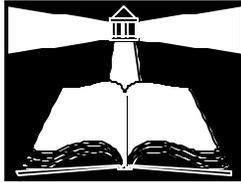


HTIS



azardous Technical Information Services

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Treated Wood to Lose Arsenic

Muhammad Hanif, Chemist and Beverly Howell, Industrial Hygienist, HTIS

On February 12, 2002 the Treated Wood Council confirmed that wood preservative manufacturers, Arch Wood Protection, Inc., Chemical Specialties, Inc. and Osmose, Inc., have all decided to seek to amend their respective registrations with the U.S. Environmental Protection Agency (EPA) for Chromated Copper Arsenate (CCA) and complete a transition to the manufacture of a new generation of wood preservatives for use in non-industrial treated wood products by December 31, 2003. CCA will however, continue to be produced for a variety of industrial uses.

Basically, there are two types of pressure-treated wood: wood that is treated with the preservative creosote and wood that is treated with pentachlorophenol. A common example of pressure-treated wood is the utility pole (the kind that is provided by utility companies, i.e., phone

companies, electrical power companies, etc.). These types of utility poles are usually made out of wood that is treated with pentachlorophenol or creosote. Railroad ties are another common example, since they are usually treated with creosote and coal tar.

The most commonly used treated wood product for homeowners is wood that is preserved with inorganic arsenic. Generally, Southern yellow pine is the choice of pressure treated wood for homeowner's use. Southern yellow pine is the material from which most outdoor structures, such as decks and playground equipment, are made. All pressure-treated wood is preserved to resist the damage that is caused by moisture and termites.

Residential grade treated wood comes rated for its intended use. The higher the rating, the more preservative it has, the more protection it offers, and the higher the toxicity. The most common ratings are as follows:

- **CCA .25(lbs./cu.ft.) - rated for above ground use**

The HTIS Bulletin is designed to keep DOD personnel informed of technical and regulatory developments on the environmentally safe management of hazardous materials and wastes. For technical inquiries, call **DSN 695.5168** or commercial **804.279.5168** or toll free **800. 848.4847**

- **CCA .40(lbs./cu.ft.)
- rated for ground
contact**
- **CCA .60(lbs./cu.ft.)
- rate for
foundation and
deck post --
structure support**

According to Parker Brugge, Executive Director of the Treated Wood Council, the wood preservation industry has developed and refined a number of highly effective new preserved wood products such as ACQ Preserve®, NatureWood®, Wolmanized® and Natural Select®. These products represent the new generation of wood preservatives that have been approved for use by the EPA and have proven to extend the life of wood products from just a few years to decades.

After discussions with the EPA, and in light of the growing interest in alternative products, the manufacturers of wood preservatives have volunteered to transition to the new generation of wood preservatives for the consumer and residential markets. To expedite this transition, preservative manufacturers, suppliers and pressure treaters will retool their facilities over the next two years. "Let there be no mistake, we absolutely stand by the safety of wood products treated with EPA-approved preservatives, including CCA," says Brugge. Brugge has also indicated that the industry "will also continue to support rigorous scientific research,

which has consistently upheld the safety of CCA-treated wood when used as recommended."

Brugge has also emphasized that manufacturers will continue to produce CCA for industrial end use applications such as highway construction, utility poles and pilings. Also, as part of the normal re-registration process, manufacturers will continue working with the EPA on performing the scientific analyses that are associated with re-registering the CCA product.

References:

1. Richmond Times-Dispatch, 13 February 2002, "Treated Wood to Lose Arsenic."
2. American Wood Preservers Institute:
<http://www.preservedwood.com>.
3. Home Repairs and Etc.:
<http://www.repair-home.com>.

EPA Outlines Essential Uses Remaining for Ozone-Depleting Substances

*Tom McCarley
Chemist, HTIS*

In the Federal Register of February 11, 2002, the Environmental Protection Agency (EPA) has listed the allocation for essential use allowances for ozone depleting substances for CY 2002 and has extended the De Minimus use provision

for laboratories through CY 2005.

By far, the greatest essential use that remains for ozone depleting substances is in metered dose inhalers for treatment of asthma and other pulmonary dysfunctions. Several thousand metric tons can still be used by pharmaceutical companies for this purpose, although research has been underway for the past several years to find suitable replacements for these life-saving inhalers. Essential uses for 1,1,1-trichloroethane (methyl chloroform) solvent are for NASA's use in the Space Shuttle program (47 tons) and the Air Force's use with the Titan Rocket (3.4 tons).

While there is an exemption to allow laboratories to use small laboratory amounts (De Minimus) for uses where there is no approved substitute, be aware that several former "essential uses" are no longer allowed. Beginning this past January 1, 2002, the following uses are no longer considered essential and will generally not be allowed.

- the use of Class I ODS for analytical testing of oil and grease (most such tests under RCRA and the Clean Water now call for n-hexane to be the extracting solvent instead of CFC 113, etc.);
- the use of Class I ODS for testing of tar in road-paving materials; and

- the use of Class I ODS in forensic fingerprint analysis.

Reference:
Federal Register, Vol. 67, No. 28, pp 6352-6362 February 11, 2002.

Respiratory Protection and Mold Cleanup

Abdul H. Khalid
Chemical Engineer, HTIS

Mold and mold spores become airborne during mold cleanup, and **respiratory protection is very important at this stage.**

Mold is the new health care concern because it is everywhere. It is very difficult to eliminate all mold and mold spore problems, but **moisture control is the key to control mold growth.**

There are thousands species of mold. Some species of mold are actually beneficial to the environment -- and some are potentially dangerous to human life. For example, excessive exposure to mold may cause or aggravate a variety of respiratory conditions including asthma and other allergies. Runny nose, irritated eyes, coughing, chest congestion, shortness of breath are all common complaints among susceptible individuals.

