

CHEMISTRY: PROPERTIES OF MATTER

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SURVEY THE TOPIC

- Brown, *Chemistry: The Central Science*, 6th, QD--31.2.B78 1997
Chem Web Online, <http://library.thinkquest.org/10429/?tqskip=1>
Emsley, *Molecules at an Exhibition: portraits of intriguing materials in everyday life*, 1999
Gray, *Braving the Elements*, 1995
Hess, *Chemistry Made Simple*, 1984
Hoffmann, *Same and Not the Same*, QD--37.H612 1995
Houk, *Chemistry: concepts and problems: a self-teaching guide*, 1996
Karukstis, *Chemistry Connections: the chemical basis of everyday phenomena*, 2000
Leicester & Weeks, *Discovery of the Elements*, 1968
Shugar, *The Chemist's Ready Reference Handbook*, 1989
WWW Virtual Library of Chemistry, <http://www.liv.ac.uk/Chemistry/Links/links.html> (U. of Liverpool)

CLARIFY TERMS

- Chemical Abstracts Service (CAS) Registry Numbers, <http://www.cas.org/EO/regsys.html>
Chemistry Dictionary, http://www.netaccess.on.ca/~dbc/cic_hamilton/dictionary/a.html (Chemical Institute of Canada)
Chemistry Hypermedia Project, <http://www.chem.vt.edu/chem-ed/vt-chem-ed.html> (Searchable dictionary)
Crosland, *Historical Studies in the Language of Chemistry*, 1962
International Union of Pure and Applied Chemistry Nomenclature recommendations, <http://www.chem.qmw.ac.uk/iupac/>
Lide, *CRC Handbook of Chemistry and Physics*, 78th, QD--65.H3 1997 (Also there is a subscriber-only online dictionary)
Ockerman, *Illustrated Chemistry Laboratory Terminology*, QD--51.O25 1991

FIND MORE

EXPERTS

- American Chemical Society, <http://www.chemistry.org/portal/Chemistry>
Chemyclopedia Online, <http://www.chemyclopedia.ims.ca/default.asp> (Yellow pages for chemical and service providers)
Royal Society of Chemistry Library, <http://www.rsc.org/lic/library.htm>
WWW Chemistry Sites at Academic Institutions, <http://www.chem.ucla.edu/VL/Academic.html> (International)

FIND BOOKS, MAGAZINE ARTICLES & INTERNET SITES

- Chem Industry.com, <http://www.chemindustry.com/> (Search engine & directory)
Chemfinder, <http://chemfinder.cambridgesoft.com/> (Search engine)
Cheminfo Chemical Information Sources, <http://www.indiana.edu/~cheminfo/> (Directory from Indiana U.)
ISI Chemistry, <http://www.isinet.com/isi/products/chem/chemserver/> (Subscriber-only database & index)
Sci Net Chemistry, <http://www.scinet.cc/cgi-bin/search/hyperseek.cgi?search=CAT&Category=Chemistry> (Directory)
SciFinder, <http://www.cas.org/SCIFINDER/SCHOLAR/> (Subscriber-only database & index)
University of Chicago Chemistry Library, <http://www.lib.uchicago.edu/e/chem/> (Useful, annotated guide to resources)

NEWS SOURCES

- Chembytes Infozone, <http://www.chemsoc.org/chembytes/newsbytes/nfnews.htm>

Eureka Alert Chemistry & Physics, <http://www.eurekaalert.org/bysubject.php?kw=60>
Nature, <http://www.nature.com/nature/>
New Scientist, <http://www.newscientist.com/> (Well-written UK weekly)
Science, <http://www.sciencemag.org/>

CHEMISTRY A - Z:

ANALYTICAL CHEMISTRY is the aspect of all chemical research focused on determining the components of compounds.
Atomic Spectra Database, http://physics.nist.gov/cgi-bin/AtData/main_asd (National Institute of Standards & Technology)
Crossfire, <http://www.mimas.ac.uk/crossfire/> (Subscriber-only database & index)
Gmelin Handbook of Inorganic and Organometallic Chemistry (via CrossFire)
Gordus, *Schaum's Outline of Analytical Chemistry*, 1985
Gunzler, *Handbook of Analytical Techniques*, 2001
Mass Spectrometry Links, <http://www.mslinks.com/>
National Institute for Occupational Safety & Health Manual of Analytical Methods,
<http://www.cdc.gov/niosh/nmam/nmammenu.html>
Spectra Online, http://spectra.galactic.com/SpectraOnline/Default_ie.htm
Spectroscopy Now, <http://www.spectroscopynow.com/Spy/basehtml/SpyH/>

BIOCHEMISTRY & ORGANIC CHEMISTRY Biochemistry studies compounds and reactions of organisms. Organic Chemistry focuses on carbon compounds.

