

Hazardous Substances

Sampling and Analysis Method for Measuring Airborne Coal Dust Mass in Mixtures with Limestone (Rock) Dust

Airborne coal dust mass measurements in underground bituminous coal mines can be challenged by the presence of airborne limestone dust, which is an incombustible dust applied to prevent the propagation of dust explosions. To accurately measure the coal portion of this mixed airborne dust, the National Institute for Occupational Safety and Health (NIOSH) developed a sampling and analysis protocol that used a stainless steel cassette adapted with an isokinetic inlet and the low temperature ashing (LTA) analytical method.

MSHA routinely utilizes this LTA method to quantify the incombustible content of bulk dust samples collected from the roof, floor, and ribs of mining entries. The use of the stainless steel cassette with isokinetic inlet allowed NIOSH to adopt the LTA method for the analysis of airborne dust samples. Mixtures of known coal and limestone dust masses were prepared in the laboratory, loaded into the stainless steel cassettes, and

analyzed to assess the accuracy of this method. Coal dust mass measurements differed from predicted values by an average of 0.5%, 0.2%, and 0.1% for samples containing 20%, 91%, and 95% limestone dust, respectively. The ability of this method to accurately quantify the laboratory samples confirmed the validity of this method and allowed NIOSH to successfully measure the coal fraction of airborne dust samples collected in an underground coal mine.

Read more: Journal of Occupational and Environmental Hygiene: Accepted author version posted online: 30 Nov 2015 (Available with AIHA membership)

Special Interest Articles:

- [Acrolein](#)
- [Energy Audit](#)
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- [Police Killings](#)
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DOEHRS Super Star



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E-Cigarettes May Contain Chemicals Linked to Lung Disease



Many electronic cigarettes contain flavoring chemicals that may cause lung disease, researchers say.

A team from Harvard School of Public Health in Boston tested 51 types of flavored e-cigarettes and liquids. The investigators found that 47 (more than 75 percent) of them contained diacetyl.

Read more:

http://www.philly.com/philly/health/HealthDay705935_20151208
[E-Cigarettes May Contain Chemicals Linked to Lung Disease.html](#)

Unexpected Activity: Evidence for Obesogenicity of a BPA Metabolite

A Bisphenol A (BPA) has been implicated as an obesogen, a compound that alters lipid metabolism, promoting development of adipocytes (fat cells) and accumulation of fat.^{1,2} BPA is quickly converted in the body to its main metabolite, BPA β -D-glucuronide (BPA-G), which has been thought to be biologically inactive.³ But a study reported in this issue of EHP indicates that BPA-G, like its parent compound BPA, can induce precursor cells called



to develop into mature fat cells.⁴

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In one experiment the researchers treated mouse preadipocytes with 10 μM of BPA-G. This resulted in a significant increase in fat accumulation and stimulated protein expression of three adipogenic markers—lipoprotein lipase, aP2, and adipsin—in the mouse cells. In experiments with human preadipocytes, they found that both 0.05 and 0.25 μM BPA-G stimulated fat cell

differentiation as determined by aP2 protein levels. However, co-exposure with fulvestrant—an estrogen-receptor (ER) antagonist used to treat some breast cancers—inhibited the changes that were seen with BPA-G alone.⁴

Read more:

<http://ehp.niehs.nih.gov/123-A303/>

Acrolein Exposure in U.S. Tobacco Smokers and Non-Tobacco Users: NHANES 2005-2006

Background: Acrolein is a highly reactive α,β unsaturated aldehyde and respiratory irritant. Acrolein is formed during combustion (e.g., burning tobacco or biomass), during high-temperature cooking of foods, and in vivo as a product of oxidative stress and polyamine metabolism. No biomonitoring reference data have been reported to characterize acrolein exposure for the U.S. population.



Objectives: Our goals were to a) evaluate two acrolein metabolites in urine—N-acetyl-S-(3-hydroxypropyl)-L-cysteine (3HPMA) and N-acetyl-S-(2-carboxyethyl)-L-cysteine (CEMA)—as biomarkers of

exposure to acrolein for the U.S. population by age, sex, race, and smoking status; and b) assess tobacco smoke as a predictor of acrolein exposure.

Methods: We analyzed urine from National Health and Nutrition Examination Survey (NHANES 2005–2006) participants ≥ 12 years old ($n = 2,866$) for 3HPMA and CEMA using ultra-high-performance liquid chromatography coupled with electrospray ionization tandem mass spectrometry (UPLC/ESI-MSMS). Sample-weighted linear regression models stratified for non-tobacco users versus tobacco smokers (as defined by serum cotinine and self-report) characterized the association of urinary 3HPMA and CEMA with tobacco smoke exposure, adjusting for urinary creatinine, sex, age, and race/ethnicity.

Results: 3HPMA and CEMA levels were higher among tobacco smokers (cigarettes,

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cigars, and pipe users) than among non-tobacco users. The median 3HPMA levels for tobacco smokers and non-tobacco users were 1,089 and 219 µg/g creatinine, respectively. Similarly, median CEMA levels were 203 µg/g creatinine for tobacco smokers and 78.8 µg/g creatinine for non-tobacco users. Regression analysis showed that serum cotinine was a significant

positive predictor ($p < 0.0001$) of both 3HPMA and CEMA among tobacco smokers.

Conclusions: Tobacco smoke was a significant predictor of acrolein exposure in the U.S. population.

Read more:

<http://ehp.niehs.nih.gov/1409251/>

Bedford, Many Other National Guard Armories Closed This Month for Lead Testing

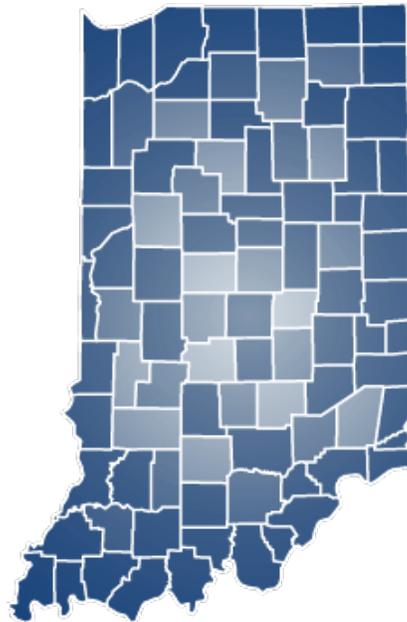
Bedford's Indiana National Guard Armory is canceling all December events for what a spokeswoman described as "unscheduled maintenance" to test for lead dust contamination.