During the mold cleanup process, respiratory protection, i.e., personal protective equipment (PPE), is highly recommended to

reduce the inhalation of molds, their spores, and other dusts. PPE, including respirators, prevents the inhalation of mold and mold spores and prevent their contact with the skin or eyes. Individuals who use certain **PPE with half-face or full-face respirators** must be trained, have a medical clearance, and be fit-tested by a trained professional. In addition, the use of respirators must follow a complete respiratory protection program as specified by the Occupational Safety and Health Administration (OSHA) respiratory standard, 29 CFR 1910.134.

The US Environmental Protection Agency (EPA) recommends some guidelines and defines three levels of PPE based upon the size of the remediation project. It is a common sense approach that identifies minimum, limited, and full PPE, which include respiratory protection. A detailed discussion on the three levels of PPE is available on the EPA's web site at <http://www.epa.gov/iaq/molds/>.

For further information on indoor air quality (IAQ), DOD personnel may call the toll-free number **(800) 438-4318** or send inquires by **fax at to 703-356-5386.**

Reference:
EPA's IAQ Home Page:
<http://www.epa.gov/iaq/molds/index.html>.

Emergency Response Assistance Plans

Tom McElwee
Environmental Protection Specialist, HTIS

The following information is provided to give DOD shippers of HAZMAT into or through Canada a "heads-up" on the information that was presented at the annual meeting of The Conference of Shippers of Hazardous Articles (COSTHA). At this meeting, ERAPs were discussed as one of the major differences between US and Canadian Dangerous Goods regulations. Failure to provide an ERAP will frustrate shipments and result in fines being assessed. Canada has had this requirement since 1985 but has not been strictly enforcing it for cross border shipments. With the advent of the new clear language, Transportation of Dangerous Goods Code (TDG), which becomes effective 15 August 2002, this will not be the case. This requirement may be reviewed in depth on the TDG website at <http://www.tc.gc.ca/tdg/menu.htm>. (Go to the right side of the page and click on Emergency Response Plans. Most of what you will find below comes from this source.)

ERAPs are a Canadian requirement that is placed upon the shipper or importer of designated hazardous products that are shipped from, to, or through Canada. The requirement states that any shipper of dangerous goods must have a plan to control the release of dangerous goods in the event of an accident. That plan must be submitted to the

Minister of Transport Canada and approved by the Minister of Transport Canada or by an organization or person designated by the Minister of Transport Canada. The right to ship could be withdrawn at any time the plan is found inadequate -- either in its conception or in its operation. This requirement is mandated on any US shipper moving materials into or through Canada based on the reciprocity agreements between the two nations and the North American Free Trade Agreement (NAFTA).

Section 7 of the Transportation of Dangerous Goods Act (1992) requires shippers to have an approved Emergency Response Plan (ERAP) before offering certain dangerous goods for transport or import. Section 7.15 to section 7.19 and Schedule XII of the Transportation of Dangerous Goods (TDG) regulations prescribe the dangerous goods and the concentration (or quantity) for which an ERAP is required.

ERAPs are not required for all dangerous goods. They are required only for the dangerous goods that are listed in Schedule XII of the TDG Regulations. Generally speaking, these are dangerous goods, which are more harmful than others, and may present widespread hazards in the event of an accident. Response to this type of an accident may require special equipment (such as fully encapsulated chemical response suits or transfer equipment) or specially trained and qualified personnel. Explosives, toxic

gases, flammable gases, multiple hazards and poisons are all examples of such dangerous goods.

The intent of an ERAP is to provide on-site assistance to local authorities in the event of an accident involving dangerous goods. The assistance provided would include, without being limited to, the provision of emergency response advice first by telephone, then by a knowledgeable person attending the accident site, and the supply of specialized equipment and a response team to mitigate the effect of dangerous goods at the accident site.

Entities that are required to file an ERAP have various options for securing adequate response capabilities and will usually consider several factors such as the nature of the dangerous goods, specialized training, equipment, transportation, geographic area to cover and means of containment. General guidelines describing the content of an ERAP, CSA Standard - Emergency Planning for Industry (CSA Z731), as well as a generic emergency response plan, are available to help in the preparation of an ERAP.

The three basic options are:

- An entity may register its own ERAP summary with a complete response capability that includes an alerting mechanism, personnel, and means of transport and equipment.

- An entity may register its own ERAP summary, which may include some of its own resources, and some contracted resources (the alerting mechanism may be the company telephone number and the specialized equipment may be from an emergency response contractor).
- An entity may request a response contractor or trade association to file an ERAP summary on its behalf.

Note that the entity that is required by the TDG Act to file, or cause a summary to be filed, is responsible for all aspects of the ERAP. When resources are required from a contractor, the filer is required to demonstrate a contractual arrangement with the selected contractors before the ERAP is approved. It is also the responsibility of the entity requiring the ERAP to verify and ensure that a contractor is capable of providing the required response.

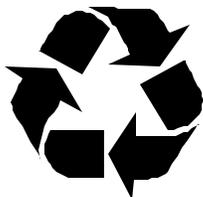
Transport Canada has an active program to register, inspect and approve ERAPs. There are over 500 active ERAPs filed with Transport Canada, and they are from all provinces. ERAPs are registered by submitting a written summary to the Chief of Response Operations. This summary is reviewed upon receipt and a Remedial Measures Specialist (RMS) will contact the originator to verify the content of the summary. After the

verification is completed, a registration number is issued and the Chief of Response Operations will grant interim approval of the ERAP summary and an official letter will be sent to the applicant.

All ERAPs are subject to review and investigation. Regional Remedial Measures Specialists inspect and review ERAPs and may request changes (where required) to make a plan more effective. If these changes are refused or are not implemented, the ERAP registration may be revoked, in effect, removing the right to ship dangerous goods.

The reporting document used by the RMS is called a Site Audit Report (SAR). The SAR is a generic reporting format that may be applied to a wide variety of dangerous goods and ERAPs. Remedial Measures Specialists will provide copies of the SAR after each site visit. Upon completion of the ERAP review, the Chief Response Operations will approve the ERAP by issuing a letter, to this effect, to the custodian of the ERAP.

