentrations of the products to the concentrations of the reactants, each raised to the power of its stoichiometric coefficient.</p> <p>For the reaction: $aA + bB \rightleftharpoons cC + dD$</p> $K_c = \frac{[C]^c [D]^d}{[A]^a [B]^b}$	<p>Equilibrium Constant, K_c</p> <table><tr><th>Equilibrium Constant, K_c</th><th>Meaning</th></tr><tr><td>$K_c > 1$</td><td>Concentration of products is greater than concentration of reactants.</td></tr><tr><td>$K_c < 1$</td><td>Concentration of reactants is greater than concentration of products.</td></tr><tr><td>$K_c = 1$</td><td>Concentration of reactants is equal to concentration of products.</td></tr></table>		Equilibrium Constant, K_c	Meaning	$K_c > 1$	Concentration of products is greater than concentration of reactants.	$K_c < 1$	Concentration of reactants is greater than concentration of products.	$K_c = 1$	Concentration of reactants is equal to concentration of products.
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<p>Equilibrium Constant, K_p</p> <p>The equilibrium constant, K_p, is defined as the ratio of the partial pressures of the products to the partial pressures of the reactants, each raised to the power of its stoichiometric coefficient.</p> <p>For the reaction: $aA + bB \rightleftharpoons cC + dD$</p> $K_p = \frac{P_C^c P_D^d}{P_A^a P_B^b}$	<p>Equilibrium Constant, K_p</p> <table><tr><th>Equilibrium Constant, K_p</th><th>Meaning</th></tr><tr><td>$K_p > 1$</td><td>Partial pressure of products is greater than partial pressure of reactants.</td></tr><tr><td>$K_p < 1$</td><td>Partial pressure of reactants is greater than partial pressure of products.</td></tr><tr><td>$K_p = 1$</td><td>Partial pressure of reactants is equal to partial pressure of products.</td></tr></table>		Equilibrium Constant, K_p	Meaning	$K_p > 1$	Partial pressure of products is greater than partial pressure of reactants.	$K_p < 1$	Partial pressure of reactants is greater than partial pressure of products.	$K_p = 1$	Partial pressure of reactants is equal to partial pressure of products.
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<p>Le Chatelier's Principle: the effect of changing conditions on equilibrium</p>										
<p>Concentration</p>	<p>Effect on Equilibrium</p> <ul style="list-style-type: none">Increasing concentration of a reactant will shift the equilibrium to the right.Increasing concentration of a product will shift the equilibrium to the left.	<p>Example</p> <p>For the reaction: $N_2 + 3H_2 \rightleftharpoons 2NH_3$</p> <p>Increasing concentration of N_2 will shift the equilibrium to the right, increasing the concentration of NH_3.</p>								
<p>Pressure</p>	<p>Effect on Equilibrium</p> <ul style="list-style-type: none">Increasing pressure will shift the equilibrium to the side with the fewest moles of gas.Decreasing pressure will shift the equilibrium to the side with the most moles of gas.	<p>Example</p> <p>For the reaction: $N_2 + 3H_2 \rightleftharpoons 2NH_3$</p> <p>Increasing pressure will shift the equilibrium to the right, increasing the concentration of NH_3.</p>								
<p>Temperature</p>	<p>Effect on Equilibrium</p> <ul style="list-style-type: none">Increasing temperature will shift the equilibrium to the side that is endothermic.Decreasing temperature will shift the equilibrium to the side that is exothermic.	<p>Example</p> <p>For the reaction: $N_2 + 3H_2 \rightleftharpoons 2NH_3$</p> <p>Increasing temperature will shift the equilibrium to the left, decreasing the concentration of NH_3.</p>								

Chemical Equilibrium Study Guide

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Chemical Principles Student's Study Guide & Solutions Manual John Krenos, Joseph Potenza, Loretta Jones, Lynn Koplitz, Thomas Spence, 2004-03-19 This combination manual is designed to help students avoid common mistakes and understand the material better The solutions manual section includes detailed answers and explanations to the odd numbered exercises in the text

Study Guide for Chemical Principles [by] Steven S. Zumdahl Steven S. Zumdahl, Paul B. Kelter, 1995 The Study Guide reflects the unique problem solving approach taken by the Chemical Principles text The new edition of the Study Guide includes many new worked out examples

Study Guide, Chemical Principles, Fifth Edition, Zumdahl Paul B. Kelter, Steven S. Zumdahl, 2004-04

