

March 2016,  
Issue 55

# Army Industrial Hygiene News and Regulatory Summary

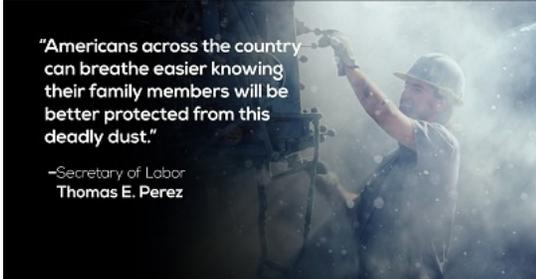
## Hazardous Substances

### US Labor Department Announces Final Rule to Improve U.S. Workers' Protection from the Dangers of 'Respirable' Silica Dust

The U.S. Department of Labor's Occupational Safety and Health Administration today announced a final rule to improve protections for workers exposed to respirable silica dust. The rule will curb lung cancer, silicosis, chronic obstructive pulmonary disease and kidney disease in America's workers by limiting their exposure to respirable crystalline silica.

"More than 80 years ago, Labor Secretary Frances Perkins identified silica dust as a deadly hazard and called on employers to fully protect workers," said U.S. Secretary of Labor Thomas E. Perez. "This rule will save lives. It will enable workers to earn a living without sacrificing their health. It builds upon decades of research and a lengthy stakeholder engagement process – including the consideration of thousands of public comments – to finally give workers the kind of protection they deserve and that Frances Perkins had hoped for them."

OSHA estimates that when the final rule on Occupational Exposure to Respirable Crystalline Silica becomes fully effective, it will save more than 600 lives annually and prevent more than 900 new cases of silicosis – an incurable and progressive disease – each year. The agency also estimates the final rule will provide net benefits of about \$7.7 billion per year.



"Americans across the country can breathe easier knowing their family members will be better protected from this deadly dust."

–Secretary of Labor  
Thomas E. Perez

Read more:

<http://www.dol.gov/newsroom/releases/osha/osha20160324>

Distribution Statement A - Approved for public release; distribution unlimited.

#### Special Interest Articles:

- [Heat Stress](#)
- [Cat Poop](#)
- [Superbug](#)
- [Daylight Savings](#)
- [Employment Analysis](#)

DOEHRS Super Star

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## Alternatives Assessment Frameworks: Research Needs for the Informed Substitution of Hazardous Chemicals



Refer to 49 CFR, Part 172:  
 Marking - Subpart D  
 Labeling - Subpart E  
 Placarding - Subpart F



**NOTE:** This document is for general guidance only and should not be used to determine compliance with 49 CFR, Parts 100-185.



**Background:** Given increasing pressures for hazardous chemical replacement, there is growing interest in alternatives assessment to avoid substituting a toxic chemical with another of equal or greater concern. Alternatives assessment is a process for identifying, comparing, and selecting safer alternatives to chemicals of concern (including those used in materials, processes, or technologies) on the basis of their hazards, performance, and economic viability.

**Objectives:** The purposes of this substantive review of alternatives

assessment frameworks are to identify consistencies and differences in methods and to outline needs for research and collaboration to advance science policy practice.

**Methods:** This review compares methods used in six core components of these frameworks: hazard assessment, exposure characterization, life-cycle impacts, technical feasibility evaluation, economic feasibility assessment, and decision making. Alternatives assessment frameworks published from 1990 to 2014 were included.

**Results:** Twenty frameworks were reviewed. The frameworks were consistent in terms of general process steps, but some differences were identified in the end points addressed. Methodological gaps were identified in the exposure characterization, life-cycle assessment, and decision-analysis components. Methods for addressing data gaps remain an issue.

**Discussion:** Greater consistency in methods and evaluation metrics



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is needed but with sufficient flexibility to allow the process to be adapted to different decision contexts.

Conclusion: Although alternatives assessment is becoming an important science policy field, there is a need for increased cross-disciplinary collaboration to refine methodologies in support

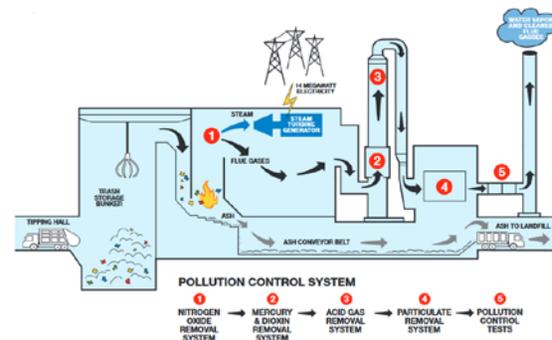
of the informed substitution and design of safer chemicals, materials, and products. Case studies can provide concrete lessons to improve alternatives assessment.

Read more:

<http://ehp.niehs.nih.gov/1409581/>

## Mass and Number Size Distributions of Emitted Particulates at Five Important Operation Units in a Hazardous Industrial Waste Incineration Plant

Past studies indicated particulates generated by waste incineration contain various hazardous compounds. The aerosol characteristics are very important for particulate hazard control and workers' protection. This study explores the detailed characteristics of emitted particulates from each important operation unit in a rotary kiln-based hazardous industrial waste incineration plant. A dust size analyzer (Grimm 1.109) and a scanning mobility particle sizer (SMPS) were used to measure the aerosol mass concentration, mass size distribution, and number size distribution at five operation units (S1–S5) during periods of normal operation, furnace shutdown, and annual maintenance. The place with the highest measured PM10 concentration was located at the area of fly ash discharge from air pollution control equipment (S5) during the period of normal operation. Fine particles (PM2.5) constituted the majority of the emitted particles from the incineration plant. The mass size



distributions (elucidated) made it clear that the size of aerosols caused by the increased particulate mass, resulting from work activities, were mostly greater than 1.5  $\mu\text{m}$ . Whereas the number size distributions showed that the major diameters of particulates that caused the increase of particulate number concentrations, from work activities, were distributed in the sub micrometer range. The process of discharging fly ash from air pollution control equipment can significantly increase the emission of nanoparticles. The mass concentrations and size distributions of

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emitted particulates were different at each operation unit. This information is valuable for managers to take appropriate strategy to reduce the particulate emission and associated worker exposure.