Reference:
Transport Canada Transport of Dangerous Goods Code (TDG) web site
<http://www.tc.gc.ca/tdg/menu.htm>.



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SNAP List for March 2002

*Tom McCarley
Chemist, HTIS*

Alternatives to Ozone-Depleting Substances (ODS) are regulated by the Environmental Protection Agency (EPA) under Section 612 of the Clean Air Act under a program known as the *Significant New Alternatives Policy (SNAP)*. Substitute chemicals are regulated for all of the major ODS applications (refrigeration, solvent use, aerosol use, foam-blowing, etc.) and are regulated under the SNAP program whether or not the substitute materials have any ozone depletion potential. The EPA wants to ensure that the substitutes are acceptable for use based on their safety, health, and environmental attributes.

On March 22, 2002 the EPA published its 16th notice in its ongoing review of acceptable substitutes, which date back to 1994. The complete chronology of SNAP review decisions can be found at <http://www.epa.gov/ozone/title6/snap/chron.html>.

The March 22, 2002 decisions concern substitutes for ozone-depleting substances in a number of applications. For example:

- A number of alternatives for refrigeration and chiller use were approved in this 16th SNAP notice. The interested user of alternate refrigerants

is referred to the subject Federal Register notice for details.

- For aerosol propellant use, the EPA has determined that Hydrofluorocarbon-245fa (1,1,1,3,3-pentafluoropropane) is an acceptable substitute for CFC-113 and HCFC-141b.
- New toxicity data available for substitute cleaners HCFC-225ca and HCFC-225cb suggest possible exposure limits of 50ppm for HCFC-225ca, 400ppm for HCFC-225cb, and 100ppm for a commercial blend of the two.

References:

1. Federal Register, Vol. 67, No. 56, pp 13272-13278, March 22, 2002.
2. EPA's SNAP chronology at <http://www.epa.gov/ozone/title6/snap/chron.html>.

NIOSH Institutes New SCBA Approval Program

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Chemical Engineer, HTIS*

Recently, the US Centers for Disease Control and Prevention (CDC) National Institute for Occupational Safety and Health (NIOSH) have instituted a new

program to approve self-contained breathing apparatus (SCBA) for use by fire fighters and other first responders after terrorist attacks. New products meeting the new NIOSH tests will be labeled as "CBRN agent-approved" by NIOSH.

NIOSH began to accept applications for certification of SCBA products in January of 2002. Positive results from rigorous tests on sample units that were submitted to NIOSH, along with the new tests and approval, will indicate that the products are capable of providing the user protection against chemical, biological and radioactive agents. The SCBA products, as identified by the label "CBRN agent-approved," will also meet the traditional industrial certification requirements as well as NFPA standards. The new, approved SCBA products will pass special tests for resistance to chemical penetration and permeation against warfare agents such as mustard gas and sarin.

For an update on the new program for SCBA product approval, DOD personnel can contact 202-401-3749 or visit the NIOSH web site at <http://www.cdc.gov/niosh/npptl/scbacert.html>.

Reference:
NIOSH Update:
<http://www.cdc.gov/niosh/npptl/scbasite.html>.



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International Civil Air Organization (ICAO) "Air Eligible" Marking

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The ICAO Dangerous Goods Panel (DGP) has adopted a proposal that was submitted by the US member of the DGP for an "air eligibility" marking. This new marking requirement will be incorporated into the 2003/2004 edition of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air. A similar requirement should appear in the next edition of the IATA Dangerous Goods Regulations, Military Air Regulation, AFMAN 24-204, Preparing Hazardous Materials for Military Air Shipment.

Compliance with the new air eligibility marking requirement is the shipper's responsibility. The marking is required to be displayed on packages to indicate that the shipper has determined that the package meets all applicable requirements, particularly those only applicable for air transport. These are, for example, the relevant packing instruction requirements, the pressure differential capability requirement for packaging use to transport liquids, the requirements for absorbent material, and closure requirements.

The air eligibility marking is required on single packaging as well as combination packaging (including packaging for limited quantities, radioactive materials, diagnostic specimens and Packing Instruction 910 "consumer commodities"). The marking must also be displayed on overpacks containing packages that are required to bear the air eligibility marking. The marking is not required on packages or overpacks containing dangerous goods in "excepted quantities."

The air eligibility marking consists of an aircraft within a circle, and may include the words "air eligible" outside of the circle. No detailed specification is provided for this marking, but it is required to be "durable, legible, and of such size relative to the packaging as to be readily visible." The marking must be displayed on the packaging adjacent to the marked proper shipping name. For limited quantities packages, it must appear adjacent to the required marking to indicate that the package contains limited quantities. For diagnostic specimen packages, it must appear adjacent to the required "diagnostic specimens" marking.

The 2003/2004 Edition of the ICAO Technical Instructions will take effect from January 1, 2003. However, in a very recent development, the ICAO Council has agreed to postpone mandatory compliance with the new

air eligibility marking requirements until January 1, 2004; however, this does not

relieve the current requirement for shipments by MILAIR to be marked as required by AFMAN 24-204.

Safety and the USAF

Reprint from Clean Tech Central Magazine

March-April Edition 2002

Dennis Schroll, Author

In 1994, the Wright-Patterson Air Force Base (AFB, Ohio), base environmental office initiated the phase out of Ozone Depleting Substances (ODS) as set forth by the treaties with other countries' governments. On researching the topic it was found that no standard cleaning substances were being used. In fact, more surprisingly, hazardous chemicals that could burn in oxygen, as well as some toxic chemicals were found to be in use. Clearly the problem was much larger than the phase out of ODSs. The United States Air Force (USAF) set about to determine the optimum overall cleaning chemicals and processes and standardize on their use.

A risk assessment letter was sent out via the USAF safety organization pointing out these risks to the USAF maintenance operations, identifying both the issues of concern and the risks involved. Within a few years, most bases in the USAF made changes using ODS because no suitable non-ODS was available. Solvents of Choices were Trichlorotrifluoroethane (CFC-113) and HCFC-141b in pure form, pure to 5-10 PPM of Non Volatile Residue (NVR).

