

Additional Resources for Laboratory Safety: Chemical Hazards

Stony Brook University EH&S Laboratory Safety <http://www.stonybrook.edu/facilities/ehs/lab/>

Additional laboratory safety information and handouts are available on this web site. All of the EH&S Policies, including the University's Chemical Hygiene Plan (EH&S 4-2) can also be accessed.

OSHA Laboratory Standard 29 CFR 1910.1450 <http://www.osha.gov/SLTC/laboratories/index.html>

The Occupational Safety and Health Administration, recognizing the unique characteristics of the laboratory workplace, tailored a standard for occupational exposure to hazardous chemicals in laboratories. This standard is often referred to as the "Laboratory Standard". Under this standard a laboratory is required to produce a Chemical Hygiene Plan which addresses the specific hazards found in its location, and its approach to them. Many resources that provide safety and health information relevant to laboratories, including the OSHA standard and interpretations are available.

Prudent Practices <http://www.nap.edu/catalog/4911.html> (read it online for free)

Developed by experts from academia and industry, with specialties in such areas as chemical sciences, pollution prevention, and laboratory safety, Prudent Practices for Safety in Laboratories provides step-by-step planning procedures for handling, storage, and disposal of chemicals. The volume explores the current culture of laboratory safety and provides an updated guide to federal regulations. Organized around a recommended workflow protocol for experiments, the book offers prudent practices designed to promote safety and it includes practical information on assessing hazards, managing chemicals, disposing of wastes, and more. Prudent Practices for Safety in Laboratories is essential reading for people working with laboratory chemicals: research chemists, technicians, safety officers, chemistry educators, and students.

ACS Safety in Academic Chemistry Laboratories: Accident Prevention for College and University Students (Vol 1) and Faculty and Administrators (Vol 2) (read them online for free)

http://membership.acs.org/c/ccs/pubs/SACL_Students.pdf

http://membership.acs.org/c/ccs/pubs/SACL_faculty.pdf

The information in these booklets can be adapted to practices in all laboratories in which chemicals are used. The general recommendations can serve as a basis for preparing a chemical hygiene plan or other detailed instructions by those directly responsible for accident prevention in labs. Volume 1 emphasizes the importance of knowing the hazards beforehand and the necessity of taking appropriate precautions. Volume 2 summarizes many of the aspects of laboratory safety from a teaching and administrative viewpoint. It stresses that accident prevention, not the regulations, is the essential component of all laboratory operations.

Material Safety Data Sheets

Material Safety Data Sheets (MSDSs) are designed to provide workers and emergency personnel with important safety information to ensure safe handling of hazardous chemicals and appropriate spill response. Stony Brook University MSDS system provides the campus community with a database of campus specific chemicals. The program also comes with a library of MSDSs which can be printed. If an MSDS is not in the library, the user can request an MSDS through the web page. Go to www.msds.sunysb.edu, the Stony Brook University MSDS database. Note that it is only accessible from the University's network or dialup connections.

Other places to check are the manufacturer's web site; *Where to find MSDS on the Internet* <http://www.ilpi.com/msds/index.html> (includes an excellent hyperglossary and information on how to read and understand MSDSs); and *MSDS Search* <http://www.msdssearch.com/>

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To learn more about the hazards of a particular chemical:

U.S. National Library of Medicine TOXNET (<http://toxnet.nlm.nih.gov/>)

TOXNET (TOXicology Data NETwork) is a cluster of databases covering toxicology, hazardous chemicals, environmental health and related areas. It is managed by the Toxicology and Environmental Health Information Program (TEHIP) in the Division of Specialized Information Services (SIS) of the National Library of Medicine (NLM). It includes Haz-Map®, an occupational toxicology database designed primarily for health and safety professionals, but also for consumers seeking information about the health effects of exposure to chemicals and biologicals at work.

NIOSH Pocket Guide to Chemical Hazards (<http://cdc.gov/niosh/npg/>)

The NIOSH Pocket Guide to Chemical Hazards (NPG) is intended as a source of general industrial hygiene information on several hundred chemicals/classes for workers, employers, and occupational health professionals. The NPG does not contain an analysis of all pertinent data, rather it presents key information and data in abbreviated or tabular form for chemicals or substance groupings (e.g. cyanides, fluorides, manganese compounds) that are found in the work environment. The information found in the NPG should help users recognize and control occupational chemical hazards.

Particularly Hazardous Chemicals

The OSHA Lab Safety Standard defines “select carcinogens” as any substance that is regulated by OSHA as a carcinogen, or is listed under the category “known to be carcinogens” in the Annual Report on Carcinogens published by the National Toxicology Program (NTP) or is listed under Group 1 “carcinogenic to humans”, Group 2A or 2B “reasonably anticipated to be carcinogens” by the International Agency for Research on Cancer Monographs (IARC). The current NTP and IARC lists can be found on the NIOSH web page “Occupational Cancer”: <http://www.cdc.gov/niosh/topics/cancer/>.

There is no complete list of Reproductive Toxins (teratogens and mutagens). A discussion of male and female reproductive hazards can be found on the NIOSH web page “Select Topics - Reproductive”: <http://www.cdc.gov/niosh/topics/repro/>.

Other resources include:

Shepard, Thomas, 2004. *Catalog of Teratogenic Agents*. Johns Hopkins University Press. 11th edition.
Frazier, Linda and Hage, M.L. 1998. *Reproductive Hazards in the Workplace*. Van Nostrand Reinhold.
TERIS – Teratogen Information System. An updated, automated version of Shepard's Catalog of Teratogenic Agents is distributed with TERIS. The databases provide authoritative clinical teratology information on over 2800 agents. <http://depts.washington.edu/~terisweb/teris/>
MIT PHS List: <http://web.mit.edu/environment/ehs/phs.html>