HTIS Hazardous Technical Information Services
BULLETIN

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In This Issue

EPA SNAP Ruling of October 2004

By 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 substitutes are acceptable for use based on their safety, health, and environmental attributes. On October 1, 2004, the EPA issued its 19th notice of substitute acceptability for several applications where ozone-depleting substitutes were traditionally used. In this article, we highlight refrigerant and fire-suppression substitutes as being of potential interest to the Department of Defense.

Acceptable substitutes for refrigerants are:

ISCEON 79 is a potential substitute for R-502, HCFC-22, and other HCFC blends including but not limited to R-401A, R-401B, R-402A, R-402B, R-406A, R-408A, R-409A, R-411A, R-411B, R-411C, R-414A, R-414B and R-416A in Industrial process refrigeration; Retail food refrigeration; Cold storage warehouses; Refrigerated transport; Commercial ice machines; Ice skating rinks; and household refrigerators and freezers. ISCEON 79 is a blend of 85.1% by weight HFC-125 (known as pentafluoroethane), Chemical Abstracts Service Registry Number (CAS ID 354-33-6), 11.5% by weight HFC-134a (1,1,1,2-tetrafluoroethane, CAS ID 811-97-2), and 3.4% by

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**

weight HC-600a (isobutane, 2-methyl-propane, CAS ID 75-28-5).

R-420A is acceptable for use in new and retrofit equipment as a substitute for R-500 and CFC-12 in a wide variety of refrigeration applications as outlined in the October 1, 2004 rule. R-420A is a blend of 88% by weight HFC-134a (1,1,1,2-tetrafluoroethane, CAS ID 811-97-2), and 12% by weight HCFC-142b (1-chloro-1, 1-difluoroethane, CAS ID 75-68-3). A common trade name for this refrigerant blend is Choice refrigerant.

HFC-134a and R-407C are both acceptable for use in new and retrofit equipment as a substitute for HCFC-22 in motor vehicle air conditioning for buses and passenger trains. HFC-134a is also known as 1,1,1,2-tetrafluoroethane (CAS ID 811-97-2). R-407C is a blend of 23% by weight HFC-32 (difluoromethane, CAS ID 75-10-5), 25% by weight HFC-125 (pentafluoroethane, CAS ID 354-33-6) and 52% by weight HFC-134a (1,1,1,2-tetrafluoroethane, CAS ID 811-97-2).

R-410A is an acceptable substitute for HCFC-22 in new equipment, such as buses and passenger trains, only. R-410A is a blend of 50% by weight HFC-32 (difluoromethane) and 50% by weight HFC-125 (pentafluoroethane). Due to the high operating pressures typical of R-410A systems, this blend is acceptable only in new equipment and not in retrofit equipment

NAF S 227 was approved for Fire Suppression and Explosion Protection as an ODS Substitute; NAF S 227 is acceptable for use as a substitute for halon 1301 in the total flooding end use in both normally occupied and unoccupied spaces.
NAF S 227 is a mixture of HFC-227ea, also known as 1,1,1,2,3,3,3-heptafluoropropane, (CAS ID 431-89-0), and 0.15% d-limonene, also known as 4-isopropenyl-1-methycyclohexene (CAS ID 5989-27-5), by weight.

Other applications where substitutes were approved in the October 1, 2004 ruling were for foam blowing and as sterilants. Readers interested in the environmental and safety details of the substitutes are referred to the final rule for details.

Reference: Federal Register, Vol. 69, No. 190, pp 58903-58910, October 1, 2004.

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EPA to Integrate Pesticide Labeling with Globally Harmonized System

By Abdul H. Khalid, Chemical Engineer, HTIS

On August 25, 2004, the U. S. Environmental Protection Agency (EPA) issued a notice of plans to implement the “Globally Harmonized System (GHS) of Classification and Labeling of Chemicals” for the Office of Pesticide Program. According to this notice, the EPA plans to revise its pesticide labeling regulations and to ensure consistency with the GHS. The EPA is expected to adopt GHS with some changes in label wording and the addition of new "pictograms" to alert users to specific hazards of those chemicals.

For the U.S pesticide products, the EPA has to revise its labeling regulations to make them consistent with the GHS hazard criteria and hazard statements. The EPA also has to devise and implement a process on how to revise and review the labeling of all currently registered pesticide products.

The United Nations Economic and Social Council adopted the GHS system in 2003 after negotiating several years with the U. N. members.

The GHS classifies chemicals according to their hazard and creates a new labeling system that largely communicates hazards through GHS pictograms. The GHS is designed to enhance the safety of consumers, hazardous material handlers, transport workers, and emergency responders who handle or transport chemicals. Some of the EPA's pesticide labeling requirements are already consistent with the GHS, which include product name, the name of the manufacturer that has registered the chemical with the agency, and a registration number.

