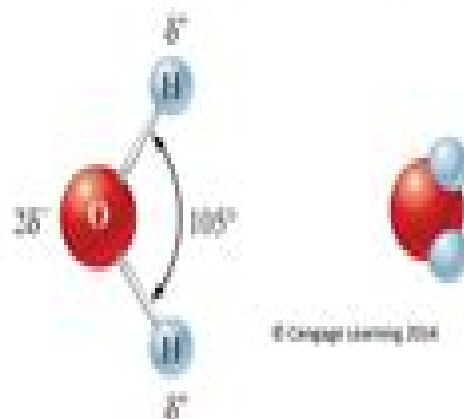


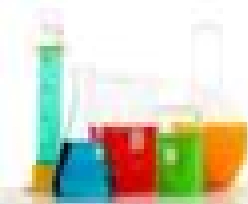
4.1 Water: Common Solvent

1.4 الماء: المذيب الشائع

- ❖ Water, The common solvent
- ❖ Aqueous solutions: the solvent is water
- ❖ One of the most important substances on Earth.
- ❖ Can dissolve many different substances.
- ❖ Liquid water consists of collection of H_2O molecules. Each molecule has bent or V-shape with H-O-H angle of 105° .
- ❖ O-H bond is a covalent bond: The electron sharing is not equal between two atoms
- ❖ Water is a polar molecule: The oxygen attract electron more than hydrogen so that oxygen has slight negative charge and hydrogen has slight positive charge.
- ❖ A polar molecule because of its unequal charge distribution.



- ❖ الماء هو مذيب شائع.
- ❖ المحاليل المائية تعني أن الماء هو المذيب.
- ❖ يعتبر الماء واحداً من أهم المواد الموجودة على سطح الأرض.
- ❖ يمكن للماء أن يذيب العديد من المركبات و المواد الأخرى.
- ❖ يتكون سائل الماء على العديد من جزيئات الماء H_2O و كل جزيء يمتلك زاوية منقعدة على شكل حرف V ، بحيث تكون الزاوية $H-O-H$ تساوي 105° درجة.
- ❖ نوع الرابطة $H-O$ هي تساهمية ، و لكن تشارك الإلكترونات ليس متساوياً بين كلا الذرتين.
- ❖ الماء جزيء قطبي . فالأكسجين يعمل على جذب الإلكترون نحو أكثر من الهيدروجين و عليه فإن الأكسجين تكون عليه شحنة جزئية سالبة و على ذرة الهيدروجين شحنة جزئية موجبة.
- ❖ الجزيء القطبي هو نتيجة للتوزيع غير المتجانس للشحنة.



Zumdahl Chemistry Stoichiometry

Steven S. Zumdahl, Thomas J. Hummel

A red circular graphic with a gradient, appearing as a partial circle or a stylized arrow pointing to the right, located to the right of the authors' names.

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DNA Nanoscience Kenneth Douglas,2016-10-14 DNA Nanoscience From Prebiotic Origins to Emerging Nanotechnology melds two tales of DNA One is a look at the first 35 years of DNA nanotechnology to better appreciate what lies ahead in this emerging field The other story looks back 4 billion years to the possible origins of DNA which are shrouded in mystery The book is divided into three parts comprised of 15 chapters and two Brief Interludes Part I includes subjects underpinning the book such as a primer on DNA the broader discipline of nanoscience and experimental tools used by the principals in the narrative Part II examines the field of structural DNA nanotechnology founded by biochemist crystallographer Nadrian Seeman that uses DNA as a construction material for nanoscale structures and devices rather than as a genetic material Part III looks at the work of physicists Noel Clark and Tommaso Bellini who found that short DNA nanoDNA forms liquid crystals that act as a structural gatekeeper

orchestrating a series of self assembly processes using nanoDNA This led to an explanation of the polymeric structure of DNA and of how life may have emerged from the prebiotic clutter

Polyoxometalate Molecular Science Juan J. Borrás-Almenar, E. Coronado, Achim Müller, M.T. Pope, 2012-12-06 Polyoxometalates POMs form a large distinctive class of molecular inorganic compounds of unrivaled electronic versatility and structural variation with impacts ranging from chemistry catalysis and materials science to biology and medicine This book covers the basic principles governing the structure bonding and reactivity of these metal oxygen cluster anions and the major developments in their molecular science The book comprises three sections The first covers areas ranging from topological principles via synthesis and stability to reactivity in solution It also focuses on the physical methods currently used to extract information on the molecular and electronic structures as well as the physical properties of these clusters The second part reviews different types of POMs focusing on those systems that currently impact other areas of interest such as supramolecular chemistry nanochemistry and molecular magnetism The third section is devoted to POM based materials and their applications and prospects in catalysis and materials science

Educating for OSHA Savvy Chemists Paul J. Utterback, 1998 This book discusses how the basic principles of chemical safety can be incorporated in chemical education curricula It includes numerous examples and techniques and it describes chemical laboratory compliance programs written in accordance with OSHA s laboratory standards The book emphasizes the teaching of complex toxicological regulatory industrial hygiene and chemical hazard information

Basic Chemistry Steven S. Zumdahl, 2004 Description Not Yet Available

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In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is really astonishing. Within the pages of "**Zumdahl Chemistry Stoichiometry**," an enthralling opus penned by a very acclaimed wordsmith, readers embark on an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve into the book's central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

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