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EPA Reinstates Full TRI Reporting Requirements

By Muhammad Hanif, Chemist, HTIS

On April 21, 2009, the Environmental Protection Agency (EPA) signed a final rule to reinstate stricter reporting requirements for industrial and federal facilities that release toxic substances which threaten human health and the environment.

"People have a right to information that might affect their health and the health of their children and the EPA has a responsibility to provide it," said EPA Administrator Lisa P. Jackson. "Restoring the TRI reporting requirements assures transparency and provides a crucial tool for safeguarding human health and the environment in our communities."

The final rule reinstates Toxics Release Inventory (TRI) reporting requirements that were replaced by the TRI Burden Reduction Rule in December 2006. The 2009 Omnibus Appropriations Act, signed by President Obama on March 11, 2009, mandated that prior TRI reporting requirements be reestablished.

TRI is a publicly available, via the EPA, database that contains information on toxic chemical releases and waste management activities reported annually by certain industries, as well as, federal facilities.

The December 2006 TRI Burden Reduction Final Rule expanded **Form A** eligibility for non-Persistent, Bioaccumulative, Toxic (non-PBT) chemicals threshold to 5,000 pounds. The TRI Burden Reduction rule of December 2006 also allowed, for the first time, use of **Form A** for PBT chemicals under limited circumstances. This rule was met

with concern over the availability of required data under the Emergency Planning and Community Right-to-Know Act (EPCRA) and resulted in a lawsuit by 13 states to restore the TRI **Form A** thresholds and usage to what they were prior to the 2006 rule.

Following the rule signature, all reports on PBT chemicals must be submitted on the more detailed **Form R.** For all other chemicals (non-PBT), the shorter **Form A** may only be used if the annual reporting amount is **500 pounds or less** and the amount manufactured, processed or otherwise used is **under 1,000,000 pounds during the reporting year**.

Form R provides details about releases and other waste management (e.g., total quantity of releases to air, water, and land; and on- and off-site recycling, treatment, and combustion for energy recovery). **Form A** provides the name of the chemical and certain facility identification information. Only four chemicals (non-PBT) may be reported on each **Form A**. Only one chemical may be reported on a **Form R**.

These changes will apply to all TRI reports due **July 1, 2009**. Additionally, TRI reports for 2008 are due on July 1, 2009.

This rule has not yet been published in the Federal Register. A pre–publication version of the rule (signed April 21, 2009) for public reference is available from the EPA. While the rule has been finalized and signed by the Administrator of the EPA, it will not be legally official until it is published in the Federal Register. The rule will become effective on the date it appears in the Federal Register. For more information on the new rule, including the pre–publication rulemaking, please see EPA's Rulemakings

For specific information on the final rule, you may contact Cory J. Wagner, Toxics Release Inventory Program Division, Office of Information Analysis and Access (2844T), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460; telephone number: 202–566–1555 0758; fax number: 202–566–0741; e-mail: wagner.cory@*epa.gov;*

References: 1. EPA News Release (HQ): "EPA Administrator Reinstates Full TRI Reporting Requirements", Washington, D.C., April 21, 2009, http://www.epa.gov/newsroom/newsreleases.htm 2. EPA TRI Program: http://www.epa.gov/tri/

DOD Vapor Intrusion Handbook

By Abdul H. Khalid, Chemical Engineer, HTIS

In early May 2009, the Department of Defense (DOD) officially released the "DOD Vapor Intrusion Handbook" of January 2009. It is prepared and developed by the Tri-Service Environmental Risk Assessment Work Group (Tri-Services Work Group).

This Handbook is a tool to assist DOD installations with evaluating and investigating the vapor intrusion pathway at DOD sites conducting response actions under the Defense Environmental Restoration Program (DERP). It is designed to serve as a resource for remedial project managers and can be used at active installations. This handbook can be used as a guide that provides current technical and policy recommendations when determining if the vapor intrusion pathway poses an unacceptable risk to human health at cleanup sites. DOD personnel can access this handbook online at: https://www.denix.osd.mil/portal/page/portal/denix.

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.

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:

- 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.

Reference: DOD Vapor Intrusion Handbook, January 2009, website at: https://www.denix.osd.mil/portal/page/portal/denix

DOD ESOH Acquisition Integrating Into Systems Engineering Processes

By Abdul H. Khalid, Chemical Engineer, HTIS

The Department of Defense (DOD) has a responsibility to protect its personnel from accidents, occupational injuries and illnesses, while at the same time reducing environmental impact when executing its mission.

The Office of the Deputy under Secretary of Defense for Installation and Environment and the Office of the Deputy under

Secretary of Defense for Acquisition & Technology perform DOD's Environment, Safety and Occupational Health (ESOH) program.

The DOD's ESOH program is committed to sustain natural resource, workforce, and general public by integrating the DOD acquisition and risk management process into systems of engineering. The DOD acquisition and the ESOH risk management (RM) process can work most effectively as a part of DOD's policy and the systems engineering processes. The DOD's ESOH policy is available from the DOD Directive 4715.1E, Environment, Safety, and Occupational Health at: http://www.dtic.mil/whs/directives/corres/pdf/471501p.pdf.

As a part of the systems engineering process, program managers are required to manage the workforce and the environment to eliminate ESOH hazards where possible and to minimize the ESOH risks throughout the system's life cycles, using methodology as referenced in the DOD standard practice for the System Safety, Military Standard, MIL-STD-882D.

The DOD Instruction (DODI) 5000.2 defines the basic requirements for operation of the defense system. ESOH program and risks management are systems engineering processes. The details are given in the DOD instruction manual at: http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf.

