Technical Tidbit

This month we thought we would provide some of the internet sites we use as information resources. We're sharing our sources because they have been useful to us and maybe they'll be useful to you. If you think this is useful, let us know and feel free to offer suggestions. First Responders have favorite web pages they go to when they're looking for resources and references, particularly if it has proven to be a good source in the past.

AristaTek also uses reference texts we have in-house or have access to at the University of Wyoming library system or internet sites. AristaTek has found some references or resources to be better or more reliable than others. Part of our activities developing and upgrading the PEAC tool is to continually add more chemicals to the database. This tends to be a time consuming process since all values are crosschecked against other references for accuracy. This is why OSHA suggests using a minimum of three references when responding to a HAZMAT incident.

The second portion of this article is a listing of most of the resources that were utilized to develop the PEAC database. The information provided by ECBC (Edgewood Chemical Biological Center) of SBCCOM at Aberdeen Proving Ground, MD while developing the PEAC-CW version (1999-2000) was a private communication but was verified with sources in the public domain.

They are listed in no particular or significant order.

1- http://www.inchem.org/ - this is the *International Programme on Chemical Safety* (IPCS) site (IPCS Inchem)and is a collaborative venture of the International Labour Organization, United Nations Environmental Programme, and the World Health Organization.

2- http://ull.chemistry.uakron.edu/ - this is the *HordeNet* site provided by the Hardy Research Group at the University of Akron. The Chemical Database provides a pretty complete listing on chemicals and has proven to be very reliable.

3- http://www.atsdr.cdc.gov/mmg.html - is a site supported by the *Agency for Toxic Substances and Disease Registry (ATSDR)*. The Medical Management Guidelines (MMGs) for Acute Chemical Exposures is a very complete resource for specific chemicals but it is limited in the number of chemicals provided.

4- http://chemfinder.cambridgesoft.com/ - is a very popular site and provides links to other sites for the specified chemical.

Chemical References for the PEAC Tool

All of the following references are in the public domain.

1- NIOSH Pocket Guide to Chemical Hazards. June 1997. CD-ROM version 1999. U.S. Department of Health and Public Services, National Institute for Occupational Safety and Health, Washington, D.C.

Comment: All of the chemical listings in the 1997 NIOSH pocket guide are in the PEAC tool. The respirator information listed in the NIOSH pocket guide is in the PEAC tool.

2- 1996 North American Emergency Response Guidebook (96NAERG). Transport Canada, Ottawa, Ontario; U.S. Department of Transportation, Washington, D.C.; and Secretarìa de Communicaciones y Transportes, Mexico.

Comment: The PEAC version offered prior to mid-2000 was based on the 1996 DOT document. The PEAC version after mid-2000 has been updated to include all of the listings in the 2000 Emergency Response Guidebook including the revised protective action distances and UN guide numbers.

3- 2000 Emergency Response Guidebook. (ERG2000) Transport Canada, Ottawa, Ontario; U.S. Department of Transportation, Washington, D.C.; and Secretarìa de Communicaciones y Transportes, Mexico. (on CD-ROM)

Comment: The 2000 document differs from the 1996 document in that many new chemical entries have been added including chemical warfare agents, some emergency response guide numbers have been changed, and the initial isolation zone and protective action distances for almost all chemicals have been changed. PEACunits sold after mid-2000 reflects the 2000 document.

4- 49 Code of Federal Regulations Part 172, Hazardous Materials Table. Internet site www.access.gpo.gov/nara.

Comment: This source links hazardous chemicals with UN Numbers and hazardous material shipping codes, including military explosives.

5- National Fire Protection Association, Fire Protection Guide to Hazardous Materials, 11th edition, 1994. NFPA, Quincy MA.

Comment: The chemical physical properties have been checked against the values in this document, and NFPA designations added.

6- Chemical Hazards Response Information System, U.S. Department of Transportation and U.S. Coast Guard, 1991, Washington D.C.