Once the GHS is implemented, it will increase international consistency in hazard classification and labeling for pesticides and other chemical products. Some of the benefits of harmonization are listed below:

- Enhance protection of humans and environment.
- Promote greater clarity and understanding of the hazards of pesticide products.
- Facilitate international trade in chemicals.
- Reduce the need for testing and evaluation
- Ensure the management of chemicals and assist countries and international organizations in handling, using, and transporting all chemicals.

For the details of this notice or the availability of white paper on GHS, visit GPO web page at: http://a257.g.akamaitech.net/7/257/2422/06jun20041800/edocket.access.gpo.gov/2004/04-19233.htm

Those interested in the implementation of GHS and need more information, can contact, Mary Frances Lowe, Office of Pesticide Programs' Field and External Affairs Division, Mailcode 7506C, 1200 Pennsylvania Ave. N.W., Washington, D.C. 20460; phone: 703-305-5689; or e-mail at: lowe.maryfrances@epa.gov.

The report, The Globally Harmonized System of Classification and Labeling of Chemicals: Implementation Planning Issues for the Office of Pesticide Programs will be available at: http://www.epa.ogv/edocket/ by selecting "search" and keying in the docket number, OPP-2004-0205.

Reference: Federal Register, August 25, 2004, Vol.69, No.164, pages 52262-52264.

EPA Clarifies Aspects of 'P' and 'U' Waste Listings

By Tom McCarley, Chemist, HTIS

From time to time, HTIS receives calls from waste generators concerned about the applicability of the Commercial Chemical Products listings at 40 CFR 261.33. The 'P' listed chemicals at 40 CFR 261.33(e) are considered acutely hazardous wastes and as little as one quart of those wastes subjects the waste generator to classification as a large quantity generator.

The EPA's contractor operated Resource Conservation and Recovery Act (RCRA) hotline has over the years, answered many thousands of questions concerning the applicability of hazardous waste regulations under RCRA. Their monthly summary report frequently contains questions of interest to our waste generators within the DOD. The April 2004 Hotline report contains the following summary of the applicability of the 'P' and 'U' listed wastes to those chemicals that have been used.

Question:
"Do the P and U lists apply to chemicals that have been used in a manufacturing process?

Answer:
The P and U lists apply only to commercial chemical products (CCPs), off-specification species, container residues, and spill residues from chemicals having the generic name listed in Section 261.33. Commercial chemical products do not include a material that contains a substance on the P or U list (e.g., a manufacturing process waste). Commercial chemical products are chemical substances manufactured or formulated for commercial or manufacturing use that consist of the commercially pure grade of the chemical, any technical grades of that chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient (Section 261.33(d)). **The P and U lists do not apply to chemicals that have been used for their intended purpose** (54 FR 31335, 31336; July 28, 1989)".

Reference: RCRA Hotline Monthly Report for April 2004 – available at http://www.epa.gov/epaoswer/hotline/2004mrqs.htm

EPA's Strategic Goals for 2005

By Tom McCarley, Chemist, HTIS

The US Environmental Protection Agency in laying out its FY05 budget priorities listed the five following long-term environmental protection goals:

"Clean Air and Global Climate Change: The EPA will protect and improve the air so it is healthy to breathe and risks to human health and the environment are reduced. The EPA will reduce greenhouse gas intensity by enhancing partnerships with businesses and other sectors.

Clean and Safe Water: The EPA will ensure drinking water is safe. The EPA will also restore and maintain oceans, watersheds, and their aquatic ecosystems to protect human health, support economic and recreational activities, and provide healthy habitat for fish, plants, and wildlife.

Land Preservation and Restoration: The EPA will preserve and restore the land by using innovative waste management practices and cleaning up contaminated properties to reduce risks posed by the release of harmful substances.

Healthy Communities and Ecosystems: The EPA will protect, sustain, or restore the health of people, communities, and ecosystems using integrated and comprehensive approaches and partnerships.

Compliance and Environmental Stewardship: The EPA will improve environmental performance through compliance with environmental requirements, preventing pollution, and promoting environmental stewardship. The EPA will protect human health and the environment by encouraging innovation and providing incentives for governments, businesses, and the public that promote environmental stewardship. Additional funds and resources provided in 2004 and continued into 2005 will allow resumption of targeted inspections and enforcement activities in both the civil and criminal context."

Further detail on the strategic goals can be found at the web site of the EPA Chief Financial Officer at http://www.epa.gov/ocfopage/budget/2005/2005ap/2005ap.htm. This site also contains six years of annual performance goals and measures (actual and projected) from 2000 through 2005.

Reference: EPA FY 2005 Annual Performance Plan -

http://www.epa.gov/ocfopage/budget/2005/2005ap/2005ap.htm

Bioremediation: A Better Disposal Method for Left Over & Expired Paints

By Abdul H. Khalid, Chemical Engineer, HTIS

The Navy Public Works Center (PWC) at Pearl Harbor, HI, is working on a pilot project using a bioremediation method to dispose of the Navy's leftover and expired paints.