Study Guide to Accompany Basics for Chemistry Martha Mackin, 2012-12-02 Study Guide to Accompany Basics for Chemistry is an 18 chapter text designed to be used with Basics for Chemistry textbook Each chapter contains Overview Topical Outline Skills and Common Mistakes which are all keyed to the textbook for easy cross reference The Overview section summarizes the content of the chapter and includes a comprehensive listing of terms a summary of general concepts and a list of numerical exercises while the Topical Outline provides the subtopic heads that carry the corresponding chapter and section numbers as they appear in the textbook The Fill in Multiple Choice are two sets of questions that include every concept and numerical exercise introduced in the chapter and the Skills section provides developed exercises to apply the new concepts in the chapter to particular examples The Common Mistakes section is designed to help avoid some of the errors that students make in their effort to learn chemistry while the Practical Test section includes matching and multiple choice questions that comprehensively cover almost every concept and numerical problem in the chapter After briefly dealing with an overview of chemistry this book goes on exploring the concept of matter energy measurement problem solving atom periodic table and chemical bonding These topics are followed by discussions on writing names and formulas of compounds chemical formulas and the mole chemical reactions calculations based on equations gases and the properties of a liquid The remaining chapters examine the solutions acids bases salts oxidation reduction reactions electrochemistry chemical kinetics and equilibrium and nuclear organic and biological chemistry This study guide will be of great value to chemistry teachers and students

Chemistry, Student Study Guide James E. Brady, Fred Senese, 2008-01-28 The image on the front cover depicts a carbon nanotube emerging from a glowing plasma of hydrogen and carbon as it forms around particles of a metal catalyst Carbon nanotubes are a recently discovered allotrope of carbon Three other allotropes of carbon buckyballs graphite and diamond are illustrated at the left as is the molecule methane CH_4 from which nanotubes and buckyballs can be made The element carbon forms an amazing number of compounds with structures that follow from simple methane found in natural gas to the complex

macromolecules that serve as the basis of life on our planet The study of chemistry also follows from the simple to the more complex and the strength of this text is that it enables students with varied backgrounds to proceed together to significant levels of achievement *Resources in Education* ,1996-05 Barron's Science 360: A Complete Study Guide to Chemistry with Online Practice Barron's Educational Series,Mark Kernion,Joseph A. Mascetta,2021-09-07 Barron s Science 360 Chemistry is your complete go to guide for everything chemistry This comprehensive guide is an essential resource for High school and college courses Homeschooling Virtual Learning Learning pods Inside you ll find Comprehensive Content Review Begin your study with the basic building block of chemistry and build as you go Topics include atomic structure chemical formulas electrochemistry the basics of organic chemistry and much more Effective Organization Topic organization and simple lesson formats break down the subject matter into manageable learning modules that help guide a successful study plan customized to your needs Clear Examples and Illustrations Easy to follow explanations hundreds of helpful illustrations and numerous step by step examples make this book ideal for self study and rapid learning Practice Exercises Each chapter ends with practice exercises designed to reinforce and extend key skills and concepts These checkup exercises along with the answers and solutions will help you assess your understanding and monitor your progress Access to Online Practice Take your learning online for 50 practice questions designed to test your knowledge with automated scoring to show you how far you have come **CHEMISTRY HANDBOOK & STUDY GUIDE Gr11-12 NE** Kevin Smith,2024-02-01 A comprehensive summary of Grade 11 12 Physics Simple logical summaries with example exam questions and work through solutions The book covers the fundamentals of Grade 11 12 Physics and complements the material in any class text **Study Guide for Chemistry, Third Edition [by] Steven S. Zumdahl** Paul B. Kelter,1993 *Self Study Guide for PVT 2022* Arihant Experts,2021-09-02 1 All India Pre Veterinary Test Entrance Examination is prepared for the entrance of the VET 2 The Guide is divided into 4 main sections 3 Complete Study Material as per prescribed syllabus Pattern by AIPVT 4 Previous Years Solved Papers for practice 5 Division of chapters strictly based on the latest syllabus 6 Step by step guidance is provided for better understanding of the concepts To succeed in the AIPVT Examination grab your copies of Self Study Guide PVT All India Pre Veterinary Test a revised edition that has been prepared exactly on the lines of pattern Level and syllabi of the exam Its approach has been kept simple and lucid presented in a Step by Step manner for complete grasp of the content This guide divides the whole syllabus into 4 major categories and every chapter is provided with ample exercises for practice Lastly Previous Years Papers are incorporated to make students familiar with exact examination pattern and trends Enough practice done through this book students will score high with good ranking TOC AIPVT Solved Paper 2021 2018 Physics Chemistry Botany Appendix Pass the TEAS V! Complete Study Guide with Practice Questions Complete Test Preparation Inc.,2012-09-07 Complete TEAS V study guide with practice test questions tutorials test tips and multiple choice strategies prepared by a dedicated team of experts *Study Guide to Accompany Calculus for the Management, Life, and Social*

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