Col. Cathy Van Bree, public information officer for the Indiana National Guard, said this morning about 80 percent of the state's armories are closing so the facilities can be tested.

The sudden closure left local organizations scrambling to find other locations for holiday events.

Read more:

<http://www.indianaeconomicdigest.net/main.asp?FromHome=1&TypeID=1&ArticleID=82088&SectionID=31&SubSectionID=200>



U.S. To Increase Worker Protection from Deadly Silica Dust for First Time in More Than 40 Years

For the first time in 45 years, the U.S. Occupational Health and Safety

Administration (OSHA) is poised to increase safety standards for worker exposure to the

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silica dust that can cause deadly and incurable lung disease. A rule that would cut in half the amount of silica dust to which most workers could be exposed—and limit levels further for construction and maritime workers—is expected to be finalized in February.



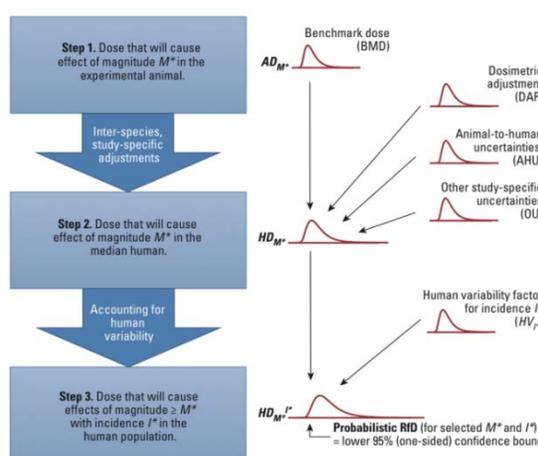
The industries that must comply with the new rule hoped to derail the new standard, including with an amendment to the 2016 federal spending bill that would have prevented any spending to implement the new rules and required more study of silica’s health effects. While in the bill up to the eleventh hour, this rider has been dropped from the budget released late Tuesday that is expected to be voted on later this week.

Read more: <http://inthesetimes.com/working/entry/18703/silica-dust-rule-osa-workers-cancer>

A Unified Probabilistic Framework for Dose–Response Assessment of Human Health Effects

Background: When chemical health hazards have been identified, probabilistic dose–response assessment (“hazard characterization”) quantifies uncertainty and/or variability in toxicity as a function of human exposure. Existing probabilistic approaches differ for different types of endpoints or modes-of-action, lacking a unifying framework.

Objectives: We developed a unified framework for probabilistic dose–response assessment.



Methods: We established a framework based on four principles: a) individual and

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population dose responses are distinct; b) dose–response relationships for all (including quantal) endpoints can be recast as relating to an underlying continuous measure of response at the individual level; c) for effects relevant to humans, “effect metrics” can be specified to define “toxicologically equivalent” sizes for this underlying individual response; and d) dose–response assessment requires making adjustments and accounting for uncertainty and variability. We then derived a step-by-step probabilistic approach for dose–response assessment of animal toxicology data similar to how nonprobabilistic reference doses are derived, illustrating the approach with example non-cancer and cancer datasets.

Results: Probabilistically derived exposure limits are based on estimating a “target human dose” (HDMI), which requires risk management–informed choices for the

magnitude (M) of individual effect being protected against, the remaining incidence (I) of individuals with effects $\geq M$ in the population, and the percent confidence. In the example datasets, probabilistically derived 90% confidence intervals for HDMI values span a 40- to 60-fold range, where I = 1% of the population experiences $\geq M = 1\%–10\%$ effect sizes.

Conclusions: Although some implementation challenges remain, this unified probabilistic framework can provide substantially more complete and transparent characterization of chemical hazards and support better-informed risk management decisions.

Read more:

<http://ehp.niehs.nih.gov/1409385/>

Contaminated Water at Camp Lejeune



The Department of Veterans Affairs (VA) announced that it plans to propose expanded disability compensation eligibility for Veterans exposed to contaminated

drinking water while assigned to Marine Corps Base Camp Lejeune.

From 1953 to 1987, water sources at the base were contaminated with industrial solvents that are correlated with certain health conditions. Secretary of Veterans Affairs Robert A. McDonald decided to propose presumptions of service connection for certain conditions associated with these chemical solvents following discussions between environmental health experts at the Veterans Health Administration and the Department of Health and Human Services Agency for

Toxic Substances and Disease Registry
(ATSDR).

[eteran%20issues0/Contaminated-Water-at-Camp-Lejeun.shtml](#)

Read more:

<http://www.healthnewsdigest.com/news/v>

Chemical Safety Assessment Using Read-Across: Assessing the Use of Novel Testing Methods to Strengthen the Evidence Base for Decision Making

Background: Safety assessment for repeated dose toxicity is one of the largest challenges in the process to replace animal testing. This is also one of the proof of concept ambitions of SEURAT-1, the largest ever European Union research initiative on alternative testing, co-funded by the European Commission and Cosmetics Europe. This review is based on the discussion and outcome of a workshop organized on initiative of the SEURAT-1 consortium joined by a group of international experts with complementary knowledge to further develop traditional read-across and include new approach data.

Objectives: The aim of the suggested strategy for chemical read-across is to show how a traditional read-across based on structural similarities between source and target substance can be strengthened with additional evidence from new approach data—for example, information from in vitro molecular screening, “-omics” assays and computational models—to reach regulatory acceptance.

Methods: We identified four read-across scenarios that cover typical human health



assessment situations. For each such decision context, we suggested several chemical groups as examples to prove when read-across between group members is possible, considering both chemical and biological similarities.

Conclusions: We agreed to carry out the complete read-across exercise for at least one chemical category per read-across scenario in the context of SEURAT-1, and the results of this exercise will be completed and presented by the end of the research initiative in December 2015.

Read more:

<http://ehp.niehs.nih.gov/1409342/>

Radiation

New Model More Accurately Tracks Gases For Underground Nuclear Explosion Detection



**A Powerful New Tool to Detect
Clandestine Nuclear Tests**

Experiments with the Laboratory's new method of detecting clandestine nuclear tests were conducted on the rocky Rainier Mesa at the Nevada Test Site during periods of low atmospheric pressure, mainly at the beginning of storms, so that tracer gases could rise toward the surface through natural faults and fractures.