This method breaks down or biodegrades the resins and solvents in paints. Certain naturally occurring bacteria are responsible for breaking down (biodegrades the resins and solvents) leftover and expired paints into new compounds that are non-hazardous if classified under the Resource Conservation and Recovery Act (RCRA). Bioremediation of paints is itself a challenge, according to Dr. Fred Goetz, a professor at the University of California, Santa Barbara and a Naval Facilities Engineering Service Center (NFESC) contractor.

Paints that are classified as a hazardous waste cannot be disposed of to a regular solid waste or non-hazardous landfill. They must be disposed of as hazardous waste under RCRA that requires cradle to- grave management. The Navy or the other Department of Defense (DOD) facilities have the ultimate liability for proper disposal of their paint wastes. Disposal of the leftover, unused or expired paints cost millions of dollars each year. Once this bioremediation feasibility project is approved as a better paint disposal method, the DOD facilities will generate great monetary savings and at the same time eliminate future liability costs by changing a hazardous waste into a non-hazardous waste by biodegradation. **Non-hazardous wastes cost less in their transportation and final disposal.**

For detailed information on this pilot project and the feasibility of biologically treating paint wastes, DOD personnel can contact Denise Emsley, Navy Public Works Center, Marshall Road 400, Pearl Harbor, HI at 808-471-7300 or e-mail at: denise.emsley@navy.mil

Reference: "Pilot Project May Result in Better Paint Disposal Method", The Navy's Environmental Magazine, " Currents" summer 2004.

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Triad Approach for Contaminated Site Analysis and Uncertainty Management

By Tom McCarley, Chemist, HTIS

Much of the cost associated with the management of contaminated sites is for the sampling and subsequent analysis of those samples. As DOD environmental managers know, regulators and other stakeholders can develop an unbounded thirst for more and more environmental analytical data. Costly sampling and analysis is associated with both the initial identification and characterization of contaminated areas and also with clean-up progress monitoring. In many cases, faster and cheaper "screening" methods could be used for this analysis if the data from those methods were more widely accepted. Wider use of cheaper field screening could help avoid the problems of mischaracterized sites that have to be re-sampled and analyzed are most expensive in time and dollars. Some DOD clean-up sites have been re-characterized as many as eight times! No wonder clean-ups take forever.

Now there is such an approach called the **Triad**, which will, hopefully, be

increasingly looked on with favor by State regulatory agencies. The Interstate Technology and Regulatory Council (ITRC) has a Sampling, Characterization and Monitoring Team that have finally published both technical and regulatory guidance in a single document, "Technical and Regulatory Guidance for the Triad Approach: A New Paradigm for Environmental Project Management". The TRIAD document can be downloaded from: http://www.itrcweb.org/SCM-1.pdf, the ITRC website. ITRC is a national coalition of State environmental personnel along with Federal agencies, and tribal, public, and industry stakeholders with funding from the DOD and EPA. The primary goal of ITRC is to reduce barriers to cost-effective and innovative environmental techniques.

The Triad approach is a way of dealing with environmental cleanup management uncertainty by the effective use of three components:

- Systematic Project Planning
- Dynamic Work Strategies
- Real-time Measurement Technologies

In the Triad approach, the EPA is promoting the streamlining of site investigations and cleanups whose overall goal is to manage total decision uncertainty. By combining systematic planning utilizing interdisciplinary teams with a dynamic work plan for a site and then using real time analysis, faster and less costly progress is made toward site cleanup. Use of less costly field analytical tools allows for the real areas of concern ("hot spots") to be identified and the spatial distribution of the contamination to be better understood before the commitment is made to more expensive sampling and laboratory analyses. Such information about the areas of concern from such real-time information can then be fed back into the evolving dynamic work plan.

A chief proponent of the Triad approach, the EPA's Deana Crumbling discussed the concept of what makes for "effective" data in an October 2001 paper published by the EPA's Office of Solid Waste and Emergency Response entitled "Applying the Concept of Effective Data to Environmental Analysis for Contaminated Sites". The paper is EPA Document number EPA 542-R-01-013. The 17-page pdf file is available for download from the EPA's Technology Innovation Office CLU-IN. The paper may be a useful point of discussion between installation environmental managers and their respective remediation oversight staff at their State environmental agencies.