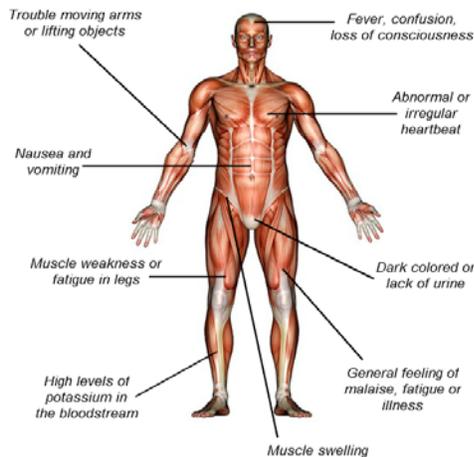
*Read more: Journal of Occupational and Environmental Hygiene Volume 13, Issue 5, 2016 (Available with AIHA membership)*

## Evaluation of Heat Stress, Heat Strain, and Rhabdomyolysis during Structural Fire Fighter Training



### What is rhabdomyolysis?

Exercise is great for the body. Too much of it, though, can have long lasting, harmful effects on the human body. Rhabdomyolysis is a condition that breaks down overworked muscles and releases the fibers into the bloodstream, causing many complications.



Sources: National Institutes of Health, WebMD

The Health Hazard Evaluation Program received a request from a fire department to evaluate the risk of heat related illness and rhabdomyolysis to cadets and instructors during training. Rhabdomyolysis is the breakdown of muscle tissue.

*Read more:*

[http://www.cdc.gov/niosh/hhe/reports/pdfs/2012-0039-3242.pdf?s\\_cid=102015-HETAB-RSS-001](http://www.cdc.gov/niosh/hhe/reports/pdfs/2012-0039-3242.pdf?s_cid=102015-HETAB-RSS-001)

## Characterization of Conserved Toxicogenomic Responses in Chemically Exposed Hepatocytes across Species and Platforms

Background: Genome-wide expression profiling is increasingly being used to identify transcriptional changes induced by drugs and environmental stressors. In this context, the Toxicogenomics Project–Genomics Assisted Toxicity Evaluation system (TG-GATEs) project generated

transcriptional profiles from rat liver samples and human/rat cultured primary hepatocytes exposed to more than 100 different chemicals.

Objectives: To assess the capacity of the cell culture models to recapitulate pathways

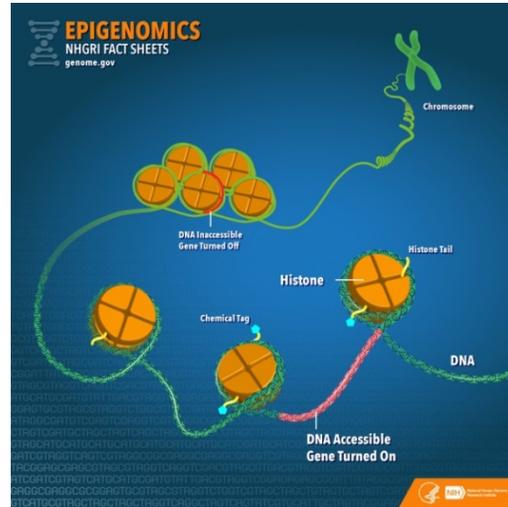
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induced by chemicals in vivo, we leveraged the TG-GATEs data set to compare the early transcriptional responses observed in the liver of rats treated with a large set of chemicals with those of cultured rat and human primary hepatocytes challenged with the same compounds in vitro.

**Methods:** We developed a new pathway-based computational pipeline that efficiently combines gene set enrichment analysis (GSEA) using pathways from the Reactome database with biclustering to identify common modules of pathways that are modulated by several chemicals in vivo and in vitro across species.

**Results:** We found that some chemicals induced conserved patterns of early transcriptional responses in in vitro and in vivo settings, and across human and rat genomes. These responses involved pathways of cell survival, inflammation, xenobiotic metabolism, oxidative stress, and apoptosis. Moreover, our results support the transforming growth factor beta receptor (TGF- $\beta$ R) signaling pathway as a candidate biomarker associated with exposure to environmental toxicants in primary human hepatocytes.

**Conclusions:** Our integrative analysis of toxicogenomics data provides a



comprehensive overview of biochemical perturbations affected by a large panel of chemicals. Furthermore, we show that the early toxicological response occurring in animals is recapitulated in human and rat primary hepatocyte cultures at the molecular level, indicating that these models reproduce key pathways in response to chemical stress. These findings expand our understanding and interpretation of toxicogenomics data from human hepatocytes exposed to environmental toxicants.

*Read more:*

<http://ehp.niehs.nih.gov/1409157/>

## What Scientists Are Discovering about the Air You Breathe Indoors



Do you sometimes find yourself losing focus on the job? Is your thinking a little fuzzy? It could be something in the air — and you and your co-workers may be the source.

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We all know that excess carbon dioxide in the atmosphere is bad. It's a greenhouse gas that contributes to global warming, though it has no immediate harmful effects on people in concentrations that occur outdoors. Until recently, experts believed that indoor carbon dioxide — which is emitted, for example, when people exhale — also was harmless except at extremely high levels of 5,000 parts per million (ppm) or more.

*Read more:*

[https://www.washingtonpost.com/national/health-science/what-scientists-are-discovering-about-the-air-you-breathe-indoors/2016/02/29/a10ca5b0-cea5-11e5-b2bc-988409ee911b\\_story.html](https://www.washingtonpost.com/national/health-science/what-scientists-are-discovering-about-the-air-you-breathe-indoors/2016/02/29/a10ca5b0-cea5-11e5-b2bc-988409ee911b_story.html)

### U.S. Health Officials Move to Ban Most Powdered Surgical Gloves

Federal health officials are moving to ban most surgical gloves made with powder, a feature designed to make them easier to wear, but which actually poses health risks to patients and health professional.

The Food and Drug Administration said Monday that the powder added to some latex gloves can cause breathing problems, wound inflammation, and scar tissue on internal organs when used during surgery. The agency proposed the ban Monday in a federal filing.