Trichlorotrifluoroethane was stockpiled by the USAF and is available for base aircraft maintenance through the process of obtaining a waiver. Table 1 (see page 8) shows the cleaning substances used in the USAF the past decade. Initially, ozone-depleting substances CFC-113 and HCFC-141b were recommended for use until suitable environmentally safe chemicals could be located and certified. (See March CleanTech's "Clear Skies Ahead," page 25 for a 141b final phase out update). The Engineering Directorate at Wright-Patterson AFB has an ongoing funded project to find new wipe solvent cleaners that are environmentally safe. Ten new chemicals are being examined which show promise to meet wipe solvent cleaning requirements. Certification evaluations underway must consider all the important trade-offs including cleaning capability, material compatibility, toxicity concerns, fire hazard risk, economics (including availability and cost), and the capability of the wipe solvent to do the job cleaning a variety of equipment. Field evaluations are also being conducted on a variety of military oxygen equipment to examine cleaning capability beyond the laboratory environment.

Wipe Solvent Cleaning

Wipe solvent cleaning in the USAF is different than cleaning in a clean room. For one thing, the cleaning operation is usually either out on the flight line, as shown in Figure 1 (see page 9), or in a back shop nearby the flight line. In either case, there are limitations on the cleaning as airborne particles and contaminants are always around during the cleaning operation and they tend to settle on the surface being cleaned. Fifty years of experience has shown the Air Force that a cleaning level of 3 milligrams per square foot NVR is optimum



Ground maintenance, including wiper cleaning, is critical to aircraft performance and safety.

for cleaning gaseous and liquid oxygen equipment. Also, visual inspections are typical and a maintainer with 20/20 vision can see particles down to 50 microns. Therefore, a visual inspection with black and white lighting is suitable for these types of cleaning operations.

In order to understand how the USAF cleans military oxygen equipment, it is necessary to explain the types of equipment used and show what is involved. Usually for cleaning at the bases, visible surfaces are cleaned and the flight line replaceable units are not disassembled. The exception is tubing on the liquid oxygen (LOX) converters are often replaced. The operations group then needs the capability to cut and bend aluminum tubing. As such, bending, drawing and flaring aluminum tubing requires oils that must be removed before installation to the LOX converter or to the aircraft. Cleaning tubing and tubing connections for installation is a big part of the cleaning needs in the military.

Liquid and gaseous oxygen equipment are typical examples of the types of equipment that need to be maintained and cleaned. The LOX equipment has low reliability, being a cryogenic fluid, so this equipment must be repaired and cleaned quite often. Wipe solvent cleaning issues are critical concerns for USAF maintenance. It does not take lightly any recommended chemical for these cleaning operations. Interim plans are to use ODS chemicals only until new cleaning solvents are located, tested and properly certified. Properly certifying a wipe solvent chemical for cleaning oxygen equipment requires attention to the following issues:

- Low risk fire hazard in LOX/GOX
- Relatively Non Toxic, 400 - 500 PPM and no long-term health effects
- Must not react with material cleaned
- Desired that material be economical
- Material must clean satisfactorily
- Compatibility with environmental rules

Wipe Solvent Cleaning Substances In Use In The USAF In The 1990s

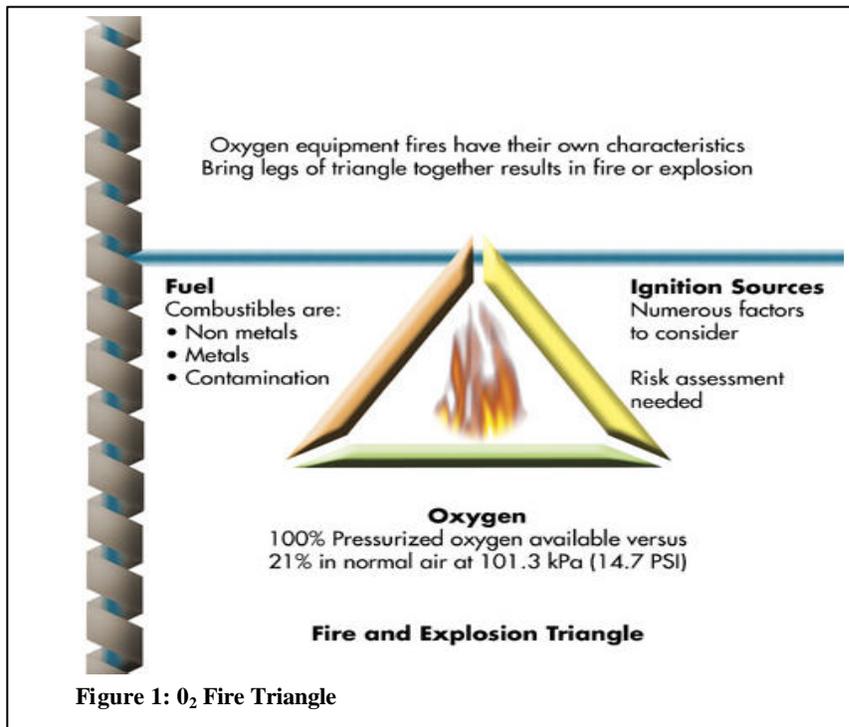
Cleaning Chemical	Respiratory Threshold		Fire Hazard
	ACGIH-TLV	OHSA-PEL	
Trichlorotrifluoroethane (CFC-113)	1000	1000	No
1,1,1 Trichloroethane (TCA)	350	350	Yes
1,1,1 Trichloroethane (TCA)	350	350	Yes
Trichloroethylene (TCE)	50	100	Yes
Perchloroethylene (PERK)	25	100	No
Methylene Chloride	50	25	?
Stoddard Solvent	100	100	Yes
Isopropyl Alcohol	400	400	Yes
Denatured Alcohol (Ethyl)	1000	1000	Yes

Table 1. Wipe Solvent Cleaning Substances In Use In USAF In The 1990s

Fire Hazard Issue

Oxygen equipment fires have their own characteristics. If you bring the legs of the fire triangle together, as shown in Figure 1 (see page 9), this can result in a fire or explosion. The goal is to find a good wipe solvent cleaner, but it must also be safe to use. Given the right conditions anything can burn. Experience has shown that wipe solvent chemicals should not only be non-flammable in pressurized oxygen or gas, but must clean contaminants that are themselves flammable. It does no good to have a non-flammable solvent that that does not clean, leaving behind combustible contamination that could also result in a fire. A suitable

compromise is that the solvent not be flammable under the conditions for use, but it also be pure and not have excessive NVR.