Crumbling makes the point that analytical chemistry methods can be classified as either "definitive methods" or "screening methods" and that regulators and possibly other stakeholders as well prefer the much more costly definitive methods But with finite resources to manage any environmental project, it might be more appropriate to recognize that any environmental decision will have significant sampling uncertainties caused by the heterogeneity of the matrices. Both definitive and screening methods have a role to play in producing data of sufficient quantity and quality in making sensible environmental decisions. Screening methods can entail a wide variety of sampling and analytical methodologies from colorimetric test strips and eyedropper tests to field portable instrumentation. Such screening methods can produce data of known quality that can be legally defensible if there is adequate documentation that sampling and analytical uncertainties have been managed to the degree needed to meet the intended data use. Getting regulators to accept that fact and become managers of uncertainty in environmental

project decisions as opposed to micromanagers of what methods are used is crucial to the more widespread acceptance of a mix of analytical data. Crumbling discusses the concept of "Analytical Data Quality" vs. "Information Value" and that [with limited resources] having a very few data points of very high analytical quality can lead to lower information value of the data than having many more "lower analytical quality" data points. A defensible site decision that reflects the true nature of contamination at the site can be made using less expensive screening methods to produce the greater sample density needed to manage sampling uncertainties (possibly in conjunction with limited analysis by definitive methods to manage any residual analytical uncertainty) than a lesser amount of data produced by more expensive definitive analytical methods used alone. Triad restructures how environmental project work is done. Waste sites are notoriously heterogeneous whereas our older models are based on homogeneity. Triad expects heterogeneity at any contaminated site and copes with it.

Lifecycle cost savings for projects implementing the Triad approach can be in he range of 30-50% as compared to previous site characterization, remediation, and monitoring costs according to Ms. Crumbling. There are a number of references to the Triad approach that are being pulled together in a Triad web site at: http://www.triadcentral.org/

References: 1. Crumbling, D. M., Applying the Concept of Effective Data to Environmental Analysis for Contaminated Sites, EPA 542-R-01-013, October 2001; available for download from http://clu-in.org/pub1.cfm - See under the Publications on Characterization and Monitoring section. 2. 20th National Environmental Monitoring Conference, Washington D.C., July 2004 3. Principles of Environmental Sampling and Analysis – symposium sponsored by the Environmental Division of the American Chemical Society (ACS) at the 224th ACS National Meeting Boston, MA, August 2002 4. The Triad Approach - http://www.clu-in.org/products/roadmap/spotlights/triad.htm ; "Improving Sampling, Analysis, and Data Management for Site Investigation and Cleanup", EPA-542-F-01-030a, April 2001 5. "The Triad Approach: A New Paradigm for Environmental Project Management", EPA 42-F-04-015, April 2004. 6. "Technical and Regulatory Guidance for the Triad Approach: A New Paradigm for Environmental Project Management" The Interstate Technology and Regulatory Council Sampling, Characterization and Monitoring Team – http://www.itrcweb.org

Management and Handling of Equipment Contaminated With Depleted Uranium or Radioactive Commodities

By Abdul H. Khalid, Chemical Engineer, HTIS

The U.S. Department of Army (DA) Regulation (AR 700-48) outlines formal policy and procedures for the management of equipment contaminated with depleted uranium (DU) or radioactive commodities. This publication is available online at: http://traprockpeace.org/du_pam_700-48.pdf.

The DA Pamphlet (PAM 700-48) recommends handling procedures for equipment contaminated with depleted uranium (DU) and/or other low-level radioactive materials or wastes (LLRW). PAM 700-48 applies to DA commands, installations, and activities. The current revision updated symbols, removed obsolete

publications, and added technical references. This publication is available at http://www.army.mil/usapa/epubs/pdf/p700_48.pdf

These documents are of great help to generators of excess radioactive materials who wish to collect and consolidate these materials in preparation for removals off-post.

Guidance on radioactive waste materials, their proper disposal procedures, and technical information on LLRW is available from the Radioactive Waste Disposal Offices listed below:

Defense Logistics Agency (DLA) Headquarters, DLA, 8725 John J. Kingman Highway, Suite 2533, Fort Belvoir, VA 22060-6221.

Primary: Mr. Mike Coogen DSN 427-6231; commercial: 703-767-6231; Fax 703-767-7613, E-mail: Michael_coogen@hq.dla.mil

Department of Defense; U.S. Army Industrial Operations Command Executive Agency and ATTN: AMSIO-SF, Rock Island, IL 61229-6000

Primary: Ms: Rosalene Graham at DSN: 793-2933; commercial: 309-782-2933; Fax: 793-2988; commercial: 309-782-2988, E-mail: GrahamR@ioc.army.mil

Alternate: Mr. Kelly Crooks DSN: 793-0338; commercial: 309-782-0338 E-mail: CrooksK@ioc.army.mil

U.S. Air Force

IERA/SDRH
2402 E Drive Brooks AFB, TX 78235-5114
Primary: Daniel Caputto DSN: 240-1903; commercial 210-536-3489, Fax: DSN: 240-3726; commercial: 210-536-3726.

Naval Sea Command Detachment, Radiological Affairs Support Office

P.O. Drawer 260
Yorktown, VA 23691-0260
Primary: Ms. Laurie Lowman
DSN: 953-4692, commercial: 757-887-4692
Fax: Commercial: 757-887-3235, E-mail: lowmanll@raso.navy.mil

Alternate
Pat Haworth
DSN: 953-4692; commercial: 757-887-4692
Fax: Commercial: 757-887-3235, E-mail: haworthpa@rasi.navy.mil

For further information or answers to questions on specific situations, DOD personnel may contact Mr. Kelly Crooks, Health Physicist, at 309-782- 0338, DSN 793-0338 E-mail: crooksk@osc.army.mil.