Scientists at Los Alamos National Laboratory have developed a new, more thorough method for detecting underground nuclear explosions (UNEs) by coupling two

fundamental elements—seismic models with gas-flow models—to create a more complete picture of how an explosion's evidence (radionuclide gases) seep to the surface. Their findings will appear in today's edition of the journal *Nature's Scientific Reports* in a paper titled, "Radionuclide Gas Transport through Nuclear Explosion-Generated Fracture Networks."

Read more:

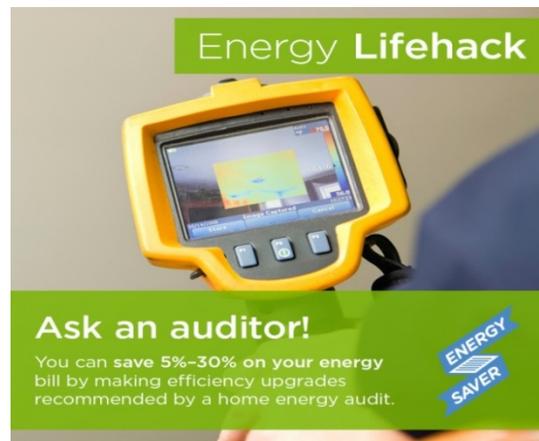
<http://www.lanl.gov/discover/news-release-archive/2015/December/12.17-underground-explosion-detection.php>

Ventilation

Proposed ASHRAE/ACCA Energy-Audit Standard Open for Public Comment

A proposed standard from ASHRAE and Air Conditioning Contractors of America (ACCA) intended to provide structure to the energy-audit industry is open for public comment until Jan. 4, 2016.

ASHRAE/ACCA Standard 211P, Standard for Commercial Building Energy Audits, would establish consistent practices for



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conducting and reporting energy audits for commercial buildings.

“The standard has the potential to make a huge impact on completing energy-saving projects in existing buildings,” Jim Kelsey, chair of the Standard 211P committee, said. “Currently, there is no standard that defines what constitutes an energy audit. Most practitioners in the energy-audit industry are trying to do the right thing for their clients by finding projects and quantifying energy and cost savings in energy audits. However, without a consistent standard, we have seen the quality and approach to energy auditing vary widely throughout the

industry. Without standardization, it’s been the Wild West out there—anyone who carries a clipboard and a camera can call themselves an energy auditor and their report an energy audit. What we hope to accomplish with this standard is to set appropriate minimum criteria for what approaches are expected, what information should be in an audit, and how that information is communicated to the end client.”

Read more: <http://hpac.com/air-conditioning/proposed-ashraeacca-energy-audit-standard-open-public-comment>

PPE

HHS Funds Development of High-Speed Manufacturing for N95 Respirators



To protect health care workers and other patient caregivers in an influenza pandemic or other public health emergency, the U.S. Department of Health and Human Services Office of the

Assistant Secretary for Preparedness and Response (ASPR) will support development of a high-speed manufacturing line to produce N95 respirators. This type of equipment is used in health care settings to

prevent the transmission of microorganisms through airborne particles.

Development of the high-speed manufacturing line will take place under a 14-month, \$1.6 million contract between ASPR’s Biomedical Advanced Research and Development Authority (BARDA) and Halyard Health, formerly Kimberly-Clark Health Care, of Alpharetta, Georgia. The contract can be extended for two years and \$5 million.

Read more: <http://www.phe.gov/Preparedness/news/Pages/n95.aspx>

Noise

Exposure to Noise During Pregnancy Increases Risk of Hearing Dysfunction in Children

A recently published study from the Institute of Environmental Medicine (IMM) at Karolinska Institutet in Sweden shows that exposure to noise during pregnancy can damage the child's hearing, with an 80 percent increase in risk in occupational environments with particularly high decibel levels. The results strongly indicate that pregnant women should not be exposed to loud noise.

Whereas it was previously assumed that fetuses were well insulated from external noise, several studies have shown that noise, especially low-frequency noise, is physically conducted to the fetus. A link between noise exposure during pregnancy and hearing impairment is also corroborated by animal experiments. All in all, the available evidence shows that women should not be exposed to high levels of noise during pregnancy.



Read more:

<http://www.healthnewsdigest.com/news/hearing%20issues0/Exposure-to-Noise-During-Pregnancy-Increases-Risk-of-Hearing-Dysfunction-in-Children.shtml>

Preventive Medicine

Environment, Behavior Contribute to Some 80 Percent of Cancers



A team of researchers from Stony Brook University, led by Yusuf Hannun, MD, the Joel Strum Kenny Professor in Cancer Research and Director of the Stony Brook University Cancer Center, have found

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quantitative evidence proving that extrinsic risk factors, such as environmental exposures and behaviors weigh heavily on the development of a vast majority (approximately 70 to 90 percent) of cancers. The finding, reported in the December 16 online issue of Nature, in a paper titled "Substantial contribution of extrinsic risk factors to cancer

development," may be important for strategizing cancer prevention, research and public health.

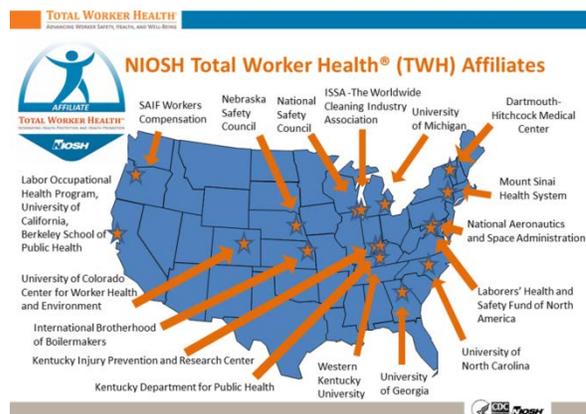
Read more:

http://www.healthnewsdigest.com/news/cancer_Issues_660/Environment-Behavior-Contribute-to-Some-80-Percent-of-Cancers.shtml

“Pathways to Prevention: Total Worker Health®—What’s Work Got to Do With It?”

Total Worker Health® (TWH) is defined as policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.