Ball, *Life's Matrix: a biography of water*, 2000
Beilstein Handbok of Organic Chemistry (via CrossFire)
Benfrey, *From Vital Force to Structural Formulas*, 1964 (Historical survey)
BioHunt, <http://www.expasy.ch/BioHunt/>
Clayden, *Organic Chemistry*, 2001
Kuchel, *Schaum's Outline of Biochemistry*, 1997
McMurray, *Organic Chemistry*, QD-251.2.M43 1984
Molecular Biology Gateway, <http://www.horizonpress.com/gateway/>
Organic Syntheses Website and Database, <http://www.orgsyn.org/>
Rocke, *Quiet Revolution: Hermann Kolbe and the Science of Organic Chemistry*, QH--22.K578 R63 1993
Steitweiser, *Introduction to Organic Chemistry*, 1998

CHEMICAL ENGINEERING is concerned with the design of chemical processing equipment.

American Institute of Chemical Engineers, <http://www.aiche.org/>
Bausbacher, *Process Plant Layout and Piping Design*, 1998
Kirk-Othmer, *Encyclopedia of Chemical Technology*, 2001
Lieberman, *A Working Guide to Process Equipment*, 1996
Perry, *Perry's Chemical Engineers' Handbook*, 1997
WWW Virtual Library of Chemical Engineering, <http://www.che.ufl.edu/WWW-CHE/>

CRYSTALLOGRAPHY

Crystallography Online, <http://iucr.sdsc.edu/cww-top/crystal.index.html>
Crystal Lattice Structures, <http://cst-www.nrl.navy.mil/lattice/>
Mak, *Crystallography in Modern Chemistry: resource of crystal structures*, QD-945.M244 1992
Snow Crystals, <http://www.its.caltech.edu/~atomic/snowcrystals/>

ELEMENTS

Atkins, *Periodic Kingdom*, QD-466.A845 1995
PhysLink Periodic Table, <http://www.physlink.com/Reference/PeriodicTable.cfm>
Physicist's Periodic Table, <http://140.198.18.108/periodic/stowetable.html>
Strathern, *Mendeleev's Dream: the Quest for the Elements*, 2001
Stwertka, *Guide to the Elements*, QD-466.S78 1998
Web Elements Periodic Table, <http://www.webelements.com/>

HISTORIES OF CHEMISTRY

Alchemy Website and Virtual Library, <http://www.levity.com/alchemy/home.html> (Encyclopedic)
Brock, *The Norton History of Chemistry*, 1993
Chemical Heritage Foundation, <http://www.chemheritage.org/main.htm>
Classic Papers from the History of Chemistry, <http://dbhs.wvusd.k12.ca.us/Chem-History/Classic-Papers-Menu.html>
Cobb, *Creations of Fire : Chemistry's Lively History from Alchemy to the Atomic Age*, QD--11.C59 1995
Gillispie, *Dictionary of Scientific Biography*, 1981

Ihde, *The Development of Modern Chemistry*, 1983
Knight, *Ideas in Chemistry: a history of the science*, 1992
Leicester & Klickstein *A Source Book in Chemistry 1400-1900*, 1965
Nye, *From Chemical Philosophy to Theoretical Chemistry: Dynamics of Matter and Dynamics of Disciplines*, QD-452.N94 1993
Paracelsus, Five Hundred Years, http://www.nlm.nih.gov/exhibition/paracelsus/paracelsus_1.html (National Library of Medicine exhibit)
Partington, *A History of Chemistry*, 1970
Stillman, *The Story of Alchemy and Early Chemistry*, 1960

MATERIALS SCIENCE

see "Materials," *Kapke Library Guide* #25

MOLECULES

Atkins, *Molecules*, QD-461 .A85 1987
Ball, *Stories of the Invisible: a guided tour of the molecules*, 2001
Chemical Bonds, Molecular Shapes and Molecular Models, <http://www.eosc.osshe.edu/chemweb/molmodel/mmp1.html>
Mathematics & Molecules, <http://www.nyu.edu/pages/mathmol/>
Molecular Models from Chemistry, <http://people.ouc.bc.ca/woodcock/molecule/molecule.html> (Okanagan U.)