Reference: U.S. Army Regulation 700-48, Appendix A.

Superfund Proposes New Requirements for "Innocent Landowners"

By Tom McCarley, Chemist, HTIS

In the early 1980's landowners could unknowingly acquire a piece of contaminated land and then be responsible for its cleanup under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)- "Superfund". Subsequent amendments to Superfund and adoption of the Brownfields program added the concept of the "innocent landowner" and innocent adjacent property owner to the Federal Cleanup programs.

On August 26, 2004, the EPA published a set of proposed criteria that would need to be met when investigating property in order to be able to claim the "innocent landowner" defense when Superfund orders a cleanup of your property. In CERCLA parlance, you need to conduct an "all appropriate inquiries" study of the property you are seeking to acquire. The proposed

criteria would be codified at 40 CFR 312.21 et. seq.

What is required of you in order to claim any of the landowner liability protections?

- "The results of an inquiry by an environmental professional (proposed Sec. 312.21).
- Interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility (proposed Sec. 312.23).
- Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land use records, to determine previous uses and occupancies of the real property since the property was first developed (proposed Sec. 312.24).
- Searches for recorded environmental cleanup liens against the facility that are filed under Federal, State, or local law (proposed Sec. 312.25).
- Reviews of Federal, State, and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal, and spill records, concerning contamination at or near the facility (proposed Sec. 312.26).
- Visual inspections of the facility and of adjoining properties (proposed Sec. 312.27).
- Specialized knowledge or experience on the part of the defendant (proposed Sec. 312.28).
- The relationship of the purchase price to the value of the property, if the property was not contaminated (proposed Sec. 312.29).
- Commonly known or reasonably ascertainable information about the property (proposed Sec. 312.30).
- The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (proposed Sec. 312.31)."

A significant part of the 41-page proposal details what qualifications an "Environmental Professional" must have for purposes of this proposed rule. Anyone undertaking such site research will want to ensure that the professional they engage meet the requirements that will eventually be detailed in the promulgated rule.

"The Brownfields Amendments to CERCLA require persons claiming any of the landowner liability protections to conduct all appropriate inquiries into the past uses and ownership of subject property. The criteria included in the Brownfields Amendments for the regulatory standards for all appropriate inquiries require that an inquiry by an environmental professional be included. The statute does not require that all criteria or inquiries be conducted by an environmental professional."

Reference: Federal Register, Vol. 69, No. 165, pp 52541-52581, August 26, 2004

New Fit-Testing Protocol for Respirators

By Muhammad Hanif, Chemist, HTIS

On August 4, 2004, the Occupational Safety and Health Administration

(OSHA) approved an additional quantitative fit testing protocol, **referred to as the Controlled Negative Pressure (CNP) REDON fit testing protocol**, for inclusion in Appendix A of its final Respiratory Protection Standard (29CFR1910.134) that was revised and approved on January 8, 1998. The addition to the approved protocol is to assist workers and employers in the proper fit and selection of respirators. The revised protocol affects, in addition to general industry, the Department of Defense (DOD), which complies with OSHA's respiratory protection standards for shipyard employment and construction.

Per OSHA Trade News Release of August 4, 2004, "Selecting the proper respirator is a vital step in protecting a user against potential over-exposures and adverse health effects. The additional fit-testing protocol will help employers and employees to select the right respirator based on conditions in their workplaces".

The new CNP REDON protocol, requires three different test exercises followed by two redonnings of the respirator. The CNP protocol approved previously by OSHA specified eight test exercises, including one redonning of the respirator.

The three current test exercises, listed in order of administration, are normal breathing, bending over, and head shaking. The procedures for administering the new CNP REDON protocol with the three test exercises and the two respirator donnings to an employee and for measuring respirator leakage during each test are summarized below:

- ***Facing forward.*** In a normal standing position, without talking, breathe normally for 30 seconds; then, while facing forward, hold breath for 10 seconds during sampling.

- ***Bending over.*** Bend at waist for 30 seconds and, while facing parallel to the floor, hold breath for 10 seconds during sampling.

- ***Head shaking.*** Shake head back and forth vigorously several times while shouting for approximately three seconds and, while facing forward, hold breath for 10 seconds during sampling.

- ***First redonning (REDON-1).*** Remove respirator, loosen all face-piece straps, and then redon the respirator mask; after redonning the mask, face forward and hold breath for 10 seconds during sampling

- ***Second redonning (REDON-2).*** Remove respirator, loosen all face piece straps, and then redon the respirator mask again; after redonning the mask, face forward and hold breath for 10 seconds during sampling.