One hundred forty-five million Americans are workers, and most spend at least 50% of their active time at the workplace. Despite improvements in occupational safety and health over the last several decades, workers continue to suffer work-related illnesses, injuries, and deaths. In 2007, according to the latest estimate available, more than 53,000 deaths could be attributed to work-related illness, and the estimated total cost of occupational injuries, illnesses, and fatalities was \$250 billion. Furthermore, according to the Bureau of Labor Statistics, in 2013, more than 4,500 U.S. workers (PDF - 306 KB) died from work-related injuries, and more than 3 million workers (PDF - 249 KB) had a nonfatal occupational injury or illness. Also



in 2013, according to the National Institute for Occupational Safety and Health (NIOSH), 2.8 million workers were treated in emergency departments for occupational injuries and illnesses, and approximately 140,000 workers were hospitalized.

Read more:

<https://prevention.nih.gov/programs-events/pathways-to-prevention/workshops/total-worker-health>

New Risk Score Identifies Link between Lifestyle Risk Factors and Mortality

Health & Lifestyle Questionnaire

A new lifestyle risk score based on six health behaviors identified two new risk factors (sedentary behavior and sleep) that

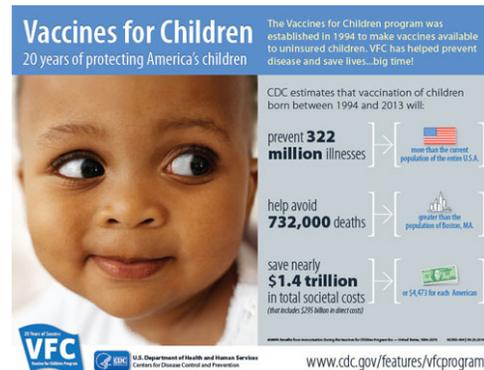
can be used in addition to traditional risk factors, such as smoking and excessive alcohol use to predict risk of mortality. These findings by Ding Ding and colleagues from the University of Sydney, Australia, are published in this week's PLOS Medicine.

Read more:

<http://www.sciencedaily.com/releases/2015/12/151208150634.htm>

Is Chemical Exposure In Mothers, Babies, Linked To Poor Vaccine Response?

Early life exposures to toxic chemicals such as PCBs and DDT dampen an infant's response to the tuberculosis vaccine, according to a new study. PCBs were used in manufacturing and in consumer products in the United States until their ban in 1979. Despite this, nearly all people have detectable concentrations in their blood, even those who live in unindustrialized areas around the globe. DDT, although banned in the U.S., is still used in some countries to control malaria spread by mosquitos.



Read more:

<http://www.sciencedaily.com/releases/2015/12/151209090508.htm>

Device That Helps Soldiers Wounded in Battle Approved for Use on US Streets



A device developed by the military to save lives in the battlefield could soon be saving lives on US streets. The FDA has approved the XStat Rapid Hemostasis System, a syringe that pumps scores of tiny sponges into gunshot wounds, for general use by

first responders in the US, the Verge reports.

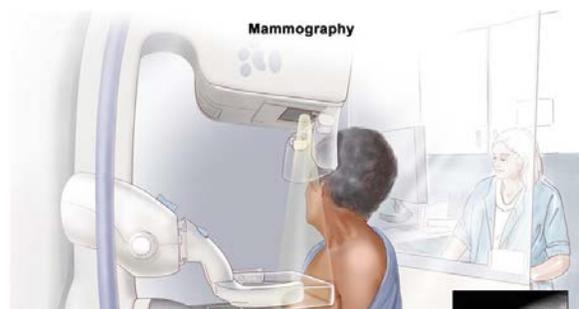
The sponges expand when they come into contact with blood and can plug a gunshot wound in only 15 seconds—meaning they could help prevent the hemorrhaging deaths that military researchers believe account for up to 40 percent of all civilian deaths from traumatic injury, reports Gizmodo.

Read more:

<http://www.foxnews.com/health/2015/12/09/device-that-helps-soldiers-wounded-in-battle-approved-for-use-on-us-streets.html>

Identifying Potential Breast Carcinogens: A New Approach

In 2007 the National Academy of Sciences called for a paradigm shift in how chemicals are tested, recommending that toxicity testing look not just at disease end points such as tumors or birth defects but also at “upstream” events, meaning early changes in developmental processes that may later lead to disease.¹ In this issue of EHP, a team of researchers apply that recommendation in a novel framework in which they work backward from a specific health outcome—in this case, breast cancer—through the biological mechanisms associated with it to



identify appropriate assays for disease-specific chemical risk assessment.²

The Hazard Identification Approach for Breast Carcinogens (HIA-BC) was developed

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by the University of California (UC) Berkeley Breast Cancer and Chemicals Policy project. An interdisciplinary panel of 18 scientists combed the breast cancer literature and cataloged molecular, cellular, and tissue changes that are strongly associated with the disease. These biological changes fell under three broad categories: endocrine disruption, alterations to mammary gland

development, and processes generally associated with cancer, including cell cycle changes and genotoxicity (ability to cause DNA damage).³

Read more:

<http://ehp.niehs.nih.gov/123-A305/>

Call for Police Killings, Police Deaths to Be Reported as Public Health Data



related deaths each year in the U.S., counting these deaths can and should be done because the data constitute crucial public health information that could help prevent future deaths, according to a new study from Harvard T.H. Chan School of Public Health.

Read more:

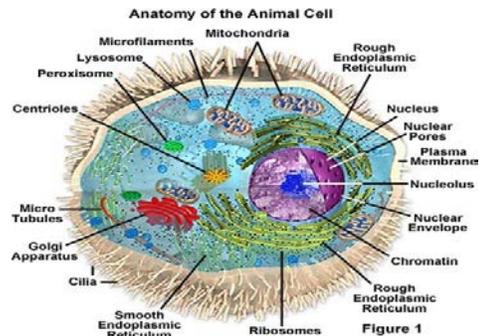
<http://www.sciencedaily.com/releases/2015/12/151208150632.htm>

Although no reliable official data currently exist on the number of law enforcement-

Textbooks on Cells Should be Rewritten

Ground-breaking new Danish research has shown that the current scientific description of the human cell cycle needs to be revised. These findings could also lead to the development of new therapeutic approaches to target an Achilles' heel in different types of cancers.