The action is not expected to have much impact on glove supplies or manufacturer sales, according to government research. Most powdered gloves have already been



phased out, and only six manufacturers are still registered to make them in the U.S., according to the agency

*Read more:*

<http://www.ctvnews.ca/health/u-s-health-officials-move-to-ban-most-powdered-surgical-gloves-1.2825851>

**Radiation**

**NAMP Radiochemistry Webinars**



NAMP offers web-based lectures on specific radiochemistry topics developed in cooperation with the EPA, other Federal agencies, and university partners. Each webinar series presents short (1 ½- to 2-hour) webinars on specific radiochemistry

topics presented by renowned university professors and leading scientists in radiochemistry. The selected topics are designed to strengthen the participant in areas of professional engineering practice identified by the nuclear industry or national laboratories, including but not limited to actinide chemistry in the environment and in the nuclear fuel cycle.

Read more:

[http://www.wipp.energy.gov/namp/en\\_content-30-trainingedu.html](http://www.wipp.energy.gov/namp/en_content-30-trainingedu.html)

**As Wells Go Deeper, Radium Levels Rise In State Tap Water**

In 2014, the village of Sussex in southeast Wisconsin made a dismaying discovery. The radioactive element radium, a contaminant that occurs naturally in bedrock throughout the region, had seeped into two of its seven water wells.

It was not exactly a surprise. Radium has long been a problem in drinking water for dozens of Wisconsin communities from Green Bay to the Illinois border. The city of Waukesha has proposed replacing its radium-tainted groundwater with Lake Michigan water. If approved, the controversial plan would mark the first test



of a provision in a 2008 international compact that allows Great Lakes water diversions only when a county — such as Waukesha County — straddles the basin that feeds water into the Great Lakes.

*Read more:*

<http://wisconsinwatch.org/2016/03/as-wells-go-deeper-radium-levels-rise-in-state-tap-water/>

## ***Ventilation***

### **From Air Conditioning to Urban Planning, Defaults and Standards Create Dysfunction by Design**



Personal heaters are a summer survival tool for many office workers chilled to the bone by hyperactive ventilation systems — an act of self-defense against an epidemic of overcooling that is wasting energy and confounding comfort in not only offices but

also large shops, schools, and other buildings. An audit of US government buildings found that over three-fifths of their occupants felt too cold in the summer. The most likely culprit behind this big chill? Engineering conventions. Slavish adherence to unfounded and outdated rules of thumb that cause mis-programming of air conditioning systems.

*Read more:*

<http://www.vox.com/2016/3/13/11207752/air-conditioning-green-engineering>

## ***PPE***

### **A Method for Evaluating Aerosol Leakage through the Interface between Protective Suits and Full-Face Respirators**

Military personnel and first responders use a range of personal equipment including

protective suits, gloves, boots, and respirators to prevent exposure of their skin

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and airways to hazardous chemical, biological, radiological, and/or nuclear substances. Although each individual item of personal protective equipment is well tested against existing standards, it is also necessary to consider the performance of the interfaces between items in terms of prevention from exposure, and the protection system as a whole. This article presents an aerosol challenge method for assessing the performance of the interface between a respirator and the hood of a protective suit. The interface is formed between the sealing strip of the hood and the surface of the respirator's outer sealing area and is affected by how well the sealing strip can cover and adapt to the sealing area. The method evaluates the leakage of particles of different sizes into the hood via

the interface by particle counting at sampling points around the respirator's perimeter. Three different respirators were tested together with a single hood having a tight-fitting seal. The method variation between measurements was low but increased appreciably when the protective ensemble was re-dressed between measurements. This demonstrates the difficulty of achieving a reliable and reproducible seal between respirator and hood under normal conditions. Different leakage patterns were observed for the three respirators and were linked to some specific design features, namely the respirator's sealing area at the chin and its width at cheek level. Induced leak experiments showed that to detect substantial particle leakage, channels at the hood-respirator interface must be quite large. The method outlined herein provides a straightforward way of evaluating hood-respirator interfaces and could be useful in the further development of personal protective equipment.

*Read more: Journal of Occupational and Environmental Hygiene Volume 13, Issue 5, 2016 (Available with AIHA membership)*

### Use of Aftermarket Replacement Component Parts for NIOSH-Approved Respirators

Worker safety can be compromised by using replacement component parts or accessories that are not NIOSH-approved for the specific respirator. Although NIOSH-approved respirators are comprised of various component parts, they are



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approved as a complete unit. The use of components which are not part of the approved assembly results in a respirator that has not been evaluated and certified by NIOSH. This applies not only to parts supplied by other vendors, but also to those supplied by the original equipment manufacturer, if the component parts have not been evaluated by NIOSH as part of the respirator. Unevaluated respirator assemblies may not function at the expected level of protection, putting the

worker at risk for exposure to airborne hazards. Manufacturers' quality systems confirm replacement components for use, fit and function, and ensure reliability and repeatable performance.

*Read more:*

<http://www.cdc.gov/niosh/docs/2016-107/default.html>

### Counterfeit Respirators / Misrepresentation of NIOSH-Approval



NIOSH has become aware of a counterfeit N95 Respirator on the market.

While the TC number and private label holder (KOSTO) are valid, this unapproved unit can be identified by the misspelling of NIOSH on the front

of the respirator.

How can you be sure your respirator is truly NIOSH-approved?

Check the respirator approval markings or Certified Equipment List <

Caution-

[http://www2a.cdc.gov/drds/cel/cel\\_form\\_code.asp](http://www2a.cdc.gov/drds/cel/cel_form_code.asp) > .

Additional information is available on the NIOSH Trusted Source Page <

Caution-

[http://www.cdc.gov/niosh/npptl/topics/respirators/disp\\_part/respsource.html](http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/respsource.html) > .