Complete details of the new respiratory protection fit-testing requirements and the notice of the final rule were published on August 4, 2004, in 69FR46986-46994. For technical inquiries, contact Mr. John E. Steelnack at 202-693-2289 or fax your request to 202-693-1678. For copies of the final rule, you may contact OSHA publications office at 202-693-1888 or the OSHA web site (http://www.osha.gov), and select "*Federal Registers*," "*date of publication*," "*2004*," and then "Controlled Negative Pressure REDON Fit Testing Protocol [1910]" to view or print the final rule.
References: 1. OSHA Trade News Release**,** U.S. Department of Labor, Office

of Communications, Washington D.C., August 4, 2004. 2. Federal Register, Volume 69, Number 149, pages 46986-46994, (69FR46986), August 4, 2004.

OSHA Promulgates Fire Protection Standard for Shipyard Workers

By Abdul H. Khalid, Chemical Engineer, HTIS

On September 15, 2004, the U.S. Department of Labor (DOL)'s Occupational Safety and Health Administration (OSHA) published a final rule on "Fire Protection" in shipyard employment. This final rule includes recommendations from the negotiated rulemaking advisory committees and provides protection from fire hazards for nearly 100,000 workers in the shipbuilding, ship repairs, and ship breaking industries.

According to OSHA Administrator, Mr. John Henshaw, the risks and the hazards involved with firefighting activities at shipyards, are considerably different from other industries. OSHA believes that the requirements incorporated in this standard will help save lives and prevent injuries in shipyard employment. The main ideas behind this standard are to increase the protection of shipyard workers from fire hazards. These workers are at a high risk of injury and death from fires and explosions during ship repair, shipbuilding, ship breaking, and related work activities including firefighting activities. Many of the basic tasks involved in shipyard industry are welding, grinding, and cutting metal with torches resulting in ignition sources for fires.

There are also many combustible materials on vessels and in shipyards, which include flammable fuels, cargo, wood structures, building materials, and litter. Fires in such confined or enclosed spaces can also result in atmospheres of combustible gases, toxic fumes, or oxygen-depleted air. Shipyard workers are at risk from fires, explosions, toxic gases, and fumes that can result in burns, death, and asphyxiation from lack of oxygen.

Shipyard workers will now enjoy the same level of protection against fire hazards as employees in other industries. The final standard combines 19 consensus standards from the National Fire Protection Association (NFPA) and includes relevant information from other sources (OSHA's general industry standard on fire protection, procedures from the U.S. Navy, and U.S. Coast Guard). The standard also reflects new technologies and fire-related safety practices. **The final rule becomes effective December 14, 2004.**

The final standard includes requirements for an overall program that would establish the location, type, and capacity of firefighting equipment such as extinguishers, fires hoses and stand pipes, smoke detectors, automatic sprinklers, and other fixed firefighting systems in accordance with applicable fire codes. The plan must provide the routine inspection, maintenance, and replacement of equipment and mandate training for new workers and refresher training for all shipyard employment workers. The plan must also include procedures for the control of fire hazards, such as flammable and non-flammable compressed gases, ignition sources, combustible materials, welding and hot work operations, and must include procedures for evacuation.

OSHA assures the safety and health of American workers. To accomplish this goal, OSHA sets and enforces standards, provides training & education, and encourages safety and health to improve working conditions at places of employments. **DOD assures compliance with the current OSHA standards through policies,**

directives and procedures issued from time to time in this respect for achieving target goals in preventing occupational injuries and illnesses and keeping workforce intact.

For further information on this final rule, DOD safety & health personnel can contact the OSHA Office of Communications, Room N-3647, OSHA/DOL, 200 Constitution Avenue, NW. Washington, DC 20210, phone: 202-693-1999. For technical information, contact Jim Maddux, Director, Office of Maritime Standards, N-3609, OSHA, phone: 202-693-2222 or visit OSHA's homepage at: http://www.osha.gov.

Reference: 1. Federal Register, September 15, 2004, Vol. 69, No.178, pages-55667-55708. 2. OSHA Trade News Release, September 14, 2004.

DOT proposes adding "Persons Who Offer" Hazmat Definition

By Tom McCarley, Chemist, HTIS

On September 24, 2004, the Department of Transportation (DOT) proposed that a definition of "person who offers" hazardous material for transportation be added to the hazmat regulations at 49 CFR 171. This definition will clarify longstanding interpretations on this issue. The definition is important because those involved in most aspects of hazmat shipping are subject to training requirements and compliance with other aspects of the hazardous materials regulations.

In the notice of proposed rulemaking of September 24, 2004, DOT proposed to define ``person who offers" or ``offeror" to mean:

- Any person who performs, or is responsible for performing any of the pre-transportation functions required under the HMR for transportation of a hazardous material;
- Tenders or makes a hazardous material available to a carrier for transportation in commerce; or
- One who performs, or is responsible for performing, pre-transportation functions and tenders or makes a hazardous material available to a carrier for transportation.