The ESOH policy is specifically written to move the DOD beyond the compliance requirements. The directive allows the DOD to maintain defense readiness today while assuring the sustainability of natural resources needed for future military training and testing. The DOD ESOH policy is briefly described below:

- To manage and apply the Department of Defense's installation assets to sustain the DOD national defense mission.
- To use ESOH management systems in mission planning and execution across all military operations and activities, including acquisition, procurement, logistics, and facility management.
- To ensure that all organizations plan, program, and budget to manage the ESOH risks that their and emerging ESOH resource requirements and make prudent investments in initiatives that activities generate.
- To evaluate all activities for current support mission accomplishment, enhance readiness, reduce future funding needs, prevent pollution, prevent illness and injury, ensure cost-effective compliance, and maximize the existing resource capability.
- To ensure, through a host-tenant agreement or otherwise, that all DOD tenants and non-DOD tenants comply with all applicable laws and DOD policies relating to ESOH requirements. For overseas installations, commanders shall implement this policy to the extent possible under stationing and international agreements.
- To protect DOD personnel from accidental death, injury, or occupational illness.
- To protect the public from risk of death, injury, illness, or property damage because of DOD activities.
- To establish and maintain open and productive ESOH dialogue with

Federal, State, inter-State, Indian tribal, local officials; the public; private organizations; with host nation governments; and, as appropriate, other foreign governments and relevant international organizations.

Reference: MIL-STD-882D, DOD's Standard Practice for System Safety, last revised, Feb 2000.

PHMSA Releases Letter Regarding Battery Safety

Reprint submitted by Leonard Lambert, HTIS

The Department of Transportation's (DOT), Pipeline and Hazardous Materials Safety Administration (PHMSA) has released a letter to convey their findings on recent investigations and their ongoing effort to improve compliance and transportation safety relative to the recycling of batteries. The letter was issued by Ryan Posten, Director, Office of Hazardous Materials Enforcement.

According to PHMSA, there has been a continuing trend of safety problems, and non-compliance in regards to marking, labeling, documentation, and transportation of used batteries. Common violations and safety problems that were found during the investigations include:

- Large quantities of batteries being collected in large containers that were not able to prevent damage, or release during transportation.
- Outer packages were not marked and labeled to indicate that the package contained batteries, as required.
- Precautions were not being taken to ensure that the batteries would not short circuit.

The changes to Special Provision 130 (SP-130) were introduced in HM-215J/224D with a mandatory effective date of **1 January 2010**, causing batteries previously unregulated to become regulated under the hazardous materials regulations.

All batteries are subject to the requirements in the HMR because they possess two types of hazards: chemicals or other materials inside the battery, and the electric potential of the battery.

The types of batteries addressed by PHMSA in the letter include:

- Lithium Batteries,
- Wet Batteries,
- Batteries containing sodium,
- Dry Batteries containing potassium hydroxide solid, and
- Dry Batteries.

Reference: http://www.hazmatship.com/content/view/21871/66/http://www.hazmatship.com/

The Resurgence of the Bed Bugs

By Beverly Howell, Industrial Hygienist, HTIS

Just when you thought it was safe to travel again, the common bed bug is wreaking havoc. The bed bug population is increasingly reaching levels that are critical and is affecting all areas of the county. This

resilient pest is becoming a nationwide problem affecting hotel, home, and universities in the general population. In order to effectively identify challenges and ways to remedy this concern, in April 2009 the Environmental Protection Agency (EPA) held a National Bed Bug Summit, bringing together federal, state and local government agencies, academia, researchers and other interested parties to discuss this concern.

In the 1950s the world saw a marked decrease in the numbers of bed bugs when DDT was introduced. However, the use of DDT as a pesticide was banned in the 1970's and hardy bed bugs seemingly welcomed the news. In the past few years, levels of bed bug infestations have been on par with what was known previous to the mid century mark and they continue to rise.

With increased world travel, bed bugs are again making their presence felt as they are moved from one country and introduced to another through international transport on clothing, luggage and the human body. Bed bugs are one of the great travelers of the world transported on airlines and in cargo holds via luggage. Bed bugs can also be transferred from an overnight stay in hotels, motels and Inns.

The most visible sign of a bite is a skin reaction. Some individuals however, do not react to their bite, whereas others note a great deal of discomfort often with loss of sleep from the persistent biting. The most commonly affected areas of the body are the arms and shoulders.

Bedbugs will feed on any mammal, including cows and dogs. In North America, migratory birds and bats have been sources of infestation.

Today with the use of DDT phased out due to human toxicity concerns, current extermination practices are more insect-specific and what's toxic to a cockroach may not kill a bed bug.

Getting rid of bed bugs is not an easy process, and most cases of bed bug infestation will require treatment by a pest control expert. A variety of low-odor sprays, dusts, and aerosol insecticides can be used to eradicate bed bugs. These must be applied to all areas where the bugs are observed as well as spaces where they may crawl or hide. The pest control company can help you determine if the mattress can be disinfected or must be discarded. Since beds cannot readily be treated with insecticides, it's often necessary to discard infested mattresses and beds.

The pest control expert may recommend certain forms of deep-cleaning such as scrubbing infested surfaces with a stiff brush to remove eggs, dismantling bed frames and furniture, filling cracks in floors, walls, and moldings, encasing mattresses within special bags, or using a powerful vacuum on cracks and crevices.

Reference: 1. Environmental Protection Agency, National Bed Bug Summit; Notice of Public Meeting, March 18, 2009. 2. ABC News, Travel Sick: Travel-Related Infections, How to Keep Germs from Ruining Your Vacation, March 3, 2009.