In the past, an NVR limit of 5-10 PPM on purchase and 50 PPM for shelf life was the standard the USAF observed. Presently, it is accepting NVR of 20-10 PPM and shelf life should not exceed 50 PPM. In the future, it desires to go back to the original NVR standard of 5-10 PPM and shelf life not to exceed 30 PPM. 30 PPM is a new standard set by NASA for oxygen equipment fire safety.

Non-ODS, Not A Big Issue

It has been difficult to get a project funded because

of low priority and so the Air Force has waited three years to even get started, while many aerospace companies have been looking to the military example to see what they should do. As it took so long, these companies have made their own decisions and commitments. Many have gone to aqueous cleaning rather than solvent cleaning and degreasing. It's conceivable that some companies may change their practices from using aqueous cleaner back to solvent based cleaning, when the military finally does certify suitable wipe solvent cleaners.

We have made the decision to consider CFC-113 as the baseline cleaner. All concerns such as toxicity are compared to CFC-113. Until new cleaning solvents are in place the military still needs recommended cleaning chemicals and processes that are safe and effective. Multiple organizations have made plans to use the following recommendations. Back shops clean tubing and piece parts with aqueous cleaning in controlled environments and vapor degreasing with ODS solvents. Wipe solvent cleaning with HCFC-141b to supplement CFC-113, using only commercial item description liquid HCFC-141b and spray can cleaner.

Interim Cleaning Solvents*:

- CFC-113 Available government PN MIL- C-81302
- CFC-113 is Trichlorotrifluoroethane or CFC-113
- NSN 6850-01-195-1825
- HCFC-141B Bulk Liquid per Commercial Item Description CID A-A-50427
- 5- gallons NSN 6850-01-434-4410
- 55-gallons NSN 6850-01-434-4413
- HCFC-141B Spray Can per CID A-A-50425
- Was LPS NoFlash, High Purity, PN 02816
- New supplier is Los Angeles Chemical Co. PN 75656
- By the case NSN 6850-01-398-0987
- Individual 15 oz. Spray can NSN 6850-01-434-4409

* Commercial Item Description numbers must be on the label before the solvent is safe for use with oxygen equipment.

Table 2: Interim Cleaning Solvents

The Air Force is continuing investigations to find non-ODS solvents because CFC-113 production ceased several years ago, and stockpile resources are being used up. HCFC-141b production expires 31 December

2002 and the requirement for wipe solvent in the field is critical. Table 2 (see page 9) lists some interim cleaning solvents being employed by the Air Force.

Wipe Solvent Evaluations

It should be noted that this project is considered a certification process to determine the best available solvent for the job intended. This is not a project to develop a new wipe solvent. The certification evaluation involves a number of independent test organizations.

The Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis, (IERA) Brooks AFB, Texas is determining toxicity and possible long-term health effects. Any need for special precautions and protective equipment will also be determined. The following process will be followed:

1. Literature Review
2. Process Description
3. Identification of Health Hazard
4. Health Assessment
5. Overall Characterization
6. Control Strategies
7. Sampling and Analysis
8. Sampling and Evaluation Strategy
9. Summary

Also involved is NASA White Sands Test Facility, Las Cruces, NM. They have already accomplished much testing on candidate solvents that are non ODS. They will accomplish the following tasks:

- Oxygen compatibility testing
- Oxygen cleaning evaluations
- Technical advisors

NASA White Sands Test Facility has also been asked to do oxygen compatibility testing on solvents with the most potential. It is also planned that NASA White Sands Test Facility conduct independent cleaning evaluations. The Fuels, Lubricants and TriBiology Team at the USAF Research Laboratory is also doing materials evaluations and cleaning evaluations. They have already tested metals and non-metals commonly used in USAF oxygen equipment.

Following Laboratory evaluations, it is planned to do field evaluations at Edwards Air Force Base with actual oxygen equipment used in the field.

The 412th Component Repair Squadron, Edwards AFB has a new oxygen maintenance facility and has stepped forward to complete these cleaning evaluations.

It is believed a new certification process has been developed to acquire, evaluate, test and field a new non-ozone and non-hazardous wipe solvent cleaner. This is a difficult challenge and only the

Evaluating Alternative Products

Some of the specific products being tested and evaluated by the USAF include:

3M Cleaning Products

- HFE 71DE - 50% Methyl Nonafluorobutyl Ethers & 0% Trans-1,2-dichloroethylene
- HFE 7100 - 99% Methoxy -nonafluorobutane
- HFE 7200
- HFE 71 IPA, an alcohol blend
- HFE 301 - Dropped from tests, No Toxicity Data

DuPont Fluoroproducts Cleaning Products

- Vertrel XF - HFC 43-10 mee
- Vertrel MCA - 61.7% HFC-43-10 and 37.8% Trans-DCE Stabilizer
- Vertrel XP10 an alcohol blend

Other Candidate Cleaning Products

- AK-225g, AGA Chemicals, Inc.
- IKON P, Iota Fluorocarbon by AFRL, WPAFB, OH

future USAF cleaning capability in the field will show how effective the project has been.

Editor's Note: Wright-Patterson's evaluations have been ongoing for nearly a year with further results expected this summer. Look for follow-up coverage from Dennis Schroll detailing the findings of this important investigation in CleanTech magazine later this year.