Under the proposed definition, a carrier that transfers, interlines, or interchanges hazardous materials to another carrier for continued transportation is not an offeror when it does not perform any pre-transportation functions. In addition, 49 CFR 171.2 would be amended to make explicit that:

- There may be more than one offeror of a shipment of hazardous materials
- Each offeror is responsible for complying with the requirements of the HMR with respect to any pre-transportation function that it performs or is required to perform.
- For a shipment involving more than one offeror, each offeror may rely on information provided by another offeror, unless the offeror knows or, in the exercise of reasonable care, should know that the information is incorrect. In a similar manner, a carrier may rely on information it receives from an offeror or a prior carrier, unless the carrier knows or, in the exercise of reasonable care, should know that the information is incorrect.

The proposal also includes airline passengers who carry hazardous materials in either their checked or carry-on luggage.

Reference: Federal Register, Vol. 69, No. 185, pp57245-57250, September 24, 2004.

Chemical Vapor Intrusion: A Potential Health Hazard

By Abdul H. Khalid, Chemical Engineer, HTIS

Chemical vapor intrusion is a process of the migration of volatile organic chemicals (VOCs) from the subsurface into overlying buildings or it is a way a chemical can get into indoor air from soil or groundwater. When a chemical spill occurs on the ground, it seeps down into the soil, and ultimately to the groundwater. Later, the same chemical, in a vapor form depending on the conditions of temperature and pressure, can move up through the soil into nearby buildings at particular sites, thus contaminating the indoor air. This process is similar to when radon, a naturally occurring radioactive gas, enters into a home through cracks in the foundation.

VOCs are one group of chemicals that become gases easily. They have potential to seep into the soil and ultimately enter into buildings. Some of the examples of VOCs are petroleum products such as gasoline, diesel fuel, and solvents for dry cleaning and industrial uses. The contamination due to VOCs may not be discovered immediately and may take sometime before they are discovered due to excavation or some kind of petroleum odor at the surface of the ground. Leaks from an underground storage tank at a gas station, is a good example of most common chemical vapor intrusion.

On November 29, 2002, the U.S. Environmental Protection Agency (EPA) issued a notice in the Federal Register about the published draft guidance for evaluating vapor intrusion to indoor air pathway from groundwater and soils (Subsurface Vapor Intrusion Guidance). The vapor intrusion pathways pose a significant risk to human health if such situation occurs due to a large quantity of chemical spills on the ground. This document is of great help to environmental consultants, contractors who address chemical intrusion at Brownfield, Resource Conservation and Recovery Act (RCRA), and at Superfund Sites/National Priorities lists (NPLs).

This draft guidance provides current technical and policy recommendations on determining if the vapor intrusion pathway poses an unacceptable risk to human health at cleanup sites. **Vapor intrusion is a rapidly developing area in the science field**. This draft guidance aids in evaluating the potential for human exposure from a given pathway. The EPA will continue to explore this area in efforts to improve the state-of-the-science of this complex exposure pathway. This Solid Waste and Emergency Response (OSWER) document from the U.S.EPA on " Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)" is available on line at: http://www.epa.gov/correctiveaction/eis/vapor.htm

When there is an evidence of chemical intrusion, the air in buildings and homes or work places should be tested. Installing a system similar to radon mitigation system can solve most of the vapor intrusion problems at home. It prevents gases in the soil from entering homes. For health related problems or questions due to chemical intrusion at home, seek help from the local health departments or visit AIHA's web site at: http://www.aiha.org/aihce04/handouts/po126boelter.pdf

Preventing Chemical Intrusion

The best approach to prevent chemical vapor intrusion is to control it at its source and improve the air quality. It depends on the conditions of

the site and the nature of pathways. Action to remediate environmental contamination must be taken in coordination with professionals or from the local, state, and Federal government department officials. Some tips that may improve air quality are listed below:

- Keep a good record of the quantities of chemicals on hand. Do not buy or store more quantities chemicals than needed at a time. Know the products that contain VOCs.
- Unused chemicals should be stored in appropriate containers and in well-ventilated areas.
- Very strong chemical odor indicates a problem. Contact local fire department or health department to determine origin of unknown chemical odor because there may be a fire hazard. Fresh air circulation is helpful to prevent chemical build up and to lessen the odor.
- Leaks and spills should be fixed as soon as possible. Fire hazards or other problems such as mold growth are possible.
- Continue radon testing and monitoring.

An article on "Radon Monitoring & Mitigating Programs", HTIS BULLETIN, Vol.9 No.4, Jul - Aug 1999 is available at HTIS Web site: http://www.dscr.dla.mil/htis/htis.htm. The bulletin article will help our readers understand the influence of chemical vapor intrusion because the movement of radon gas from soils into the home is similar.

For details on the EPA's draft guidance and further information, DOD personnel can contact, the RCRA Hotline at 800-424-9346 (toll free) or call 703-412-9810, Office of Solid Waste (5303W), U. S. EPA, Ariel Rios Building, 1200 Pennsylvania Avenue, NW, Washington, DC 20460-0002.