NANOTECHNOLOGY

Ball, *Designing the Molecular World*, 1996
Crandall, *Nanotechnology: molecular speculations on global abundance*, T-174.7.N375 1996
Drexler, *Engines of Creation: the coming era of nanotechnology*, T--47.D74 1986
Drexler, *Nanosystems: molecular machinery, manufacturing and computation*, 1992
Feynman, "There's Plenty of Room at the Bottom," caltech
Hoch, *Nanofabrication and Biosystems: materials science, engineering & biology*, TP-248.2.N36 1996
International SEMATECH, <http://www.sematech.org/public/index.htm>
"Nanotech," *Scientific American*, September 2001 (Theme issue)
Chez Nano, <http://www.its.caltech.edu/~nano> (Cal Tech)

PSEUDOSCIENCE

Bad Chemistry, <http://www.princeton.edu/~lehmann/BadChemistry.html>
Google Alchemy links, http://directory.google.com/Top/Science/Anomalies_and_Alternative_Science/Alchemy/
Google Crystals links, <http://directory.google.com/Top/Health/Alternative/Crystals/>
Using Pseudoscience as an Aid to Teaching General and Analytical Chemistry, <http://www.spectrometer.org/path/path.html>

REPRESENTATIONS OF CHEMISTRY IN ART, LITERATURE, MOVIES

ART

Chemist's Art Gallery, <http://www.csc.fi/lul/chem/graphics.html>
Klossowski, *Golden Game: alchemical engravings of the seventeenth century*, 1988
Roberts, *Mirror of Alchemy: alchemical ideas and images*, 1994

LITERATURE

Collins, "Shamans of Small," *Scientific American*, September 2001 (On nanotech science fiction)
Goethe, *Elective Affinities*, 1809
Goethe, *Faust*, 1808-33 (<http://www.levity.com/alchemy/faustidx.html>)
Jonson, *The Alchemist*, 1610 (<http://www.levity.com/alchemy/jn-alch0.html>)
Kasiser, *Gas 1 & 2*, 1918-20
Levi, *The Periodic Table*, 1975
Stocker, *Chemistry and Science Fiction*, 1998 (Anthology)
Venetsky, *Tales About Metals*, 1981

MOVIES

Von Sternberg, *Blonde Venus*, 1932;
Powell, *The Love Test*, 1935;
Dieterle, *The Story of Louis Pasteur*, 1936;
Herman, *The Dawn Express*, 1942;
LeRoy, *Madame Curie*, 1943;
Roley, *How To Steal the World*, 1968;

JEKYLL & HYDE MOVIES

Robertson, *Dr. Jekyll and Mr. Hyde*, 1920; Mamoulian, *Dr. Jekyll and Mr. Hyde*, 1931; Flemming, *Dr. Jekyll and Mr. Hyde*, 1941; Hawks, *Monkey Business*, 1952; Lewis, *The Nutty Professor*, 1963; Shadyac, *The Nutty Professor*, 1996

STATES OF MATTER

Chemystery States of Matter, <http://library.thinkquest.org/3659/states/>

Jammer, *Concepts of Mass in Classical and Modern Physics*, 1993

McMullin, *The Concept of Matter*, 1953

Polling et al, *The Properties of Gases and Liquids*, 2000

GASES

Gas Properties Definitions, <http://www.grc.nasa.gov/WWW/K-12/airplane/gasprop.html>

General Chemistry Online, Gases, <http://antoine.fsu.umd.edu/chem/senese/101/gases/index.shtml>

Scuba Physics, intro to gas laws, <http://www.aquaholic.com/gasses/laws.htm>

LIQUIDS

Physical Properties of Liquids, <http://area51.upsu.plym.ac.uk/~andyk/chemfan/liquids/> (ChemFan)

Rouse, *Elementary Mechanics of Fluids*, QA-911.R67 1978

Smits, *A Physical Introduction to Fluid Mechanics*, 2000

Vennard, *Elementary Fluid Mechanics*, 4th, QA-901.V4

SOLIDS

Classification of Solids, <http://newton.ex.ac.uk/people/jenkins/mbody/mbody1.html> (U. of Exeter)

Condensed Matter links, <http://web.mit.edu/afs/athena.mit.edu/user/r/e/redingtn/www/netadv/condetc.html>

ETC

Bose-Einstein Condensate Homepage, <http://www.colorado.edu/physics/2000/bec/>

Dendy, *Plasma Physics*, QC-718.D386 1993

Perspectives on Plasmas, <http://www.plasmas.org/>

Plasmas, the Fourth State of Matter, http://fusedweb.pppl.gov/CPEP/Chart_Pages/5.Plasma4StateMatter.html

The Society of Rheology, <http://www.rheology.org/sor/> ("The science of deformation and flow of matter")

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