All science students learn how human cell division takes place. The copying or



replication of the genome, the cell's DNA,

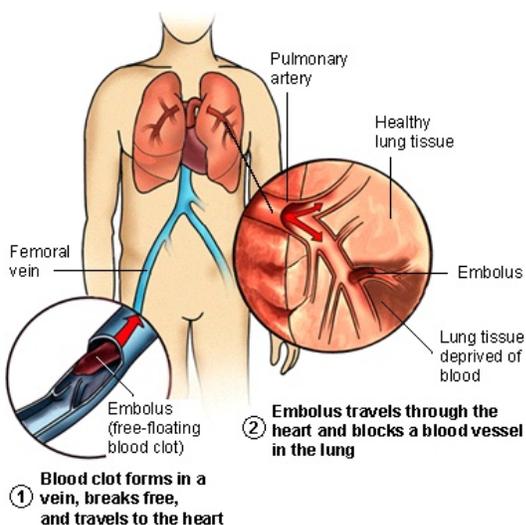
has until now been believed only to take place during the so-called S-phase in the cell cycle. The new results show that this is not the case, because some regions of the genome are copied only after the cell enters the next crucial phase in the cell cycle called mitosis.

Read more:

<http://www.sciencedaily.com/releases/2015/12/151208134116.htm>

Environmental Health

Prospective Study of Ambient Particulate Matter Exposure and Risk of Pulmonary Embolism in the Nurses' Health Study Cohort



Background: Pulmonary embolism (PE) is the most serious manifestation of venous thromboembolism and a leading cause of sudden death. Several studies have suggested associations of venous thromboembolism with short-term particulate matter (PM) exposure; evidence on long-term PM and traffic exposure is mixed.

Objectives: We examined the association of long-term exposure to PM_{2.5}, PM_{2.5}–10, and PM₁₀ (PM with diameter of ≤ 2.5 , 2.5–10, and $\leq 10 \mu\text{m}$) and distance to roadways with overall incident PE and with PE subtypes in a cohort of U.S. women.

Methods: The study included 115,745 women from the Nurses' Health Study, followed from 1992 through 2008. Incident PE cases were self-reported biennially. Nonidiopathic PE were cases for which the medical record revealed an underlying health condition related to PE (i.e., surgery, trauma, or malignancy); idiopathic PE were cases with no such history. We used spatiotemporal models combining spatial smoothing and geographic covariates to quantify exposure at residential addresses, and Cox proportional hazards models to calculate hazard ratios (HR) and 95% confidence intervals (CIs).

Results: PM_{2.5} averaged over 1 month (HR = 1.22; 95% CI: 1.04, 1.44) or 12 months (HR

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= 1.17; 95% CI: 0.93, 1.48) was associated with incident PE, after adjusting for known risk factors and PM_{2.5}-10. Equivalent analyses restricted to PE subtypes showed a positive association for PM_{2.5} with nonidiopathic PE, but not with idiopathic PE. We did not find evidence of an association between distance to roadways and PE risk.

Conclusions: We provide evidence that PM in the prior 1 and 12 months is associated with PE risk. Our results also suggest that women with underlying health conditions may be more susceptible to PE after PM exposure.

Read more

<http://ehp.niehs.nih.gov/1408927/>

Picatinny Arsenal Engineers Cook Up New Recipe for Biofuel

While people who go to the beach and lakes may think of algae as a slimy nuisance, Picatinny engineers have partnered with private industry to harness its photosynthesis ability to develop a safe, cheap, fast and environmentally-friendly way to recycle aging M6 artillery round propellant and create biofuel.



Propellant is the chemical substance in the artillery round that ignites and propels the round out of the howitzer tube. Currently, M6 propellant in the M119 artillery rounds is disposed, or demilitarized, primarily through incineration or open burning, which generates carbon dioxide.

Read more:

http://www.army.mil/article/159178/Picatinny_Arsenal_engineers_cook_up_new_recipe_for_biofuel/

Climate Change Is Impacting Lakes Faster Than Oceans



Climate change is rapidly warming lakes around the world, threatening freshwater supplies and ecosystems, according to a new NASA and National Science Foundation-funded study of more than half of the world's freshwater supply.

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Using more than 25 years of satellite temperature data and ground measurements of 235 lakes on six continents, this study -- the largest of its kind -- found lakes are warming an average of 0.61 degrees Fahrenheit (0.34 degrees Celsius) each decade. The scientists say this

is greater than the warming rate of either the ocean or the atmosphere, and it can have profound effects.

Read more

<http://www.enn.com/ecosystems/article/49229>

Ergonomics

How Distracting Is Talking To Your Car? Researchers Develop a New Framework for Measuring Cognitive Distraction

Past human factors/ergonomics studies have shown that some in-vehicle technologies intended to help with driving tasks are actually competing for drivers' attention and undermining driving safety. Human factors/ergonomics studies over the past 10-plus years have examined a variety of distractors. The December 2015 special section of Human Factors: The Journal of the Human Factors and Ergonomics Society leads off with research proposing a method for assessing cognitive distraction while driving and elicits pro and con responses from experts in the field.



Read more:

<http://www.sciencedaily.com/releases/2015/12/151208082226.htm>

Safety

Contractor Safety: Are You Responsible When They Are on Site?



Countries have different rules and regulations when it comes to safety and training for contracted companies and lone workers.

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Globally, the International Labour Organization (ILO) reports that “although there are no ILO instruments that specifically address contractors’ and subcontractors’ safety and health at work (or for training in the industry), those concerning occupational safety and health (OSH) in general emphasize the importance of OSH training for all workers. Safety training should focus on supporting preventive action and finding practical solutions.”

While there are no specific global requirements, we will explore contractor safety regulations for the construction industry in the United States, United Kingdom, Canada and Australia.

Read more:

<http://ehstoday.com/construction/contract-or-safety-are-you-responsible-when-they-are-site>

Medicare Penalizes 758 Hospitals for Safety Incidents

The federal government is penalizing 758 hospitals with higher rates of patient safety incidents, and more than half of those places had also been fined last year, Medicare records released late Wednesday show.



Among the hospitals getting punished for the first time are some well-known institutions, including Stanford Health Care in Northern California, Denver Health Medical Center and two satellite hospitals run by the Mayo Clinic Health System in Minnesota, according to the federal data.

other complications. Medicare will lower all its payments to the penalized hospitals by 1 percent over the course of the federal fiscal year, which runs through September 2016. In total, Medicare estimates the penalties will cost hospitals \$364 million.

The fines are based on the government's assessment of the frequency of several kinds of infections, sepsis, hip fractures and

Read more:

<http://www.healthnewsdigest.com/news/medicare%20issues0/Medicare-Penalizes-758-Hospitals-For-Safety-Incidents.shtml>

Rudeness at Work Is Contagious

Workplace incivility should be treated with the utmost seriousness. This is the finding of three psychologists at Lund University in Sweden who surveyed nearly 6 000 people

on the social climate in the workplace. Their studies show that being subjected to rudeness is a major reason for dissatisfaction at work and that unpleasant

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behaviour spreads if nothing is done about it.