As we become aware of counterfeit respirators or those misrepresenting the NIOSH approval on the market, we will post them here

Caution-

<http://www.cdc.gov/niosh/npptl/usernotices/default.html#CounterfeitRespirators> <

Read more:

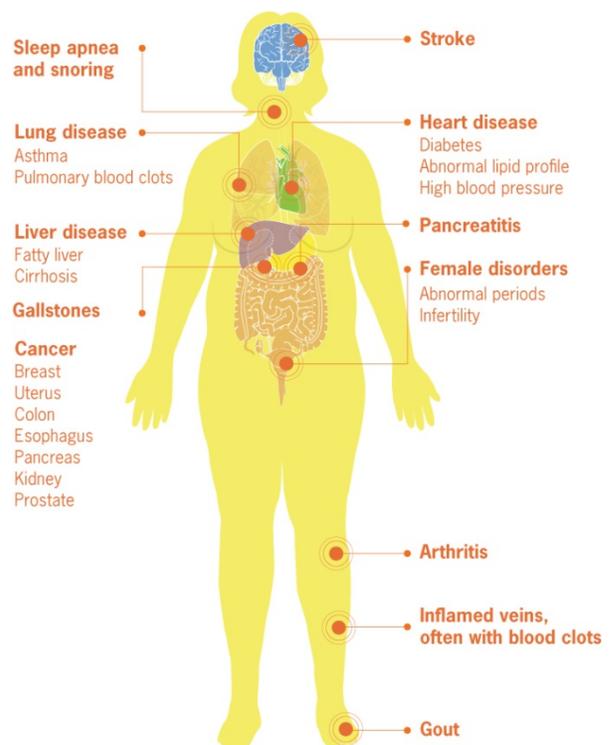
<http://www.cdc.gov/niosh/npptl/usernotices/default.html#CounterfeitRespirators>

## Noise

### Noise and Body Fat: Uncovering New Connections

Studies on environmental noise and human health have uncovered associations with cardiovascular disease<sup>1,2</sup> and diabetes.<sup>3</sup> New research is delving further into possible metabolic effects of noise—specifically a possible link to weight gain. In this issue of EHP investigators report that exposure to traffic noise at home was associated with body composition outcomes such as larger waist circumference and higher body mass index (BMI).

The cross-sectional study used data from the Danish Diet, Cancer, and Health Cohort, assessing 52,456 Danes between the ages of 50 and 64. The study tracked each participant's residential address history for the previous 5 years. The authors used noise-mapping software to estimate exposures from road traffic, railways, and air traffic for each address based on the most noise-exposed façade of the home. Four measures of body composition were recorded for each participant—BMI, waist



circumference, body fat mass index (BFMI), and lean body mass index (LBMI).

Read more: <http://ehp.niehs.nih.gov/124-A57/>

## **Pearl Jam Cares about Your Hearing**



Remember when going to a concert meant standing as close to the stage – and the towers of Marshall amps – as possible. A side effect for most of us was ringing ears...sometimes for days. And those ringing ears often meant damage to our hearing.

“Don’t be careless and lazy at loud rock shows or cranking tunes through an old

Walkman like I was 30 years ago (but boy did it all sound good),” says Pearl Jam bassist Jeff Ament. “Wear hearing protection or you’ll end up with a 1.5k ring in both ears every night when you go to bed or worse, when you are trying to enjoy the serene quiet of an empty desert or forest, again like me.”

Just as we’ve gotten smarter about personal protective equipment in the workplace, musicians and fans have gotten more savvy about hearing loss from loud concerts.

Read more: <http://ehstoday.com/hearing-protection/pearl-jam-cares-about-your-hearing>

## ***Preventive Medicine***

### **Only 2.7 Percent of U.S. Adults Live Healthy Lifestyle, Oregon State Researchers Find**

Only 2.7 percent of adults nationwide have all four basic healthy characteristics, a new study found.

The report, completed by researchers at Oregon State University and other universities, examined if adults were successful in four areas that fit typical advice for a "healthy lifestyle"-- moderate exercise, a good diet, not smoking and

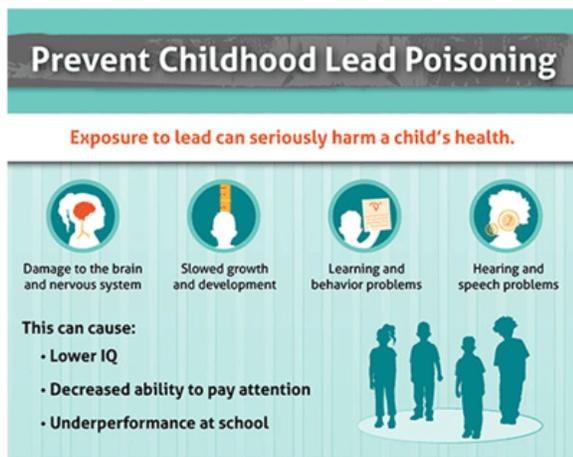


having a recommended body fat percentage. Fulfilling those characteristics reflects a lower risk of cardiovascular disease, cancer, type 2 diabetes and other health problems, according to a news release from Oregon State.

Read more:

[http://www.oregonlive.com/health/index.ssf/2016/03/only\\_27\\_percent\\_of\\_us\\_adults\\_.html](http://www.oregonlive.com/health/index.ssf/2016/03/only_27_percent_of_us_adults_.html)

## Use of a Cumulative Exposure Index to Estimate the Impact of Tap Water Lead Concentration on Blood Lead Levels in 1- to 5-Year-Old Children (Montréal, Canada)



Background: Drinking water is recognized as a source of lead (Pb) exposure. However, questions remain about the impact of chronic exposure to lead-contaminated water on internal dose.

Objective: Our goal was to estimate the relation between a cumulative water Pb exposure index (CWLEI) and blood Pb levels (BPb) in children 1–5 years of ages.

Methods: Between 10 September 2009 and 27 March 2010, individual characteristics and water consumption data were obtained from 298 children. Venous blood samples were collected (one per child) and a total of

five 1-L samples of water per home were drawn from the kitchen tap. A second round of water collection was performed between 22 June 2011 and 6 September 2011 on a subsample of houses. Pb analyses used inductively coupled plasma mass spectroscopy. Multiple linear regressions were used to estimate the association between CWLEI and BPb.

Results: Each 1-unit increase in CWLEI multiplies the expected value of BPb by 1.10 (95% CI: 1.06, 1.15) after adjustment for confounders. Mean BPb was significantly higher in children in the upper third and fourth quartiles of CWLEI (0.7–1.9 and  $\geq 1.9$   $\mu\text{g}/\text{kg}$  of body weight) compared with the first ( $< 0.2$   $\mu\text{g}/\text{kg}$ ) after adjusting for confounders (19%; 95% CI: 0, 42% and 39%; 95% CI: 15, 67%, respectively). The trends analysis yielded a p-value  $< 0.0001$  after adjusting for confounders suggesting a dose–response relationship between percentiles of CWLEI and BPb.