Reference: 1. EPA's web site at: http://www.epa.gov/fedrgstr/EPA-AIR/2002/November/Day-29/a30261.htm. 2. Federal Register, November 29, 2002, Vol.67, No.230, pages 71169-71172. 3. Radon Monitoring & Mitigating Programs; HTIS BULLETIN Vol.9 No.4 Jul - Aug 1999.

Is Your Desk Making You Sick?

By Beverly Howell, Industrial Hygienist

"Working late again? You're not alone, according to a new study by the germ guru, Dr. Charles Gerba, microbiologist with University of Arizona, you have plenty of bacteria keeping you company.

The " workplace germ study", the first of its kind to measure normal bacterial levels inside offices in four cities: Tucson, San Francisco, New York and Tampa, Florida, found paper isn't all that's piling up on desks. In fact, the average desk harbors 400 times more bacteria than the average toilet seat, since most workplace bathrooms get cleaned on a regular basis with strong disinfectants. Employee's work desk, particularly cluttered ones, can go weeks, months, or even years between cleaning.

"For bacteria, a desk is really the laptop of luxury," said Gerba. "They can feast all day from breakfast to lunch and even dinner." So, unless you are wiping your desk clean with a disinfectant during the day, bacteria levels climb higher and higher, peaking after lunch.

Surveys of more than 1500 workers conducted by

CareerBuilder.com, an Internet recruiting firm suggest that 42 percent of workers regularly eat lunch at their desks. That's up from 38 percent in 2002.
With more people spending more time at their desks, the average workweek has increased to 47.1 hours according to the Families and Work Institute - bacteria are finding plenty to snack on.

The study, funded by a grant from The Clorox Company, found that surfaces in personal work areas such as offices and cubicles had higher bacteria levels than surfaces in common areas. Telephones came in as the #1 home for office germs, followed by desks, water fountain handles, microwave door handles and computer keyboards. Surprisingly, toilet seats consistently had the lowest bacteria levels of the 12 surfaces tested in the study.

"We don't think twice about eating at our desks, even though the average desk has 100 times more bacteria than a kitchen table and 400 times more bacteria than the average toilet," Gerba said. "Without cleaning, a small area on your desk or phone can sustain millions of bacteria that could potentially cause illness."

For the study, Gerba and his team separated office workers into two groups. One group used disinfecting wipes to clean their desks, phones and computers; the other did not. Within two days, the wipes users were found to have a 99.9 percent reduction in bacteria levels.

The study team evaluated a variety of office locations, environments and surfaces. Study sites included private offices, cubicles and common work areas in offices. A total of 7,000 samples were collected nationwide and analyzed at the University of Arizona laboratories.

Other study highlights were:

Bacteria levels decreased drastically (99.9%) if surfaces were treated with disinfecting wipes once a day.

Among people who did not use wipes, bacteria levels increased an average of 19-31% on their telephone, computer mouse, keyboard and desktop surfaces throughout a typical workday.

The area where you rest your hands on your desk has, on average, 10 million bacteria.

So how can workers control the spread of illness-causing bacteria? "One good way to kill bacteria and help stop the spread of germs is to regularly clean your personal workspace," offered Dr. Gerba. "During the study, we found that using disinfecting wipes can dramatically reduce that number of germs and therefore help reduce your chances of illness."

References: 1.Orlando Sentinel, " Bon App'etit", by Harry Wessel, 2004.
2. First In-Office Study Dishes The Dirt On Desks, Oakland, California, March 28, 2002. 3. The Clorox Company, Office Germ Study, http://www.cloroxdisinfectingwipes.com/germ_study.html#links

ERRATA

In a September-October 2004 HTIS Bulletin article titled, "EPA's Final NESHAP for Surface Coating of Miscellaneous Metal Parts and Products", we wrote, ***in error****, that a new air emissions standard affecting the surface coating of miscellaneous metal parts and products applied to government installations owned or operated by the U.S. Armed Forces. Government installations, "owned or operated by the Armed Forces of the United States (including the Coast Guard and the National Guard of any such State) or the National Aeronautics and Space Administration (NASA), or the surface coating of military munitions manufactured by or for the Armed Forces of the United States (including the Coast Guard and the National Guard of any such State)", are not covered by the NESHAP.*

8000 Jefferson Davis Highway
Defense Supply Center Richmond
Richmond, Virginia 23297-5609

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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.

Commander, Defense Supply Center Richmond
RADM Michael J. Lyden, USN

Director, Product Development
B. Montague Ingram

Chief, Standardization & Hazardous Materials Information Division
Allen J. Osborne

Chief, Hazardous Technical Information Services Branch
Fred J. Tramontin, Ph.D.

HTIS Bulletin Technical Advisor
Fred J. Tramontin, Ph.D.

Editor, HTIS Bulletin
Leonard S. Lambert