Rudeness in this context refers to something that goes under the radar for what is prohibited and that in some way violates the norm for mutual respect. It can

refer to petty behaviour such as excluding someone from information and

cooperation, or "forgetting" to invite someone to a communal event. It can also refer to taking credit for the work of others, spreading rumours, sending malicious emails, or not giving praise to subordinates.

Read more:

http://www.healthnewsdigest.com/news/Research_270/Rudeness-at-Work-Is-Contagious.shtml

Army to Stop Putting Social Security Numbers on Dog Tags

Soldiers' Social Security numbers will no longer be part of their dog tags, the Army announced Tuesday.

The change, which some have argued is long overdue, is the first update to the ubiquitous identification tags in more than 40 years.

A soldier's Social Security number will be replaced by a 10-digit, randomly-generated number. The change will be implemented on an as-needed basis, Michael Klemowski, Soldiers Programs branch chief at Army Human Resources Command, said in a statement released by the Army.

Read more:

<http://www.armytimes.com/story/military/>



careers/army/2015/12/08/army-stop-putting-social-security-numbers-dog-tags/76984792/

Shoveling Snow the Spine-Safe Way



When wintry weather is at hand, what comes down must go up. But the very act of shoveling the mounds of snow covering driveways and walkways poses a significant hazard to the spine, according to Kaliq Chang, MD, of Atlantic Spine Center. Indeed, the bending and lifting required to remove snow lands many in the emergency room each year.

In 2013, about 28,000 people were treated for injuries resulting from shoveling or removing ice and snow manually, according to the American Academy of Orthopaedic Surgeons. The most common injury? Back strain. "Snow shoveling is one of the highest-intensity exercises there is, since you're using all your major muscle groups," explains Dr. Chang, an interventional pain management specialist. "Shoveling is especially treacherous for those who are not in shape, and the combination of physical exertion and slippery surfaces can spell disaster for your spine."

Read more:

http://www.healthnewsdigest.com/news/Research_270/Shoveling-Snow-the-Spine-Safe-Way.shtml

High Cost of Lost Sleep in Teens

Carolyn Walworth, 17, often reaches a breaking point around 11 pm, when she collapses in tears. For 10 minutes or so, she just sits and, overwhelmed by unrelenting school demands, cries at her desk. She is desperately tired and longs for sleep, but she knows that more homework assignments await her. She finally crawls into bed around midnight or later.

The next morning, she fights to stay awake in her first-period class, unable to focus on what's being taught. "You feel tired and



exhausted, but you think you just need to get through the day so you can go home and sleep," said the Palo Alto teen.

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Walworth is among a generation of teens growing up chronically sleep deprived. According to a 2006 National Sleep Foundation poll, more than 87 percent of U.S. high school students get far less than the recommended eight to 10 hours - a serious threat to their health, safety and academic success. Sleep deprivation increases the likelihood that teens will suffer myriad negative consequences,

including an inability to concentrate, poor grades, driving incidents, anxiety, depression, thoughts of suicide and even suicide attempts.

Read more:

<http://www.healthnewsdigest.com/news/sleep%20issues0/High-Cost-of-Lost-Sleep-in-Teens.shtml>

OSHA: Hunter Holmes McGuire VA Medical Center Exposed Workers to Unsafe Working Conditions



On May 6, OSHA initiated an inspection of the Hunter Holmes McGuire VA Medical Center in response to a complaint alleging inadequate protections for employees exposed to workplace violence hazards while providing patient care.

On Nov. 6, OSHA issued citation notices to the medical center after identifying four

willful, two serious and eight other-than-serious safety violations. The willful violations involved the medical center exposing employees to workplace violence and physical assault; failing to train employees on the prevention and management of workplace violence; and failing to properly record workplace injuries and illnesses on OSHA 300 logs.

Read more:

<http://ehstoday.com/osha/osha-hunter-holmes-mcguire-va-medical-center-exposed-workers-unsafe-working-conditions>

Stop Slips and Falls

Five simple steps can help keep you from dangerous falls:

1. Don't let things you can trip over-papers, books, clothes, shoes-accumulate on stairs.
2. Have handrails on all staircases.

3. Use nonslip mats in the bathtub and on



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shower floors.

4. Make sure halls, stairs and the like are well lit.

5. Improve your traction on the ice. To help, there's an innovative, patent-pending product made with 100 percent natural earth crystals. Environmentally safe-no salts, chemicals or dyes-it creates traction

for cars and pedestrians when on icy roads, driveways, walkways, patios, sidewalks, everywhere your feet or wheels take you.

Read more:

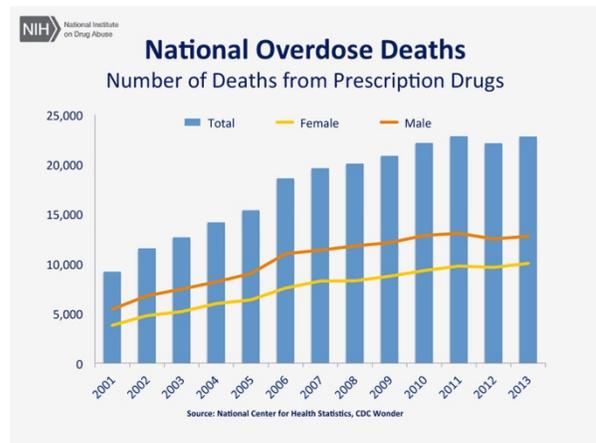
http://www.healthnewsdigest.com/news/Research_270/Stop-Slips-And-Falls.shtml

Fighting Prescription Painkiller Abuse among Baby Boomers

Prescription opioid abuse has reached epidemic proportions, with more than half of patients being treated for chronic pain reportedly misusing their medication at some point.

However, new research led by University at Buffalo psychiatric nursing researcher Yu-Ping Chang found motivational interviewing, a form of behavioral counseling, is an effective tool at curbing the abuse.

Prescription opioids - which includes pain medications such as morphine, Lortab and codeine - are abused by 1.9 million Americans and cause nearly two deaths every hour from overdose or respiratory depression. Nearly 75 percent of opioid addiction patients switch to heroin as a cheaper source of the drug, according to



data from the American Society of Addiction Medicine (ASAM)..