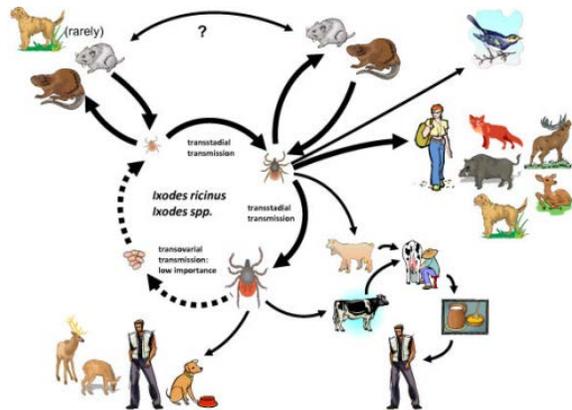
Conclusions: In children 1–5 years of age, BPb was significantly associated with water lead concentration with an increase starting

at a cumulative lead exposure of  $\geq 0.7 \mu\text{g}$  Pb/kg of body weight. In this age group, an increase of  $1 \mu\text{g/L}$  in water lead would result in an increase of 35% of BPb after 150 days of exposure.

Read more: <http://ehp.niehs.nih.gov/124-A39/>

## Co-infection of Ticks: The Rule Rather Than the Exception

Ticks are the most common arthropod vectors of both human and animal diseases in Europe, and the *Ixodes ricinus* tick species is able to transmit a large number of bacteria, viruses and parasites. Ticks may also be co-infected with several pathogens, with a subsequent high likelihood of co-transmission to humans or animals. However few data exist regarding co-infection prevalences, and these studies only focus on certain well-known pathogens. In addition to pathogens, ticks also carry symbionts that may play important roles in tick biology, and could interfere with pathogen maintenance and transmission. In this study we evaluated the prevalence of 38 pathogens and four symbionts and their co-infection levels as well as possible interactions between



pathogens, or between pathogens and symbionts.

Read more: <http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0004539>

## Could Germ from Cat Poop Trigger Rage Disorder in People?



Your cat's litter box could be a source of explosive anger - and not for the obvious reasons. A new study suggests that people prone to explosive bouts of

rage might be under the influence of toxoplasmosis, an illness caused by a parasite found in cat feces and undercooked meat.

Folks diagnosed with intermittent explosive disorder (IED) are more than twice as likely to carry *Toxoplasma gondii*, the parasite

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that causes toxoplasmosis, said lead researcher Dr. Emil Coccaro.

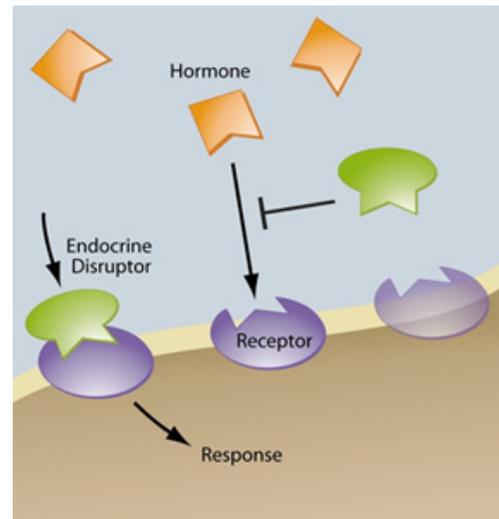
[http://www.upi.com/Health\\_News/2016/03/23/Could-germ-from-cat-poop-trigger-rage-disorder-in-people/2231458758628/](http://www.upi.com/Health_News/2016/03/23/Could-germ-from-cat-poop-trigger-rage-disorder-in-people/2231458758628/)

*Read more:*

## Chemical Exposure Linked to 1.4 Billion Euros in Women's Health Care Costs

Endocrine-disrupting chemicals may contribute to reproductive health problems experienced by hundreds of thousands of women, costing European Union an estimated €1.4 billion (\$1.5 billion) a year in health care expenditures and lost earning potential, according to a new study published in the Endocrine Society's Journal of Clinical Endocrinology & Metabolism.

The study examined rates of uterine fibroids -- benign tumors on the uterus that can contribute to infertility and other health problems -- and an often painful condition called endometriosis where the tissue that normally lines the uterus develops elsewhere in the body. The two conditions are common, with as many as 70 percent of women affected by at least one of the disorders.



*Read more:*

[http://www.eurekalert.org/pub\\_releases/2016-03/tes-cel031716.php](http://www.eurekalert.org/pub_releases/2016-03/tes-cel031716.php)

## 7 Reasons Not to Let Work Eat Into Your Lunch Break



There's no denying that most entrepreneurs live by jam-packed schedules with something or the other always waiting to be done. This often results in compromising the lunch hour and squeezing some of the pending work into it. After all, it saves you time, doesn't it? And while you may think that you're doing your business a favor by

working through or taking very little of what is meant to be your lunch break, the truth could be quite the contrary.

Read more:

<http://www.entrepreneur.com/article/270068>

## Environmental Health

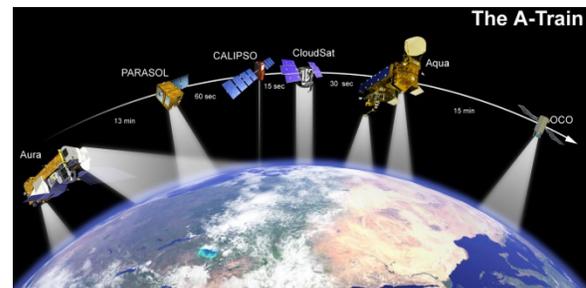
### Long-Term Trends Worldwide in Ambient NO<sub>2</sub> Concentrations Inferred from Satellite Observations

**Background:** Air pollution is associated with morbidity and premature mortality. Satellite remote sensing provides globally consistent decadal-scale observations of ambient nitrogen dioxide (NO<sub>2</sub>) pollution.