EPA Announces Reform of IRIS's Assessment Development Process

By Ariel Rosa, Environmental Protection Specialist, HTIS

The Environmental Protection Agency's (EPA) announced reforms to the Integrated Risk Information System (IRIS) that will revitalize the program and ensure its scientific quality, integrity, transparency and timeliness.

The EPA's IRIS is a chemical evaluation program that is a critical component of the EPA's capacity to support scientifically sound environmental regulations and policies. The IRIS provides crucial information on ways human health is impacted by exposure to chemical substances in air, water, and land both from contaminated sites and from products. Combined with specific exposure information, government and private entities use the IRIS to help characterize public health risks of chemical substances in a site-specific situation and thereby support risk management decisions designed to protect public health.

"We're improving efficiency, scientific integrity, and transparency in a program that plays a vital role in our mission to protect human health and the environment," said EPA Administrator Lisa P. Jackson. "A more effective IRIS program gives the EPA and the American people better information and better information leads to safer and healthier communities."

Other highlights of the new IRIS development process include a streamlined review schedule, ensuring that the majority of assessments are posted on IRIS within two years of the start date. This will result in more human health assessments being available to the EPA's programs and regions and to other users of the IRIS database. The new process will no longer provide other federal agencies the opportunity to request suspension of an assessment process to conduct research on "mission critical" chemicals.

While opportunities remain for input from other federal agencies and White House offices, the input will be from health scientists and will focus on scientific and technical comments. Further, all written comments from other federal agencies and White House offices will be made public, which will greatly improve the transparency of the process.

The EPA plays a critical role in disseminating timely, high quality, and accessible human health risk information on environmental contaminants that may endanger the health of the American public. IRIS is also a critical resource for risk assessors and environmental and health professionals in state and local governments and other countries.

For far too long the success of the EPA's IRIS program has been hampered by an assessment development process that took too long, was redundant, and was not transparent to the public. In a May 21 memo EPA Administrator Lisa Jackson said "While still robust, the assessment development process will be shortened to 23 months, speeding the availability of IRIS assessments to the risk assessor community and the public and providing for more timely action to protect public health." The new IRIS process will be entirely managed by the EPA. The EPA will have final authority over the contents of all IRIS assessments after considering the scientific input of experts at other agencies and White House offices. The well established processes of rigorous independent external peer review and public review and comment will remain key components of the new IRIS process.

Reference:
http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=190045

EPA's Guidance on Preventing Asbestos Exposure

By Muhammad Hanif, Chemist, HTIS

Asbestos is the name given to a number of naturally occurring fibrous minerals with

high tensile strength, the ability to be woven, and resistance to heat and most chemicals. Because of these properties, asbestos fibers have been used in a wide range of manufactured goods, including roofing shingles, ceiling and floor tiles, paper and cement products, textiles, coatings, and friction products such as automobile clutch, brake and transmission parts. The current Federal definition of asbestos is the asbestiform varieties of: chrysotile (serpentine); crocidolite (riebeckite); amosite (cummingtonite/grunerite); anthophyllite; tremolite; and actinolite. (Asbestiform implies a particular kind of fibrosity in which fibers have high tensile strength and flexibility.)

Asbestos is well recognized as a health hazard and is highly regulated. In accordance with the Environmental Protection Agency (EPA), and Occupational Safety and Health Administration (OSHA), an estimated 1.3 million employees in the construction and general industry face significant asbestos exposure on the job. Heaviest exposures occur in the construction industry, particularly during the removal of asbestos during renovation or demolition. Employees are also likely to be exposed during the manufacture of asbestos products (such as textiles, friction products, insulation, and other building materials) and during automotive brake and clutch repair work.

After reviewing comments on a draft version published in August 2006, the EPA modified the brochure in several ways and on April 2, 2007, released the final version of a brochure entitled, "*Current Best Practices for Preventing Asbestos Exposure Among Brake and Clutch Repair Workers*". This document now includes language explaining that exposure to asbestos, if not properly controlled can cause mesothelioma, lung cancer, and asbestosis. Symptoms of an asbestos-related disease can take 10 to 40 years or more to appear.

The document also includes information taken from a recent OSHA bulletin that addresses the difficulty of distinguishing brake and clutch components that contain asbestos from those that do not. Many brakes and clutches used in new and recent model automobiles do not contain asbestos. However, it has not been totally eliminated. Some reports indicate that many mechanics and employees in the automotive repair shops as well as do-it-yourselfers are unaware that asbestos may be present in both old and replacement brakes and clutches. The EPA suggests that individuals consult other information sources, such as product labels and Material Safety Data Sheets, for help in determining whether brake or clutch components contain asbestos.

Exposure to airborne friable asbestos may result in a potential health risk because persons breathing the air may breathe in asbestos fibers. Continued exposure can increase the amount of fibers that remain in the lung. Fibers embedded in lung tissue over time may cause serious lung diseases. Smoking increases the risk of developing illness from asbestos exposure.

Three of the major health effects associated with asbestos exposure includes:

Asbestosis: Asbestosis is a serious, progressive, long-term non-cancer disease of the lungs. It is caused by inhaling asbestos fibers that irritate lung tissues and cause the tissues to scar. The scarring makes it hard for oxygen to get into the blood. Symptoms of asbestosis include shortness of breath and a dry, crackling sound in the lungs while inhaling. There is no effective treatment for asbestosis.

