Safety Information on the Web

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CCCE Website

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Introduction

As the current Online Chemistry Course (OLCC): Chemical Safety: Protecting Ourselves And Our Environment has been under development, I have found a number of very useful resources for safety information on the Web. As the course has developed, I am convinced that these sites should be in every chemical educators bookmark list. We should be using them as we develop experiments and our students should be using them to keep informed about the hazards they will encounter in the laboratory.

How hazardous are the materials we use in the laboratory?

The most common place to look for this type of information is the Material Safety Data Sheet (MSDS). The source that I almost always start with for MSDSs is the Vermont Safety Information Resources Inc, MSDS Index at http://hazard.com/msds/ . There are many other sources of MSDS, but I always seem to find what I am looking for at this site.

In addition to MSDSs, there are some other resources that provide useful information in a format that is easier to understand. The NIOSH Pocket Guide to Chemical Hazards is very useful. You can use this database online from the CDC website or you can download the entire site as a zip file for local use. I have the entire database on my hard drive and I burn a copy onto a CD-ROM for my students. This database contains one page summaries for 677 different compounds and it is organized by name and by CAS number. Many of the summaries also include a link to the International Chemical Safety Cards.

Another source of safety information for common laboratory reagents are the Chemistry Laboratory Information Profiles published in the *Journal of Chemical Education* These have been compiled and are available from the ACS website. The compounds are listed alphabetically and the information for each is given on a one page pdf file. At this time there are 62 compounds in the database and additions are being made quarterly. The information provided is geared towards use in introductory chemistry laboratories and the information is easy for undergraduate students to use.

What should our students know about safety?

For an introductory chemistry course, I would recommend looking at "Safety for Introductory Chemistry Students Brochure (3/18/04)". This brochure is available as a pdf document from the ACS committee on Chemical Safety. This brochure provides the basic information students must know about for personal protection, laboratory protocol, and housekeeping for an introductory laboratory. It is up to date, brief, and well researched. It is just what we all need for the safety briefing at the beginning of any general chemistry course and it is much more up to date than what most of us probably use.

For more advanced laboratory courses, the ACS committee on Chemical Safety's publication "Safety in Academic Chemistry Laboratories, 7th edition Volume 1 Accident Prevention for College and University

Students" provides much more detailed information. It is available as a pdf document from the ACS website. In addition to the basics covered in the brochure, this pamphlet includes accident prevention, chemical hazards, laboratory techniques, and safety equipment. It has a level of detail that is appropriate for a student in an upper level course or someone conducting independent research.

What should our faculty know about safety?

The second volume of the ACS publication is "Safety in Academic Chemistry Laboratories, 7th edition Volume 2 Accident Prevention for Faculty and Administrators". It is also available online as a pdf document from the ACS website. This includes additional information on accident prevention; personal protective equipment; labeling; material safety data sheets; preparing for medical emergencies; reporting accidents; reducing hazards; facilities and equipment; inventory management, storage, and disposal; the OSHA laboratory standard.

For a much more through treatment of laboratory safety, the National Academy Press publishes "Prudent Practices in the Laboratory: Handling and Disposal of Chemicals (1995)". This seems to be the most referenced source of laboratory safety information around. The full text of the book is available online as a National Academy Press openbook. The openbook format is not ideal for reading the entire 427 page book, makes it very easy to search and quickly find important information.

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