**Objective:** We determined global population-weighted annual mean NO<sub>2</sub> concentrations from 1996 through 2012.

**Methods:** We used observations of NO<sub>2</sub> tropospheric column densities from three satellite instruments in combination with chemical transport modeling to produce a global 17-year record of ground-level NO<sub>2</sub> at 0.1° × 0.1° resolution. We calculated linear trends in population-weighted annual mean NO<sub>2</sub> (PWMNO<sub>2</sub>) concentrations in different regions around the world.

**Results:** We found that PWMNO<sub>2</sub> in high-income North America (Canada and the United States) decreased more steeply than in any other region, having declined at a rate of -4.7%/year [95% confidence interval (CI): -5.3, -4.1]. PWMNO<sub>2</sub> decreased in western Europe at a rate of -2.5%/year (95% CI: -3.0, -2.1). The highest PWMNO<sub>2</sub>



occurred in high-income Asia Pacific (predominantly Japan and South Korea) in 1996, with a subsequent decrease of -2.1%/year (95% CI: -2.7, -1.5). In contrast, PWMNO<sub>2</sub> almost tripled in East Asia (China, North Korea, and Taiwan) at a rate of 6.7%/year (95% CI: 6.0, 7.3). The satellite-derived estimates of trends in ground-level NO<sub>2</sub> were consistent with regional trends inferred from data obtained from ground-station monitoring networks in North America (within 0.7%/year) and Europe (within 0.3%/year). Our rankings of regional average NO<sub>2</sub> and long-term trends differed from the satellite-derived estimates of fine particulate matter reported elsewhere, demonstrating the utility of both indicators to describe changing pollutant mixtures.

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Conclusions: Long-term trends in satellite-derived ambient NO<sub>2</sub> provide new information about changing global exposure to ambient air pollution. Our estimates are publicly available at

[http://fizz.phys.dal.ca/~atmos/martin/?page\\_id=232](http://fizz.phys.dal.ca/~atmos/martin/?page_id=232).

*Read more*

<http://ehp.niehs.nih.gov/1409567/>

### The Right Tools for the Job: Evaluating Frameworks for Chemical Alternatives Assessment



With the rise in green chemistry and growing concern over worker and consumer protection, businesses and regulatory agencies are increasingly looking to identify alternative chemicals for use in products and manufacturing processes. Alternatives assessment involves comparing the

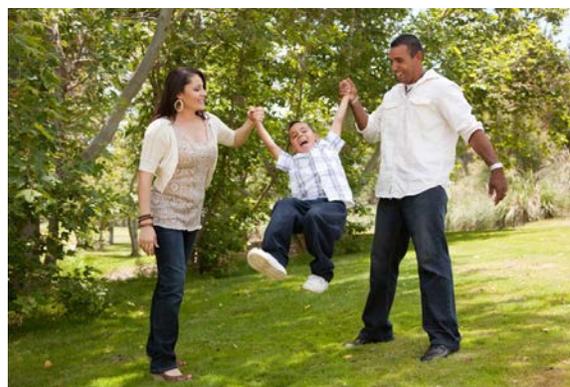
advantages and disadvantages of potential substitutes for toxic chemicals,<sup>1</sup> and numerous agencies, nonprofits, and businesses have developed frameworks to help them conduct these analyses. In this issue of EHP, investigators review nearly two dozen of alternatives assessment frameworks to identify what's working and what needs improvement in this rapidly advancing field.<sup>2</sup>

*Read more:* <http://ehp.niehs.nih.gov/124-A58/>

### Unhealthy Environments Kill 12.6m Per Year

Some 12.6 million people across the globe die every year due to unhealthy environments, according to a new World Health Organisation (WHO) report.

Almost one in four of all deaths are due to living or working in unhealthy conditions, accounting for at least 1.4 million deaths every year in Europe, the study's authors estimated.



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The WHO said environmental risk factors, such as air, water and soil pollution, chemical exposure, climate change and too much sun contributed to more than 100 diseases and injuries.

And it said working environments - such as a poor ability to maintain a work/life balance, stress and sitting for too long - contributed to poorer mental health and skeletal problems such as back pain.

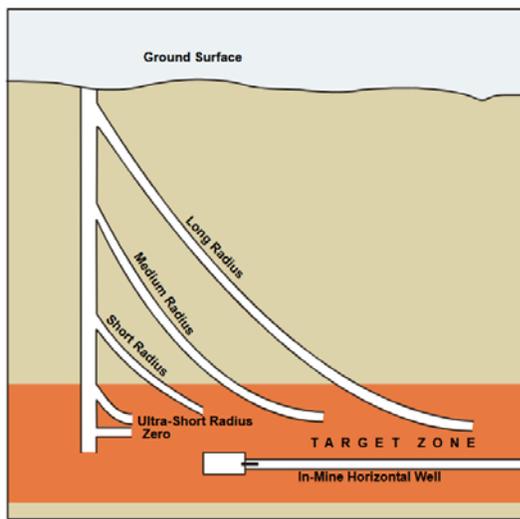
The report - Preventing Disease Through Healthy Environments: A Global Assessment

Of The Burden Of Disease From Environmental Risks - said deaths due to air pollution (including exposure to second-hand tobacco smoke), are responsible for as many as 8.2 million of the global deaths.

Read more:

<http://www.themercury.com.au/news/breaking-news/unhealthy-environments-kill-126m-per-year/news-story/b3db4a87e13da34f912a08e4d3edc411>

## Endocrine-Disrupting Chemicals and Oil and Natural Gas Operations: Potential Environmental Contamination and Recommendations to Assess Complex Environmental Mixtures



Background: Hydraulic fracturing technologies, developed over the last 65 years, have only recently been combined with horizontal drilling to unlock oil and gas reserves previously deemed inaccessible.

Although these technologies have dramatically increased domestic oil and natural gas production, they have also raised concerns for the potential contamination of local water supplies with the approximately 1,000 chemicals that are used throughout the process, including many known or suspected endocrine-disrupting chemicals.

Objectives: We discuss the need for an endocrine component to health assessments for drilling-dense regions in the context of hormonal and antihormonal activities for chemicals used.