Lung Cancer : Lung cancer causes the largest number of deaths related to asbestos

exposure. People who work in the mining, milling, manufacturing of asbestos, and those who use asbestos and its products are more likely to develop lung cancer than the general population. The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.

Mesothelioma: Mesothelioma is a rare form of cancer that is found in the thin lining (membrane) of the lung, chest, abdomen, and heart and almost all cases are linked to exposure to asbestos. This disease may not show up until many years after asbestos exposure. This is why great efforts are being made to prevent school children from being exposed.

In the Jan-Feb 2007 edition of the Hazardous Technical Information Services bulletin, we referenced OSHA's Safety and Health Information bulletin to inform our readers that asbestos remains a substantial source of exposure to many mechanics and employees in automobile repair shop as well as do-it-yourselfers who may be unaware of the risk associated with working with the old or replacements parts of the brakes and clutches. We emphasized that those working with brakes and clutches review the OSHA's "Asbestos-Automotive Brake and Clutch Repair Work" published in Safety and Health Information Bulletin, SHIB 07-26-2006, which can be downloaded from http://www.osha.gov/dts/shib/shib072606.html

The OSHA and EPA brochures describe workplace practices designed to reduce asbestos exposure among brake and clutch repair workers. The EPA's final brochure is now available in trifold print version and document/letter print version at EPA's site: http://www.epa.gov/asbestos/pubs/brakesbrochure.html

The EPA's final brochure and OSHA's Bulletin are intended to provide information for automotive professionals and home mechanics on preventing exposure to brake and clutch dust that may contain asbestos fibers. This brochure replaced the existing document entitled, *Guidance for Preventing Asbestos Disease Among Auto Mechanics* (EPA-560-OPTS-86-002), commonly referred to as the "Gold Book. "The EPA revised this brochure as part of an effort to bring its asbestos guidance up to date. This brochure replaced the original "Gold Book" which was issued in 1986 prior to the official OSHA guidance to brake and clutch workers.

The EPA's brochure and OSHA's Bulletin **are not the standards or regulations**, and create no new legal obligations. These documents are advisory in nature, informational in content, and are intended to assist employers in providing a safe and healthful workplace. Pursuant to the *Occupational Safety and Health Act*, employers must comply with hazard-specific safety and health standards promulgated by OSHA or by a state with an OSHA-approved state plan.

OSHA's asbestos standard requires the use of controls and safe work practices when an employee work with brake shoes and clutches that contain asbestos. These requirements are detailed in 29 CFR 1910.1001 and specifically 1910.1001(f)(3) and Appendix F of the standard - Work Practices and Engineering Controls for Automotive Brake and Clutch Inspection, Disassembly, Repair and Assembly (http://www.osha.gov/SLTC/asbestos/index.html). The requirements also are discussed in the Federal Register at 59 FR 40964, 40985-87 (August 10, 1994) and 60 FR 33983 (June 29, 1995), as well as in OSHA Directive CPL 2-2.63 (revised).

References: 1. Current Best Practices for Preventing Asbestos Exposure Among Brake and Clutch Repair Workers – text version,

http://www.epa.gov/asbestos/pubs/brakesbrochure.html
2. Safety and Health Information Bulletin, SHIB 07-26-2006, http://www.osha.gov/dts/shib/shib072606.html

First EPA Approved Antimicrobial Pesticide for Anthrax

By Ariel Rosa, Environmental Protection Specialist, HTIS

The EPA announced that it has approved the first registration, or license, of an antimicrobial pesticide product to deactivate anthrax spores on hard surfaces.

"*Peridox with the Electrostatic Decontamination System*" can decontaminate buildings, structures, vehicles, ships, aircraft, personal protective equipment, and other items infected with anthrax spores. However, its use is limited to dry, pre-cleaned, hard, nonporous surfaces.

The EPA reviewed extensive data provided by the manufacturer, Clean Earth Technologies, to ensure that the product will be effective and not cause unreasonable adverse effects. The EPA also reviewed the labeling of Peridox and associated training materials to ensure that they are consistent with the EPA's Pesticide Registration Notice 2008-2, which specifies the terms and conditions that would apply to anti-anthrax products.

Notice 2008-2 provides guidance to prospective applicants of antimicrobial products that claim to deactivate anthrax spores. The availability of such products will better prepare the United States to respond to anthrax incidents. The guidance assures that anthrax-related products are registered, bear appropriate labeling and are effective when applied as directed. The use of anthrax-related products will be limited to federal on-scene coordinators, the U.S. military, and persons trained and certified competent by the manufacturer.

Peridox is the first pesticide registered to deactivate anthrax spores. The EPA previously issued crisis exemptions allowing use of unregistered antimicrobial chemicals to clean buildings and any contents contaminated with anthrax spores.

Anthrax is a disease caused by Bacillus anthracis. Both humans and animals are susceptible. Anthrax, if untreated, can cause acute illness or death.

Reference;
http://www.epa.gov/pesticides/factsheets/chemicals/peridox-eds.html

Increased Scrutiny of Flea & Tick Control Products for Pets

By Muhammad Hanif and Ariel Rosa, HTIS

The U.S. Environmental Protection Agency (EPA) is intensifying its evaluation of spot-on pesticide products for flea and tick control for pets due to recent increases in the number of reported incidents. Adverse reactions reported range from mild effects such as skin irritation to more serious effects such as seizures and, in some cases, the death of pets.

Flea and tick products can be appropriate treatments for protecting your pets and your family's health because fleas and ticks can transmit disease. While many people use the products with no harm to their pets, the EPA recommends that pet owners take precautions when using these products. Pet owners should carefully follow label

directions and monitor their pets for any signs of an adverse reaction after application, particularly when using these products for the first time. Pet owners may also want to consult a licensed veterinarian about the responsible and effective use of flea and tick products.