About the Author: Dennis Schroll is an aerospace engineer who has worked at Aeronautical Systems Center, Wright-Patterson AFB (Ohio) for the past 31 years. He was supported by the Air Force to obtain his Masters Degree in aeronautical and astronautical engineering from the Ohio State University, Columbus, OH in 1978. Since 1981, he has been resident expert on aircraft oxygen systems. He has supported numerous Air Force programs for the successful installation and design of oxygen system. He graduated with a degree in aerospace engineering from the University of Missouri at Rolla.

Reference:
Clean Tech Central Magazine
March-April Edition
www.cleantechcentral.com.

INFO ON THE WEB

Pollution Prevention Resource Exchange Web Site

*Tom McCarley
Chemist, HTIS*

A nationwide network of Pollution Prevention Information Centers has a web site at <http://www.p2rx.org/>. This web site offers practical advice on a number of environmentally relevant pollution prevention issues. Among the specific topics are the following (which include three specific to DOD facilities):

- Aerospace
- Autobody
- Auto Repair
- Clean Snowmobiles
- Residential Construction
- **DOD - Household Hazardous Waste**

- **DOD - Painting and Coating**
- **DOD - HAZMAT Control Pharmacies**
- Electric Utilities
- EMS
- Fiberglass Fabrication
- Green Procurement
- Hospitality
- Household Hazardous Materials
- Lean Manufacturing
- Lithographic Printing
- Managing Community Growth
- Mercury
- Mercury - Dental
- Mercury - Education
- Mercury - Health Care
- Mercury - Thermometers
- Mercury - Thermostats
- Metal Fabrication and Machining
- Metal Finishing
- Oil and Gas
- Paint and Coating Manufacturing
- Pollution Prevention
- Regulatory Integration
- Ship Building & Repair
- Textiles

References:
1. Pollution Prevention Resource Exchange online at <http://www.p2rx.org/>.
2. EPA Pollution Prevention News, March 2002.

OSHA Launches Electronic News Memo

*Beverly Howell
Industrial Hygienist, HTIS*

On March 1, 2002 the Occupational Safety and Health Administration unveiled the premiere issue of its new electronic communication tool that will be e-mailed on a regular basis to subscribers. Called **QuickTakes**, the e-news memo contains "snap shot" of OSHA's activities that support safety and health issues in the workplace, including news and announcements, background

information and other information of interest to stakeholders. Within the summaries, OSHA will often include links to its web site, as well as other sites related to safety and health that provides additional information on specific items.

"**QuickTakes** will deliver short and concise information of the agency's activities to safety and health stakeholders," says OSHA Administrator John Henshaw. "The e-mail, which will come directly to your electronic mail box if you subscribe, will cover just the highlights of important OSHA issues. Readers can then get additional information on a subject they would like."

Readers can receive the news memo by clicking on the **QuickTakes** icon on OSHA's homepage and following the subscription instructions. If readers choose not to receive **QuickTakes** automatically, they may view it on OSHA's website.

Reference:
OSHA Trade News Release,
U.S. Department of Labor Office
of Public Affairs, 1 March 2002.

HTIS TIDBITS

ANSI Standards: ANSI Z88.10-2001 and ANSI Z88.7-2001

Abdul H. Khalid
Chemical Engineer, HTIS

The American National Standards Institute (ANSI) serves as an administrator and coordinator of the United

States private sector voluntary standardization system. It is a private, nonprofit membership organization that is supported by a diverse constituency of private and public sector organizations.

Last year, ANSI's Board of Standards Review (BSR) approved the ANSI Z88.10-2001 (Respirator Fit Testing Methods) and ANSI Z88.7-2001 (Color-Coding of Air-Purifying Respirator Canisters, Cartridges and Filters). These standards provide an update on guidelines for respirator fit testing methods and color-coding of air-purifying respirator canisters, cartridges and filters.

DOD personnel who are interested in purchasing these documents can contact ANSI Headquarters at American National Standards Institute (ANSI), 1819 L Street, NW, Suite 600, Washington, DC 20036 or phone at 212-642-4900 or go to the ANSI online electronic standards stores at <http://webstore.ansi.org/ansidocs/tore/default.asp>.

Reference:
AIHA's web site:
<http://www.aiha.org/ANSICommittees/html/z88committee.htm>.

The HTIS Bulletin is designed to keep DOD personnel informed of technical and regulatory developments on the environmentally safe management of hazardous materials and wastes. For technical inquiries, call DSN 695.5168 or commercial 804.279.5168 or toll free 800.848.4847.

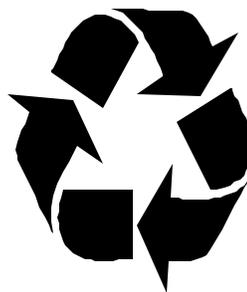
Hazardous Chemicals in the Lab - OSHA Fact Sheet

Tom McCarley
Chemist, HTIS

On February 26, 2002 the Occupational Safety and Health Administration (OSHA) issued a fact sheet, "Hazardous Chemicals in Labs", that covers regulatory aspects of laboratories that use hazardous chemicals. The two-page sheet is available at http://www.osha.gov/OshDoc/da ta_General_Facts/hazardouschemicalsinlabs-factsheet.pdf.

A review of the applicable regulatory standards, elements of the required chemical hygiene plan, worker training, and hazard communication are some of the topics highlighted in the fact sheet.

Reference:
Occupational Safety and Health Administration (OSHA) Fact Sheet "Hazardous Chemicals in Labs" released February 26, 2002 at OSHA's web site: http://www.osha.gov/OshDoc/da ta_General_Facts/hazardouschemicalsinlabs-factsheet.pdf.



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**SPECIAL PULL-OUT
SECTION****DOD HAZMAT
Training, Desk Top
Reference**

*Tom McElwee
Environmental Protection
Specialist, HTIS*

HTIS is often asked about training for HAZMAT employees, how it is defined, what material is required and where it is available. This article contains a complete copy of Joint Service Regulation, AFMAN 24-204, 11 Dec 2001, Attachment 25, Preparing Hazardous Materials for Military Air Shipment.

The material being reprinted here is a handy desk reference that answers the questions pertaining to the training of personnel in the preparation of HAZMAT for shipment.