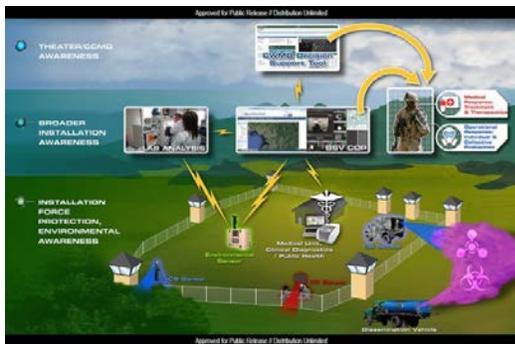
Read more:

<http://www.healthnewsdigest.com/news/pain%20issues0/Fighting-Prescription-Painkiller-Abuse-Among-Baby-Boomers.shtml>

Emergency Preparedness & Response

Project JUPITR Early Warning System Can Save Lives

At U.S. military installations throughout the world, military police monitor force protection sensors, which consist of conventional and thermal imaging cameras, ground surveillance radar and seismic and acoustic sensors.



Installations also have chemical biological sensors, but they are operated as an independent system manned by chemical biological specialists in another location.

Project JUPITR's early warning system aims at combining powerful surveillance tools into a single integrated system so military police and chemical biological specialists can immediately cross check their data and respond to incidents faster.

JUPITR, or Joint U.S. Forces in Korea Portal and Integrated Threat Recognition, is a three-year advanced technology demonstration of biosurveillance technology for deployment on the Korean Peninsula.

Read more:

[http://www.army.mil/article/159494/Project JUPITR early warning system can save lives/](http://www.army.mil/article/159494/Project_JUPITR_early_warning_system_can_save_lives/)

DOD Needs to Improve the Evaluation of Safety and Performance Information for Carriers Transporting Security-Sensitive Materials

The Department of Defense's (DOD) use of the Department of Transportation's (DOT) safety performance information does not fully result in sufficient and reliable information to evaluate the safety performance of individual that transport security-sensitive materials under the Transportation Protective Service (TPS) program. DOT uses data from roadside



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inspections, crash investigations, and other sources to assign carriers overall Safety Ratings and relative Safety Measurement System (SMS) scores. The SMS scores track safety performance in several areas such as hazardous materials compliance and vehicle maintenance, and range from 0 to 100, where 100 indicates the worst relative safety performance. From November 2012 through October 2014, DOD maintained TPS carriers with absent or dated DOT Safety Ratings. However, DOD conducts its own inspections of TPS carriers, which partially compensates for this issue. DOD officials

told GAO that all inspected carriers passed. In February 2014, GAO reported that SMS scores for many commercial carriers may not be reliable indicators of safety performance because they were based on insufficient information, such as infrequent inspections. Consequently, GAO recommended that DOT revise the methodology for determining these scores.

Read more:

<http://www.gao.gov/products/GAO-16-82>

Deployment Health

Army Opening 19 Specialties to Women



A total of 19 military occupational specialties, or MOSs, in the Army will open to women beginning early next year.

Defense Secretary Ash Carter announced Dec. 3 that women who qualify will be able

to serve in any job, anywhere in the military. He directed the Army and other services to provide an implementation plan by Jan. 1.

More than 125,000 positions will potentially open for women in the Army's conventional forces, and more than 13,000 positions will potentially open in U.S. Army Special Operations Command, or USASOC.

Read more:

http://www.army.mil/article/159585/Army_opening_19_specialties_to_women/

Natick Investigates Self-Healing Protective Clothing

Army researcher Quoc Truong wants to fill in the gaps in Soldier protective clothing - literally.

Truong is a physical scientist at the U.S. Army Natick Soldier Research, Development and Engineering Center, or NSRDEC. He is collaborating with other researchers at NSRDEC, the University of Massachusetts Lowell, and Triton Systems, Inc., on the technical development of self-healing coatings that contain micro-capsules of healing fluid, which will be used to mend chemical-biological, or CB, protective clothing.



Read more:

http://www.army.mil/article/158769/Natick_investigates_self_healing_protective_clothing/

Nanotechnology

Quantification of Nanoparticle Release from Polymer Nanocomposite Coatings due to Environmental Stressing



Certain engineered nanoparticles (ENP) reduce the flammability of components used in soft furnishings (mattresses and upholstered furniture). However, because of the ENP's small size and ability to interact with biological molecules, these fire retardant ENPs may pose a health and environmental risks, if they are released sometime during the life cycle of the soft furnishing. Quantifying the released amount

of these ENPs under normal end-use circumstances provides a basis for assessing their potential health and environmental impact. In this manuscript, we report on efforts to identify suitable methodologies for quantifying the release of carbon nanofibers, carbon nanotubes, and sodium montmorillonites from coatings applied to the surfaces of barrier fabric and polyurethane foam. The ENPs released in simulated chewing and mechanical stressing experiments were collected in aqueous solution and quantified using Ultraviolet-Visible and inductively coupled plasma–optical emission spectroscopy. The

microstructures of the released ENPs were characterized using scanning electron microscopy. The reported methodology and results provide important milestones to estimate the impact and toxicity of the ENP release during the life cycle of the nanocomposites. To our knowledge, this is the first study of ENP release from the soft furnishing coating, can be important application area for fire safety.

Read more: Journal of Occupational and Environmental Hygiene Accepted author version posted online: 08 Dec 2015

Bidirectional Transfer Study of Polystyrene Nanoparticles across the Placental Barrier in an ex Vivo Human Placental Perfusion Model

Background: Nanoparticle exposure in utero might not be a major concern yet, but it could become more important with the increasing application of nanomaterials in consumer and medical products. Several epidemiologic and in vitro studies have shown that nanoparticles can have potential toxic effects. However, nanoparticles also offer the opportunity to develop new therapeutic strategies to treat specifically either the pregnant mother or the fetus. Previous studies mainly addressed whether nanoparticles are able to cross the placental barrier. However, the transport mechanisms underlying nanoparticle translocation across the placenta are still unknown.



Objectives: In this study we examined which transport mechanisms underlie the placental transfer of nanoparticles.

Read more:
<http://ehp.niehs.nih.gov/1409271/>

Regulatory Research & Industrial Hygiene Professional News

AIHA

JOEH Publishes Supplement on Occupational Exposure Limits



The December 2015 issue of AIHA's Journal of Occupational and Environmental Hygiene (JOEH) includes a supplement that addresses issues related to the science of

setting occupational exposure limits (OELs). Ten articles in it are the result of collaborations between NIOSH, TERA (Toxicology Excellence for Risk Assessment, located at the University of Cincinnati), and other organizations.