Spot-on products used on dogs and cats contain active ingredients (pesticides) that kill fleas and/or ticks. The active ingredients in these products are amitraz, cyphenothrin, dinotefuron, etofenprox, fipronil, imidicloprid, metaflumizone, permethrin, pyriproxyfen, and S-methoprene. To a lesser extent, those active ingredients may also control mosquitoes, lice, and mites.

Spot-on products are generally packaged in tubes or vials and are applied to one or more localized areas, such as in between the shoulders or in a stripe along the back of the body of the pet. Spot-on is an EPA-registered product that is obtained from retail outlets, veterinarian clinics, and internet businesses.

Incidents with flea and tick products can involve the use of spot-on treatments, sprays, collars and shampoos. However, the majority of the incidents reported to the EPA are related to flea and tick treatment products. This advisory applies only to products registered by the EPA known as "spot-on," for direct application to cats or dogs to control fleas or ticks. These products have an EPA Registration Number on the label.

Health Canada has identified similar concerns about the use of spot-on flea and tick products. Health Canada and EPA will meet shortly with spot-on product manufacturers to address the issue, including whether further restrictions are necessary to protect the health of pets.

The EPA is not advising pet owners to stop using spot-ons, but is advising them to exercise caution and make informed decisions when selecting treatment methods. Be sure to use spot-on products only on the animal specified by the product label ─ dog products for dogs, cat products for cats. It is also important to use only the amount of product specified in the instructions, based on the weight/size of your pet. Consult your veterinarian before application if your pet is sick, aged, pregnant, nursing, is on medication or is exposed to other pesticide treatments as it may have additional sensitivity to the product.

The EPA recommends that veterinarians use the National Pesticide Information Center's Veterinary Pesticide Adverse Effects Reporting portal to report incidents: http://npic.orst.edu/vet. **This system is only for use by veterinarians or their staff to report adverse effects of an animal's exposure to pesticides**. If you are not a veterinarian, but would like to report an adverse effect of a pesticide to your pet, please call NPIC at 1-800-858-7378 to report pesticide related incidence.

For additional information on pet products and safety tips, use website http://www.epa.gov/pesticides/health/pets.htm or contact Doug Parsons, 202-564-0341 / parsons.douglas@epa.gov.

References: 1. EPA News Brief: "U.S. and Canada to Increase Scrutiny of Flea and Tick Pet Products", April 16, 2009, Washington D.C. 2. Pesticides: Health and Safety website: http://epa.gov/pesticides/health/pets.htm

FDA Assesses New Nanotechnology Test to Detect Anthrax Following Bioterrorist Attack

Reprint submitted by Ariel Rosa, HTIS

The U.S. Food and Drug Administration has completed a "proof-of-concept" study of a test that quickly and accurately detects the presence of even the smallest amount of the deadly anthrax toxin.

"The FDA findings could form the basis of a test that allows earlier diagnosis of anthrax infection than currently possible," said Indira Hewlett, Ph.D., the senior author of the study and chief of the Laboratory of Molecular Virology, Office of Blood Research and Review, at the FDA's Center for Biologics Evaluation and Research (CBER). "The earlier those infected with anthrax can be treated, the better."

A proof-of-concept study is an initial investigation that aims to determine if a new scientific idea or concept holds promise for further development. A report on the results of this study appears in the March issue of Clinical and Vaccine Immunology.

Anthrax is an infectious disease caused by the bacterium Bacillus anthracis, a bacterium that forms spores, or dormant cells, which can become active under the right temperature, nutrients and other conditions that allow growth. Anthrax occurs in humans after exposure to an infected animal or infected animal tissue or when anthrax spores are used as a bioterrorist weapon.

The proof-of-concept study developed by FDA researchers relies on a nanotechnology-based test platform built from tiny molecular-sized particles. This assay, the europium nanoparticle-based immunoassay (ENIA), was able to detect the presence of a protein made by the anthrax bacteria known as protective antigen (PA). PA combines with another protein, called lethal factor, to form anthrax lethal factor toxin, the protein that enters cells and causes toxic effects.

The researchers showed that ENIA is capable of detecting PA in quantities that are 100 times lower than current tests, such as the enzyme-linked immunosorbent assay (ELISA). Both the ELISA and ENIA rely on antibodies that have an affinity for the anthrax protein of interest.

The FDA test is a modified version of ELISA, which is already commonly used to detect anthrax and other infections. The researchers call their new test 'europium nanoparticle-based immunoassay,' because atoms of europium are key to the assay's sensitivity.

The ENIA uses molecular spheres (called nanospheres) covered with thousands of light-emitting atoms of europium that emit light, which acts as a signal that PA is present. The CBER team further enhanced the signal by modifying the nanospheres so they held additional atoms of europium, making the test more sensitive.

The ENIA detected PA in 100 percent of samples of mouse plasma compared to 36.4 percent through ELISA.

Nanotechnology-based tests like the ENIA are rapidly emerging as convenient tools for a variety of laboratory uses, according to Shixing Tang, M.D., Ph.D., a visiting associate scientist in the Laboratory of Molecular Virology, CBER. "ENIA has potential use in an emergency because its relatively simple design makes the technology adaptable to point-of-care uses," said Dr. Tang, the first author of the study.

The researchers developed the ENIA for PA in response to the increased interest in the scientific community for new anthrax assays following the 2001 U.S. anthrax attack that killed five people.