This includes establishing job descriptions, identifying training requirements for the job titles, and establishing locations where pertinent training is available.

**AFMAN 24-204(I)/TM 38-250/NAVSUP PUB 505/MCO P4030.19H/DLAI 4145.3 363
11 DECEMBER 2001**

**Attachment 25
HAZARDOUS
MATERIALS INITIAL
AND REFRESHER
TRAINING**

**A25.1. Training General
Requirements.** This

attachment identifies the hazardous material training required by paragraph 1.3. Commanders assign hazardous material workers into one of four functional groups. Training requirements are based on functional group. This approach provides basic hazardous materials training applicable to all personnel at the first level. Trainers then provide more detailed training to supplement the basic level of training based on specific job responsibilities.

**A25.2. Training for
Noncertifying Officials.**

Train individuals according to the following general areas of responsibility. Unless otherwise required by Service/Agency directives, training may be performed locally. Trainers should develop training specific to the individual's hazardous material duties. The courses listed are suggested DOD courses that may be used to satisfy the applicable level of training. Telephone contact numbers are listed the first time the training location is identified. Commercial or other government sources may also be used for training other than preparer level to the extent it satisfies the required level of training.

- **Handlers.** Trainers ensure training covers basic hazardous material familiarization, awareness, and communication requirements. This includes hazard classification, marking, labeling, placarding, documentation, compatibility, and safety (including emergency

response information).

Training will also include handling and job (function) specific requirements.

- HAZMAT Familiarization and Safety in Transportation, 49 CFR Subpart H;

Computer Based Training, U.S. Army Defense Ammunition Center, McAlester OK 76544.

Telephone DSN 956-8961/8931 or commercial (918) 420-8961/8931.

- Hazardous Materials Handling, SMPT-5, Accredited Off-Campus Instruction (AOCI), Satellite Education Network (SEN), or Correspondence, School of Military Packaging Technology, Aberdeen Proving Ground MD 210005-5001. Telephone DSN 298-5185 or commercial (410) 278-5185.

- Transportation of Hazardous Material for Supervisors, A822-0014, Navy Supply Corps School, Athens GA 30606. Telephone DSN 588-7207/7215 or commercial (706) 354-7207/7215.

- Storage and Handling of Hazardous Materials (R511), DLA Center for Training, Education, and Development (DCTED), 380 Morrison Road, Columbus, OH 43213-1430. Telephone DSN 850-5986 or commercial (614) 692-5986/ (800) 458-7903/ E-mail: INFO@dpcso.dla.mil.

- Triennial Storage and Handling of Hazardous Material Recurrent (R611), DLA Center for Training, Education, and Development (DCTED), 380 Morrison Road, Columbus, OH 43213-1430. Telephone DSN 850-5986 or commercial (614)

692-5986 / (800) 458-7903 /
E-mail: INFO@dpcso.dla.mil.

- Hazardous Materials
Handlers, CBT ST10, Air
Mobility Warfare Center, Air
Transportation Division,
AMWC/WCOTF, 5656
Texas Ave FT Dix, AIN NJ
08640-7400. Telephone DSN
944-4377.

-Packers. Packers, who do
not certify, must work closely
with the preparer (certifier)
and must not close
(seal) the container until the
preparer (certifier) has
validated the packaging.
Trainers ensure that packers
are knowledgeable in all
aspects of handlers'
requirements with additional
emphasis in hazardous
materials packaging
requirements.

- DOD POP Program (R530
and R630-Refresher),
Defense Distribution Center,
DDC-TO, 2001 Mission
Drive, New Cumberland, PA
17070-5000. Telephone DSN
977-8238/8353 or
commercial (717) 770-
8238/8353. The web site
is available at:
<http://www.ddc.dla.mil>.

- **Inspectors.** In addition to
handlers requirements,
trainers ensure that inspectors
are knowledgeable in the
use of commercial and
military hazardous materials
documents, and shipping
papers. Inspectors should be
familiar with appropriate
packaging specifications.
Hazardous Materials
Airlift Inspector Course
(L3AZR2T000-008 - Initial
(Resident) or L4AZT2T000-
011 - Initial (Mobile)), 345
TRS/TTTD, Lackland AFB
TX 78236-5427. Telephone
DSN 473-4917 or
commercial (210) 671-4917.

- Hazardous Materials
Inspector (Exportable)
(L6AZS2T000-000), 345
TRS/TTTD, Lackland AFB
TX, 78236-5427, Telephone
DSN 473-4885 or
commercial (210) 671-4885.
- Transportation of
Hazardous Material for
Supervisors, A822-0014,
Navy Supply Corps School,
Athens GA 30606.

A25.3. Training for Certifying Officials.

Preparers (certifying
officials), as defined in 1.2.3,
are authorized to
accomplish the Shipper's
Declaration for Dangerous
Goods certification according
to 1.2.8. Supervisors must
consult DOD Catalog
5010.16-c *Defense
Management Education and
Training* to select the most
appropriate course for the
individual based on course
prerequisites. Train preparers
based on one of the following
function specific
requirements:

A25.3.1. Preparers.

Personnel whose primary
duty is preparing and
certifying all types of
hazardous materials
shipments on a daily basis.
Trainers should evaluate
individual needs to ensure
sufficient packaging
knowledge or provide
additional packaging training
if required. The courses
identified below are
authorized only if developed
and administered according
to the most recent
Interservice Training Review
Organization Task Group on
Hazardous Materials Training
Memorandum of
Understanding (MOU). The
MOU is developed jointly

with each school and
Service/DLA policy focal
point to ensure standard and
adequate preparer level
training for DOD personnel.
Any deviation from the MOU
invalidates the course and is
not authorized as acceptable
training under this manual.
These individuals must have
satisfactorily completed one
of the qualifying courses:

**A25.3.1.1. Initial Training
Courses.** Personnel identified
in A25.3.1 must satisfactorily
complete one of the initial
training courses identified
below as a prerequisite to
certifying the Shipper's
Declaration for Dangerous
Goods for airlift of hazardous
cargo.