Comment: The PEAC tool chemical entries have been checked against the values in this document, and additional chemicals added. The CAMEO emergency response software (1999 version) used this Coast Guide reference extensively as their source document.

7- CAMEO. August 1999 (on CD-ROM). U.S. Environmental Protection Agency, Washington D.C. and National Oceanic and Atmospheric Administration, Seattle, WA.

Comment: This is another source of listings of chemicals and chemical properties including NFPA designations in the PEAC tool.

8- DOD-supplied information for chemical warfare agents and precursors.

Comment: Information learned as the result of the 1999 AristaTek contract with the Department of Defense was checked against information in the public domain. Only information in the public domain has been incorporated into the PEAC tool.

9- Internet Source: ChemFinder. (http://chemfinder.cambridgesoft.com/).

Comment: This Internet source is another check for physical and safety data. It also provides links to sites for MSDS information and NFPA designations.<

10- Material Safety Data Sheets for specific chemicals

Comment: Obtained from Internet sources, including links through ChemFinder. Internet sites include:(1)http://ntp-db.nieh.nil.gov/NTP_Reports/NTP_Chem_H&S/,(2) http://mail.odsnet.com, (3) Messer MG Industries at http://www.mgindustries.com/msds, and (4) other sources. There were also a number of Internet sources in the public domain that were consulted for chemical warfare agents and their precursors.

11- NFPA designations

Comment: Besides the sources already listed, NFPA designations were obtained from www.orcbs.mus.edu/chemical/nfpa/ and www.genfo.com/cgi-bin/cll-search.cgi?mat=&cas=[*put CAS number here*]. Other web sites were examined through links with ChemFinder.

12- Lide, D. (editor). Handbook of Chemistry and Physics, 75th edition, 1996. CRC Press, Boca Raton, Florida.

Comment: This and the next two references were consulted for chemical physical properties.

13- Dean, John (editor). Lange's Handbook of Chemistry, either 12th (1979) or14th (1992) editions, McGraw Hill, N.Y., N.Y.

14- Perry, R.H. and C.H. Chilton. Chemical Engineers Handbook. 5th edition, 1963. McGraw Hill, N.Y., N.Y.

15- Daulert, T.E. and R.P. Danner. Physical and Chemical Properties of Pure Chemicals. 1992. Hemishere Publishing Company, Washington D.C.

16- National Institute of Standards and Technology, U.S. Secretary of Commerce. NTIS Chemistry Webbook. 1998. Available on Internet at http://webbook.nist.gov/chemistry/ or through link to the ChemFinder web site.

17- Budavari, Susan (editor). The Merck Index. 12th Edition. 1996. Merck and Company. Whitehouse Station, N.J.

18- American Industrial Hygiene Association. Emergency Response Planning Guidelines for Chemicals. 1999.

Comment: Chemicals are listed with ERPG-1, ERPG-2, and ERPG-3 values. The AIHA adds about 6 to 10 new chemicals per year to that list, with over 100 chemicals listed as of the year 2002. Occasionally previously published listings are revised.

19- Craig, D.K., J.S. Davis, D.J. Hansen, A.J. Petrocchi, T.J. Powel, and T.E. Tuccinardi, Jr., 2000. "Derivation of Temporary Emergency Exposure Limits (TEELs). Journal of Applied Toxicology 20 11-2

Comment: The U.S. DOE has derived TEEL numbers for about 1600 chemicals to serve as temporary values until AIHA publishes ERPG-1, ERPG-2, and ERPG-3. They are primarily intended for DOE and DOE contractors for determining siting distances from locations where chemicals are stored or

used. The list is in the SCAPA website (http://www.bnl.gov/scapa/teels.htm).

20- Waste Types 1 through 100 (UN numbers 9301 through 9400).

Comment: The North American Emergency Response Guidebooks (both 1996 and 2000 editions) lists UN numbers 9301 through 9400 for Waste Types 1 through 100. These are Canadian designations. The meaning of these designations has been incorporated into the PEAC tool using information supplied to AristaTek FAXED from Transport Canada.