Read more:

<https://ohsonline.com/articles/2015/12/04/joeh-publishes-supplement-on-occupational-exposure-limits.aspx?admgarea=ht.IndustrialHygiene>

Congress

Senate Passes TSCA Reform Bill

Acting on a unanimous voice vote Dec. 18, the U.S. Senate passed the Frank R. Lautenberg Chemical Safety for the 21st Century Act, a reform bill to overhaul the Toxic Substances Control Act of 1976.

"With the recent passage of the Frank R. Lautenberg Chemical Safety for the 21st Century Act which the Senate unanimously agreed to pass, Congress has a historic

The Toxic Substance Control Act (TOSCA) of 1976

- To deal with this, the Toxic Substance Control Act (TOSCA) was passed.
- Gave the EPA broad powers to control the distribution and use of commercial and industrial chemicals *known or thought to be hazardous to human health and the environment.*

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opportunity to enact the first major environmental law rewrite in decades. The overwhelming support of this bill shows the great need to responsibly update this almost 40 year-old law and direct EPA to ensure greater protection for American families as well as our national economy through a transparent and scientifically rigorous process. This bill creates regulatory certainty for businesses not only in the

United States, but across the world," said U.S. Sen. Jim Inhofe, R-Okla., chairman of the Environment and Public Works Committee.

Read more:

<https://ohsonline.com/articles/2015/12/21/senate-passes-tsca-reform-bill.aspx>

BLS

Nonfatal Occupational Injuries and Illnesses Requiring Days Away From Work In 2014

Spotlight on Statistics

In 2014, there were 1,157,410 nonfatal occupational injuries and illnesses that required days away from work to recuperate, unchanged from 2013. The incidence rate was 107.1 cases per 10,000 full-time workers, down from 109.4 in 2013. The median days away from work to recuperate, a key measure of severity of injuries and illnesses, was 9 days, up from 8 days in 2013.

In private industry and state and local government in 2014, there were 6 occupations where the incidence rate per 10,000 full-time workers was greater than 300 and the number of cases with days

away from work was greater than 10,000. These occupations were:

- police and sheriff's patrol officers
- correctional officers and jailers
- firefighters
- nursing assistants
- construction laborers
- heavy tractor-trailer drivers

Among these, heavy tractor-trailer drivers had the highest number of injury and illness cases with 55,710.

Read more:

<http://www.bls.gov/opub/ted/2015/nonfatal-occupational-injuries-and-illnesses-requiring-days-away-from-work-in-2014.htm>

OSHA

Agreement with U.S. Department of Justice Gives Bite to OSHA's Bark in Criminal Cases

At first glance, the case was no different than many other OSHA fatality investigations. An employee suffered a fatal fall, the employer claimed he had issued fall protection to his employees and this particular employee, for whatever reason, wasn't wearing it when he fell.

OSHA cited Jenkintown, Pa.-based James J. McCullagh Roofing Inc. for 10 alleged safety violations – including three willful violations – following its investigation of the fatal June 2013 accident in which the worker fell 45 feet while performing roofing repairs on a church in Philadelphia.



Read more:

<http://ehstoday.com/osha/agreement-us-department-justice-gives-bite-osha-s-bark-criminal-cases>

NIOSH

Spending Limits for OSHA, NIOSH Changed Little by Appropriations Bill



Spending limits for OSHA and other federal workplace safety agencies will change little for fiscal year 2016, according to a bill

expected to be the final appropriations act for the year.

Details of the bill, released late Dec. 15 by Congress, show the Occupational Safety and Health Administration receiving \$552.8 million, the same amount as the fiscal year 2015 allocation. The National Institute for Occupational Safety and Health is allocated \$339.1 million, up \$4.2 million from 2015.

The bill (H.R. 2029), which is expected to be voted on Dec. 18, raises spending on OSHA

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and NIOSH above what earlier House and Senate appropriations bills had called for.

Read more: <http://www.bna.com/spending-limits-osh-n57982065236/>

Training

APHC

Upcoming Training



February 2016

- February 22-26 APG, MD DOEHRS-IH Initial Army Course
- February 22-26 APG, MD Industrial Ventilation Course



February/March 2016

- February 29-March 4 APG, MD Industrial Hygiene Intermediate Course (Phase 2)



May 2016

- May 16-20 APG, MD DOEHRS-IH Initial Army Course



August 2016

- August 1-5 APG, MD DOEHRS-IH Initial Army Course



October 2016

- October 24-28 APG, MD DOEHRS-IH Initial Army Course



August 2016

- August 1-5 APG, MD DOEHRS-IH Initial Army Course



TBD 2016

- Date/Location TBD Indoor Air Quality Course CP12 Sponsored



February 2017

- TBD APG, MD Blueprint Reading & Design Review Course

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This monthly summary is published by the Industrial Hygiene and Medical Safety Management Program (IHMSMP) for the Army Public Health Center (Provisional).



Subscription or Comments:

By Email:

ihnews@amedd.army.mil

By Phone or FAX:

Office: (410) 436-3161

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<http://phc.amedd.army.mil/topics/workplacehealth/ih/Pages/default.aspx>



Brand New Learning Opportunity: IH Gas & Vapor Assessments Using Direct-Reading Sensor Technology

Class: IH Gas & Vapor Assessments Using Direct-Reading Sensor Technology

Length: 1hr

Instructor: Garth Knoch

Blackboard ID: 124_IH_GAS_VAPOR_DIRECT_READING_SENSOR_TECHNOLOGY_00123P59_2016_001_00_N

Self-enroll, self-development, self-paced, intermediate level learning

Competency: IH SAMPLING

Terminal Learning Objectives addressed in this class:

1. Demonstrate knowledge of sampling techniques.
2. Demonstrate knowledge of quality of assurance practices.
3. Demonstrate knowledge of documentation including chain of custody and DOEHS data entry of field samples to ensure legally defensible sampling results that accurately reflect potential exposures.

Enabling Learning Objectives:

Upon completion of this class the participants will be able to:

1. Explain principals of FTIR gas sampling and analysis quality control
2. Demonstrate knowledge of the FTIR method for gases vapor samples.
3. Demonstrate a basic knowledge of the advantages and disadvantages of FTIR.
4. Explain how to enter FTIR data into DOEHS-IH

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