- Hazardous Material
Preparer Course
(L3AZR2T000 005, Resident
or L4AZT2T000 005, On
Site), 345 TRS/TTTD,
Lackland AFB TX 78236-
5427.

- Technical Transportation of
Hazardous Materials
(AMMO-62, Resident or
AMMO-62OS On Site), U.S.
Army Defense Ammunition
Center and School,
McAlester OK 76544.

- Installation Traffic
Management of Hazardous
Materials (Initial) (AMMO-
41) (Resident), U.S. Army
Defense Ammunition Center,
McAlester OK 76544.
Telephone DSN 956-
8961/8931 or commercial
(918) 420-8961/8931.

- Defense Packaging of
Hazardous Materials for
Transportation, 8B-F7(JT),
Resident and On Site, School
of Military Packaging
Technology (SMPT),
Aberdeen Proving Ground
MD 21005-5001.

- Transportation of Hazardous Material-Basic (A-822-0012), Navy Supply Corps School, Athens, GA 30606-5520. Telephone DSN 588-7215 or commercial (706) 354-7215/7240.

A25.3.1.2. Refresher Training Courses.

Personnel, who have previously completed one of the courses specified in A25.3.1.1, must satisfy the 24-month refresher training requirement of A25.4 by completing one of the following courses:

- Hazardous Material Preparer Refresher (Exportable) (L6AZS2T000 001), 345 TRS/TTTD, Lackland AFB, TX 78236-5427. (This course is approved for Air Force and DLA activities only.)
- General Transportation of Hazardous Materials (AMMO-37, Resident or AMMO-370S, On Site), U.S. Army Defense Ammunition Center, McAlester OK 76544. Telephone DSN 956-8961/8931 or commercial (918) 420-8961/8931.
- Defense (Refresher) Packaging of Hazardous Materials for Transportation, 8B-F35 (JT) Resident and On Site, School of Military Packaging Technology (SMPT), Aberdeen Proving Grounds MD 21005-5001.
- Transportation of Hazardous Material-Recertification (A-822-0011), Navy Supply Corps School, Athens GA 30606-5520.

A25.3.2. Preparers (Technical Specialists).

Technical specialists are personnel trained and qualified to prepare for shipment only those

hazardous materials within their specialty (such as vehicle maintenance personnel are technical specialists for vehicles). Technical specialists may only sign the Shipper's Declaration for Dangerous Goods form as a certifying official on items that are technically qualified to maintain and prepare for shipment. For the purposes of this manual, a technical specialist will:

- Be designated by the Commander.
- Be authorized to certify those items within the technical specialty, unique to the unit or activity's requirement.
- Be trained in packaging, preparation, marking, labeling, certification, and all other aspects of this manual relevant to the specific hazardous materials within the individual's specialty.
- This authorization applies to tactical or contingency operations and channel (non-Chapter 3) movement.
- Training for completion of the shipper's certification must be conducted by a qualified preparer as identified in A25.3.1.
- Air Force activities use the "Hazardous Material Technical Specialist Instructional Guidance" training material to develop and administer a local technical specialist training program. Contact your MAJCOM transportation office for guidance and the AFMC LSO/LOP HAZMAT web site to obtain a copy of the material.
- Training is available for medical personnel who manage, package, certify or prepare laboratory samples

and specimens for transport by any mode.

- Transport of Biomedical Material Course (Initial or Refresher), U. S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), Aberdeen Proving Ground, MD 21010-5403. Telephone: DSN 584-5228/3651 or commercial (410) 436-5228/3651.

A25.4. Training Frequency.

All hazardous material personnel must receive initial training and subsequent refresher training at **24-month intervals**. This applies to all levels (i.e., handlers, packers, inspectors, and preparers) of required training. Train individuals based on functional group requirements.

- Each Service or major command (MAJCOM) may grant an extension to this qualification expiration date for a period not to exceed 60 calendar days, during which eligible personnel must receive training.
- Each Service or MAJCOM may grant successive 60-day extensions to a person's qualification expiration date for long-term tactical or contingency operations. In this instance, personnel extended past their initial 60-day extension may only certify hazardous materials moved according to the tactical or contingency operation. Once personnel return to normal duty, train each person as specified in this attachment. Each Service or MAJCOM is responsible for management of the

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extension authority and may establish more stringent training frequencies to enhance training requirements.

A25.5. Training Records.

Test all hazardous material personnel and maintain a record of the training provided. Maintain and dispose of records according to an approved Records Disposition Schedule. As a minimum, maintain the record for as long as the person works for the DOD as a hazardous material employee and for 90 days after separation from the DOD. This record must indicate the following:

- name of person who received the training;
- the date training took place;
- a description, copy, or location of training materials used to train the person;
- the name and address of the person who provided the training; and
- certification statement of

completion of training and testing.

A25.6. Certification Under Combat Conditions.

An aircraft commander (or representative designated by the Commander) may accept a hazardous materials shipment under a combat situation without regard to the above training.

A25.7. Non-DOD Personnel Certifying Hazardous Material Shipments.

Non-DOD personnel preparing hazardous materials for transportation by military air must do so according to this manual. DOD does not require non-DOD personnel to complete the training courses specified in this attachment. However, these individuals must meet the requirements of Title 49 CFR Part 172 Subpart H, *Training*, for all employees having responsibility for preparing hazardous materials for shipment. Training must include function specific duties related to military air transportation. Non-DOD personnel who desire the training outlined in this attachment must contact their contract administration office.

The HTIS Bulletin is produced bimonthly. Correspondence should be addressed to Defense Supply Center Richmond, DSCR-VBC, 8000 Jefferson Davis Highway, Richmond, VA 23297.5609 or call DSN 695.5168, Commercial 804.279.5168, or Toll Free 800.848.HTIS. Our Fax is 804.279.4194. We can also be reached by e-mail at htis@dscr.dla.mil or on the Internet at <http://www.dscr.dla.mil/htis/htis.htm>.

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