Co-authors of the article, "Detection of Anthrax Toxin by an Ultrasensitive Immunoassay Using Europium Nanoparticles," include Jiangqin Zhao (CBER), Mahtab Moayeri, Zhaochun Chen, Haijing Hu, Robert H. Purcell, and Stephen H. Leppla (National Institute of Allergy and Infectious Diseases, National Institutes of Health), and Harri Harma (University of Turku, Finland).

Reference: www.fda.gov/ . See "Detection of Anthrax Toxin by an Ultrasensitive Immunoassay Using Europium Nanoparticles," Released March 17, 2009.

FDA Clears Rapid Test for Bird Flu

By Ariel Rosa, Environmental Protection Specialist, HTIS

On April 7, 2009 the U.S. Food and Drug Administration (FDA) announced that it has cleared for marketing, a new and more rapid test for the detection of the influenza A virus.

The test, called "AVantage A/H5N1 Flu Test", detects influenza A/H5N1 in throat or nose swabs collected from patients who have flu-like symptoms. In less than 40 minutes the test identifies a specific protein (NS1) that indicates the presence of the influenza A/H5N1 virus subtype. Previous tests cleared by the FDA to detect this influenza A virus subtype can take three or four hours to produce results.

"This test is an important tool to help quickly identify emerging influenza A/H5N1 infections and reduce exposure to large populations," said Daniel G. Schultz, M.D., director of the FDA's Center for Devices and Radiological Health. "The clearance of this test represents a major step toward protecting the public from the threat of pandemic flu."

Influenza A infects both humans and animals. H5N1 is a subtype found mostly in birds, although infections have also occurred in humans, mostly in people who have come into contact with the virus through infected poultry. According to the Centers for Disease Control and Prevention, of the few avian influenza viruses that have infected humans, the H5N1 subtype has caused the largest number of detected cases of serious disease and death.

There is a possibility that the A/H5N1 virus subtype could mutate further and spread quickly to humans, causing an influenza pandemic. According to the World Health Organization, 412 human cases of infection from this virus have been confirmed, mostly in Asia and northern Africa. So far this virus subtype, which can cause life-threatening illness, has not been detected in the Americas.

Reference: http://www.pandemicflu.gov/

Preventing Occupational Exposures to Lead and Noise at Indoor Firing Ranges

By Beverly Howell and Ariel Rosa, HTIS

The Department of Defense operates several indoor firing ranges where the potential for occupational exposure to range generated lead and noise exists.

Among law enforcement and recreational shooters, indoor firing ranges are popular because they offer protection from

inclement weather conditions and can be operated around the clock under controlled environmental conditions. However, many firing range facilities lack environmental and occupational controls to protect the health of shooters and range personnel from effects of airborne lead, noise, and other potential exposures.

The National Institute for Occupational Safety and Health (NIOSH) has posted an alert that will be useful to Federal, State, local law officers, firing range employers and operators who are potentially exposed to hazardous amounts of lead and noise at indoor firing ranges. In addition to these workers, 20 million active target shooters are also potentially exposed to these hazards.

The document, "*Preventing Occupational Exposures to Lead and Noise at Indoor Firing Ranges"* dated April 2009, list steps that employers and firing range operators should take to protect their workers and shooters from exposure to hazardous lead concentrations and noise levels at these facilities. The Alert also provides steps that workers should take to ensure that they stay informed and protect themselves against the hazards associated with lead and noise exposures.

The Alert "NIOSH Publication No. 2009-136" presents five case reports that document lead and noise exposures of law enforcement officers and students. The five cases presented describe the causes of these exposures and the methods for controlling them. In addition, the Alert examines existing regulations, exposure standards and guidelines.

The case described in the report suggest that employers, workers, and the general public may have an increased likelihood of exposure to lead through inhalation, skin contamination, and ingestion, and therefore the increased risks associated with the potential toxic health effects from lead. Numerous factors and routes of exposure can contribute to workers' and patrons' exposures to lead. Environmental factors include the type of ventilation system used, the types of ammunition used, and the length of time that shooting occurs at the firing range. Exposure risk factors include the type and frequency of work practices conducted at the range, particularly those involving cleaning the firing range and other maintenance activities.

As demonstrated by the case studies, proper ventilation, good housekeeping practices, and basic personal hygiene practices will limit or eliminate the risk of lead exposure.

In addition to lead exposure, the discharge of firearms produces peak noise levels that exceed the occupational health limits of 140 dB SPL. The case studies illustrate the need to assess impulse noise exposure correctly by using proper sound measuring instruments and techniques, and the importance of using double hearing protection while shooting as part of an overall hearing conservation program.

The Alert recommends double protection, ear plugs plus ear muffs, and other precautions that include separately washing apparel that was worn while shooting from the clothes of family members. Shooters and workers should shower, whenever possible, and change clothes at firing range facilities after shooting or performing maintenance or cleaning activities at the range.

The document advises that workers doing lead cleanup of an indoor firing range wear respirators and full protective outer clothing. It also recommends that employees be trained to recognize the signs and symptoms of lead poisoning and hearing loss.

For employers, the Alert recommends audiometric testing for their employees,

ensuring a well-designed system of supply air and exhaust ventilation is installed in the range, providing health and medical monitoring, and designing the range to minimize noise transmission to nearby areas.

NIOSH requests that the recommendations in this Alert be brought to the attention of all firing range owners, operators, workers, and users as well as safety and health officials, industry associations, unions, and editors of trade journals.