Methods: We discuss the literature on a) surface and groundwater contamination by oil and gas extraction operations, and b) potential human exposure, particularly in

## Army Industrial Hygiene News and Regulatory Summary

the context of the total hormonal and antihormonal activities present in surface and groundwater from natural and anthropogenic sources; we also discuss initial analytical results and critical knowledge gaps.

Discussion: In light of the potential for environmental release of oil and gas chemicals that can disrupt hormone receptor systems, we recommend methods for assessing complex hormonally active environmental mixtures.

Conclusions: We describe a need for an endocrine-centric component for overall health assessments and provide information supporting the idea that using such a component will help explain reported adverse health trends as well as help develop recommendations for environmental impact assessments and monitoring programs.

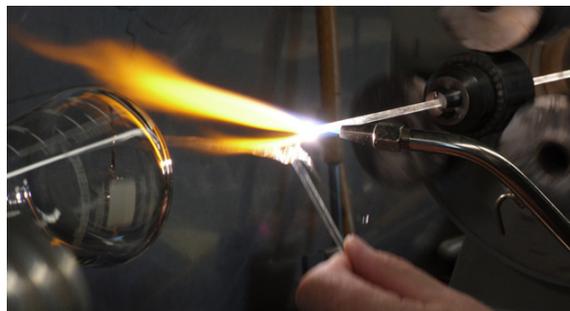
*Read more:*

<http://ehp.niehs.nih.gov/1409535/>

### EPA Orders Nationwide Review of Art Glass Makers in Wake of Portland Air Pollution Scare

Federal inspectors are investigating whether glass makers outside Oregon are emitting the same toxic chemicals that landed two Portland art glass makers in the spotlight, records show.

A top official with the U.S. Environmental Protection Agency said in a Feb. 25 memo that regulators have identified 14 factories that may make art glass using heavy metals, just as Portland's Bullseye Glass and Uroboros Glass did before coming under state scrutiny in February.



*Read more:*

[http://www.oregonlive.com/environment/index.ssf/2016/03/epa\\_orders\\_nationwide\\_review\\_o.html#incart\\_river\\_index](http://www.oregonlive.com/environment/index.ssf/2016/03/epa_orders_nationwide_review_o.html#incart_river_index)

## *Ergonomics*

### **Mind-Body Therapy Helps Ease Low Back Pain**



Mind-based therapy programs may help ease chronic back pain, new research suggests.

Patients who took part in such programs were more likely to have noticeable and

lasting improvements in back pain than those who stuck to their usual routines, investigators found.

Both of the approaches tested in the study - mindfulness-based stress reduction (MBSR) and cognitive behavioral therapy (CBT) - can be helpful for people who haven't benefited from other therapies, said lead author Daniel Cherkin, of the Group Health Research Institute in Seattle.

*Read more:*

<http://www.reuters.com/article/us-health-pain-back-idUSKCN0WO33B>

## *Safety*

### **NIOSH and OSHA Provide Online Resources to Prevent Aerial Lift Injuries and Fatalities**

While aerial lifts are used frequently at construction, warehousing, and many other jobsites, they can pose potentially fatal hazards to workers. Aerial devices include boom-supported aerial platforms, such as cherry pickers or bucket trucks, aerial ladders and vertical towers.

The major causes of injuries and fatalities are falls, electrocutions, and collapses or tip-overs, such as the one that killed Kevin Miranda in Taunton, Mass., on Aug. 18, 2015. Skyline Contracting and Roofing Corp. was fined more than \$100,000 after OSHA inspectors found that the aerial lift was positioned on unlevelled ground and

## Army Industrial Hygiene News and Regulatory Summary

determined that the company had not trained Miranda to recognize this hazard.

Learn about the fall-related risks and recommended safe work practices associated with this equipment by visiting the new NIOSH Aerial Lifts webpage. The page includes a Hazard Recognition Simulator designed to help you acclimate to aerial lift operation. Additional resources on aerial lift safety are available from OSHA.

*Read more:*

<https://www.osha.gov/as/opa/quicktakes/qt030116.html#top>



### Daylight Saving: Suggestions to Help Workers Adapt to the Time Change



Spring forward Fall back.

We all know the saying to help us remember to adjust our clocks for the daylight saving time changes (this Sunday in case you are wondering). But, what can we do to help workers adjust to the effects of

the time change? A few studies have examined these issues but many questions remain on this topic including the best strategies to cope with the time changes.

By moving the clocks ahead one hour in the Spring, we lose one hour which shifts work times and other scheduled events one hour earlier. This pushes most people to have a one hour earlier bedtime and wake up time. In the Fall, time moves back one hour. We gain one hour which shifts work times and other scheduled events one hour later thereby pushing most people to have a one hour later bedtime and wake up time.

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It can take about one week for the body to adjust the new times for sleeping, eating, and activity (Harrison, 2013). Until they have adjusted, people can have trouble falling asleep, staying asleep, and waking up at the right time. This can lead to sleep deprivation and reduction in performance, increasing the risk for mistakes including vehicle crashes. Workers can experience somewhat higher risks to both their health and safety after the time changes (Harrison,

2013). A study by Kirchberger and colleagues (2015) reported men and persons with heart disease may be at higher risk for a heart attack during the week after the time changes in the Spring and Fall.

*Read more:*

[http://wwwnc.cdc.gov/eid/article/22/6/16-0045\\_article](http://wwwnc.cdc.gov/eid/article/22/6/16-0045_article)

### Older Drivers in the Workplace: How Employers and Workers Can Prevent Crashes

Older drivers at work bring extensive skills, knowledge, and experience built over the course of a lifespan. Research shows that older drivers are more likely than their younger counterparts to adopt safe behaviors such as wearing a seat belt and complying with speed limits. However, those age 55 and older have twice the risk of dying in a work-related crash than younger workers do. One possible reason is that older persons are more likely to be injured if they are in a crash, and more likely to die if they are injured.

This fact sheet gives employers and workers information on age-related physical and mental changes that may affect older



workers' driving. It is important to accommodate these changes so older workers may continue to contribute their expertise to the workplace under the safest conditions possible.