Reference:http://www.cdc.gov/niosh/docs/2009-136/

Cancellation of OSHA Outdated Instruction STD 01-05-001

By Abdul H. Khalid, Chemical Engineer, HTIS

In April 2009, the U. S. Occupational Safety and Health Administration (OSHA) announced the cancellation of its 1991 instruction STD 01-05-001 titled, "Guidelines for Laser Safety and Hazard Assessment". According to OSHA, these guidelines are outdated and encourage using the new revision of the American National Standards Institute (ANSI) Laser Safety Standards (ANSI Z136.1) which contains more up-to-date information with new additions and changes to the old document published in 1991. **The cancellation became effective on February 26, 2009.**

Lasers are widely used in industrial and medical applications. In the U. S., more than 70 percent of laser-related injuries occur to the eyes, 12 percent of injuries are to the skin while the remaining are non-beam related hazards.

The ANSI standard establishes guidance for exposure limits, user training, engineering and administrative controls, laser hazard classifications, and the roles of management of laser hazards by the laser safety officers. **It should be noted that the ANSI standards are voluntary and have no legal bindings unless they are a part of OSHA standards**.

Reference: April 21, 2009, Directive, 09-01 (STD 01) - Cancellation of OSHA Instruction STD 01-05-001, Guidelines for Laser Safety & Hazard Assessment, web site at: http://www.osha.gov/whatsnew.html.

OSHA's Regulatory Plan on Occupational Safety & Health Issues

By Abdul H. Khalid, Chemical Engineer, HTIS

The 2009 regulatory plan of the U.S. Occupational Safety and Health Administration (OSHA) is an attempt to achieve the Agency's goals on occupational safety and health issues under new directions from the Labor Secretary Hilda Solis. On May 11, 2009, Solis signed her first semi-annual agenda of regulations which is now available online at: http://www.osha.gov/FedReg_osha_pdf/FED20090511.pdf.

This document outlines the OSHA's semi-annual agenda of regulations for the coming 12 months. Agencies within the department have assessed their available resources and intend to accomplish their goals within the next 12 months. Only time will tell if these issues will be resolved or need further adjustment to reach final goals.

Here are some of the issues on the given agenda that may be of interest to our readers. The 2009 agenda consists of regulations that have been selected for review or development between April 2009

and April 2010 and in this respect public comments are invited on the listing.

Pre-rule stage

OSHA plans to focus on some of the following:

- Occupational Exposure to Crystalline Silica: OSHA has released guidance document on controlling silica exposure in construction. No specific date for proposed rule making.
- Occupational exposure to beryllium: Peer review may be completed by the end of 2009.
- Occupational Exposure to Diacetyl and Food Flavorings Containing Diacetyl: Still working on permissible exposure limit PEL; no decision as yet.
- Combustible Dust: Introduction to legislation in the US House; OSHA may issue final rule.

Proposed rule

The following regulations will be the primary focus under the proposed ruling stage:

- Confined Spaces in Construction: Agency may finalize this rule soon.
- Electric Power Transmission and Distribution; Electrical Protective Equipment: OSHA has reopened the record to get additional information on minimum approach distance.
- Cranes and Derricks in Construction: This rule may be finalized next year.
- Hazard Communication: Still working on Globally Harmonized System for Classification (GHS); proposal is with the Office of Management and Budget (OMB) for review.

Long-term actions

The following are on long-term actions by OSHA; no definite dates for completion:

- Blood borne Pathogens
- Hearing Conservation Program for Construction Workers
- Explosives
- Emergency Response and Preparedness

For details on this semi-annual regulatory agenda, contact, Kathleen Franks, Director, Office of Regulatory Policy, Office of the Assistant Secretary for Policy, U.S. Department of Labor, 200 Constitution Avenue NW., Room S-2312, Washington, DC 20210; phone: 202-693-5959.

Reference: U.S. Department of Labor, Semiannual Regulatory Agenda, May 11, 2009, OSHA web site at: http://www.osha.gov/FedReg_osha_pdf/FED20090511.pdf.

Summer Fire Safety

By Beverly Howell, Industrial Hygienist, HTIS

Summer means picnics, barbecues, parades and fireworks displays, especially around the 4th of July. This is also a time when safety may become a little relaxed, because we let our guards down in the moments of enjoying the fun and memories that come along with summertime. With this in mind, summer can also mean a time of increased injuries from backyard grills and fireworks.

A 22- year study conducted on fireworks injuries treated in emergency rooms by the

Director of the Center for Injury Research and Policy at Columbus (OH) Children's Research Institute showed that:

- 67% of sparkler-related injuries were among children 5 years or younger,
- 70% of patients treated for all fireworks injuries were male,
- Adult supervision was present in 54% of the cases,
- The eyes were injured in nearly one-third of the cases, and
- The average age of patients was 8.5 years.

The best way to safely enjoy this 4th of July is to watch a public fireworks display conducted by professionals. However, if fireworks are legal where you live and you decide to use them, be sure to follow these important safety tips:

- Never allow young children to handle fireworks.
- Older children should use fireworks only under close adult supervision.
- Light fireworks outdoors in a clear area away from onlookers, houses and flammable materials.
- Light one device at a time; maintain a safe distance after lighting.
- Do not allow any running or horseplay while fireworks are being used.
- Never ignite devices in a container.
- Do not try to re-light or handle malfunctioning fireworks; douse and soak them with water and discard them safely.
- Keep a bucket of water nearby to fully extinguish fireworks that don't go off or in case of fire.

Cooking and eating outdoors seems to make the food taste just a little more special. But, cooking outdoors whether it involves using a charcoal grill, gas grill or an open campfire, requires special safety precautions. The National Fire Protection Association (NFPA) found that gas and charcoal grills are responsible for 3,400 structure fires in or on home properties, resulting in a combined direct property loss of $137 million. Gas-fueled grills caused an estimated 2,800 home structure fires and 500 outdoor fires.

In order to enjoy your outdoor grilling, consider following the following guidelines.

Barbeque Grills:

- Position the grill well away from siding, deck railings, and out from under eaves and overhanging branches.
- Place the grill a safe distance from lawn games, play areas, and foot traffic.
- Keep children and pets away from the grill area by declaring a 3-foot "kid-free zone" around the grill.
- Put out several long-handled grilling tools to give the chef plenty of clearance from heat and flames when cooking food.
- Periodically remove grease or fat buildup in trays below grill so it cannot be ignited by a hot grill.
- Use only outdoors! If used indoors, or in any enclosed spaces, such as tents, barbecue grills pose both a fire hazard and the risk of exposing occupants to carbon monoxide.

Charcoal Grills:

- Purchase the proper starter fluid and store out of reach of children and away from heat sources.
- Never add charcoal starter fluid when coals or kindling have already been ignited, and never use any flammable or combustible liquid other than charcoal starter fluid to get the fire going.

Propane Grills:

- Check the propane cylinder hose for leaks before using it for the first time each year. A light soap and water solution applied to the hose will reveal escaping propane quickly by releasing bubbles.
- If you determined your grill has a gas leak by smell or the soapy bubble test and there is no flame:
    1. Turn off the propane tank and grill.
    2. If the leak stops, get the grill serviced by a professional before using it again.
    3. If the leak does not stop, call the fire department.
- If you smell gas while cooking, immediately get away from the grill and call the fire department. Do not attempt to move the grill.
- All propane cylinders manufactured after April 2002 must have overfill protection devices (OPD). OPDs shut off the flow of propane before capacity is reached, limiting the potential for release of propane gas if the cylinder heats up. OPDs are easily identified by their triangular-shaped hand wheel.
- Use only equipment bearing the mark of an independent testing laboratory. Follow the manufacturers' instructions on how to set up the grill and maintain it.
- Never store propane cylinders in buildings or garages. If you store a gas grill inside during the winter, disconnect the cylinder and leave it outside.

Reference: U.S. Fire Administration/FEMA, Focus on Fire Safety, "Fireworks and Outdoor Cooking Fire Safety"

Effects of Working in Hot Environment & Related Safety Risks

Abdul H. Khalid, Chemical Engineer, HTIS

High temperature and humidity in a hot environment is a challenge to many workers, especially those who work outdoors. Working in a hot environment is an extra stress on our hearts and lungs. During outdoor activities in a hot environment, as the air temperature rises during the day, there is an increase in body temperature, blood flow to the skin's surface, and sweating. More blood circulates through the skin to dissipate heat, leaving less blood for muscles which result in an increase in heart rate. If the humidity is high the body faces added stress because sweat does not readily evaporate from your skin, thus adding more to the body temperature. The result may be a heat-related illness, such as heat cramps, heat exhaustion or heatstroke.

Hot environments and their related safety risk factors are a source of concern during the summer months. Research study by the

NIOSH indicates that there is a relation between hot environment, mental alertness and physical performance. Heat stress lowers mental alertness that can lead to poor performance, which ultimately may result in injuries and illnesses. High temperatures and humidity are the leading causes of heat stress. Heat related illness becomes a special concern during hot weather. There are three major forms of heat illnesses:

- Heat Cramps
- Heat exhaustion
- Heat stroke

Among them heat stroke is the most serious and is life threatening.

It is important to know how to avoid heat-related illnesses: Some of the basic precautions are listed below:

Take it slow when working outside in hot weather: As the body adapts to the heat, gradually increase the length and intensity of working outside. Take additional precautions if you have a chronic medical condition or take medication; consult your doctor if you need to take additional precautions.

Drink plenty of fluids: Your body's ability to sweat and cool down depends on adequate rehydration. Drink plenty of water while working outside even if you are not feeling thirsty. Avoid drinks that contain caffeine or alcohol because they actually promote fluid loss.

Dress appropriately: Lightweight, loose-fit clothing promotes sweat evaporation and cooling by letting more air pass over your body. Avoid dark colors, which can absorb the heat. A light-colored hat can limit your exposure to the sun.

Avoid mid-day sun: Work more in the morning or evening.

Wear sunscreen. Sunburn decreases your body's ability to cool itself. Know when to call it quits and have a backup plan in case there is some sighs of heat stress or heat strokes.

OSHA's Publication No. 3154 titled "Heat Stress Card" provides useful information on how to prevent heat stress illnesses or injuries. This publication is available in English and Spanish and lists precautions that can prevent many heat-related injuries and deaths. It offers quick information on heat-related injuries, including warning signs, symptoms and early treatment. The publication may be viewed at: http://www.osha.gov/Publications/osha3154.pdf.

For additional information on protecting workers in hot environments contact OSHA's Publication Office or retrieve the information on-line at: http://www.osha.gov/pls/publications/publication.html. Call OSHA at: phone: (202) 693-1888 or write to: US Department of Labor/OSHA, OSHA Publications, P.O. Box 37535,Washington, D.C. 20013-7535. More information on heat and sun hazards is also available on the Centers for Disease Control and Prevention (CDC) web site at: http://www.cdc.gov/niosh/topics/heatstress/

References: 1. OSHA's web site at: http://www.osha.gov/
2.http://www.osha.gov/SLTC/heatstress/index.html

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