*Read more:*

<http://www.cdc.gov/niosh/docs/2016-116/default.html>

## **Truck Drivers with Untreated Sleep Apnea Have a Five-Time Greater Risk of Crashes**



according to a new study co-authored by Virginia Tech Transportation Institute researchers and featured in the March 21 online edition of the journal *Sleep*.

“Previous research has shown that obstructive sleep apnea is among the most common causes of excessive drowsiness or fatigue in the daytime, so this new analysis really underscores the risk truck drivers diagnosed with obstructive sleep apnea assume if they choose not to adhere to a treatment program,” said Erin Mabry, co-author of the research article and a senior research associate with the Virginia Tech Transportation Institute’s Center for Truck and Bus Safety.

A study of 3,200 truck drivers found that those who suffer from sleep apnea and do not follow their treatment plans have a greater risk of severe crashes. Truck drivers who have obstructive sleep apnea and who do not attempt to adhere to a mandated treatment program have a much greater risk of a severe crash,

*Read more:*

<http://ehstoday.com/safety/truck-drivers-untreated-sleep-apnea-have-five-time-greater-risk-crashes>

## **More Eyes on the Invisible Danger in Confined Spaces**

Last year, two workers died from asphyxiation while repairing leaks in a manhole. In an all too frequent narrative, the second worker died after he went down to rescue the first worker.

The tragedy again exposed the need for real-time information gathering prior to confined space entry and in taking appropriate action based on an understanding of atmospheric conditions.

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In 2015, OSHA passed a confined space rule that offers additional protection to construction workers. In filling what it identified as a vital gap, OSHA estimates that as many 800 construction workers a year will be protected from serious injuries. The new ruling signals that today, more than ever, regulatory bodies have the worker's back.

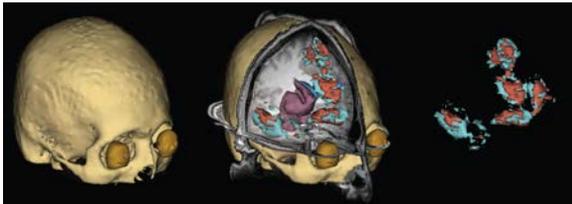
In step with the regulatory advances, instrumentation manufacturers are creating new wireless monitoring tools that make compliance easy, instrument operation nearly automatic and critical data accessible in real time across the enterprise.



Read more:

<http://ehstoday.com/safety/more-eyes-invisible-danger-confined-spaces>

## Traumatic Brain Injuries in Construction



Falling 25 feet to the ground from a roof, being struck in the head by a steel beam as it is transported across a worksite, or getting hit by a vehicle moving supplies—these are only a few examples of why the construction industry has the greatest number of both fatal and nonfatal traumatic brain injuries (TBIs) among U.S. workplaces. From 2003 to 2010, 2,210 construction workers died because of a TBI (a rate of 2.6 per 100,000 FTE workers). These deaths represented 25% of all construction fatalities and 24% of all

occupational TBI fatalities during the same period.

The numbers are tragic but there is some good news: the rate of fatal TBIs in construction decreased by 6.2% each year between 2003 and 2010. Some of this decline can be attributed to the overall decline in the rates of work-related deaths and fatal TBIs (including that are both work- and nonwork-related). Another reason is that spending and employment in construction decreased when the economic recession hit in 2007 resulting in fewer workers exposed to construction hazards. Despite these declines, TBIs remain one of the major causes of deaths in the construction industry.

Read more: <http://blogs.cdc.gov/niosh-science-blog/2016/03/21/constructiontbi/>

## An Emergency at the Eyewash Station

Eyewash stations are a staple in facilities that use materials that can cause eye injury or eye infection, providing reprieve after accidental exposure.

But simply having an eyewash station in your workplace isn't enough. Not properly maintaining a station potentially can cause more harm than good and even create its own emergency situation.

Improperly maintained eyewash stations can become a breeding ground for organisms that exist in stagnant and untreated water. Think Legionella, Pseudomonas, Acanthamoeba. And those organisms can infect the worker not only through the water, but also through the skin or through inhalation.



Read more: <http://ehstoday.com/industrial-hygiene/emergency-eyewash-station>

## Emergency Preparedness & Response

### Preparedness through Daily Practice: The Myths of Respiratory Protection in Healthcare



Evidence from surveillance studies indicates gaps in hospitals' respiratory protection programmatic operations and healthcare workers' (HCWs) marginal compliance with respiratory protection recommended practices. Improper use of respiratory protective devices (RPDs) may expose HCWs to infectious respiratory illnesses. In this document, NIOSH addresses common myths related to respiratory protection and provides

## Army Industrial Hygiene News and Regulatory Summary

information to reinforce respiratory protection program administrator responsibilities and HCW knowledge concerning the proper use of these devices so that they can be prepared for the next public health emergency and best protect themselves in daily practice.

*Read more:*

<http://www.cdc.gov/niosh/docs/wp-solutions/2016-109/default.html>

### Controlling the Situation: Actionable Steps to Help Mitigate Hazmat Incidents

Accidental hazardous material spills can happen anywhere at any time. According to OSHA, more than 43 million American workers are exposed to hazardous chemicals each year. With so many people coming into contact with hazardous materials, safely containing chemical spills has never been more important.

While it is nearly impossible to eliminate hazmat incidents altogether, having an actionable plan in place that prepares all involved parties (e.g., workers, first responders, etc.) to properly manage an emergency situation will help prevent additional issues from occurring. Through a better understanding of the hazardous materials released and specifics on the best way to react when an incident occurs, risks can be minimized and remediation simplified.

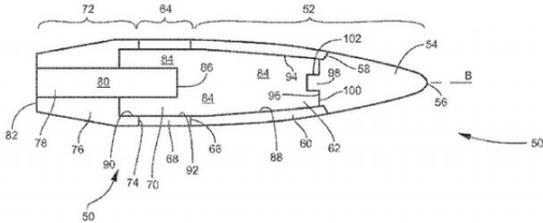


*Read more:*

<https://ohsonline.com/articles/2016/03/01/controlling-the-situation-actionable-steps-to-help-mitigate-hazmat-incidents.aspx>

## Deployment Health

### Army Engineers Patent Limited Range Bullet That Self-Destructs



Researchers working for the U.S. Army have been awarded a patent for a revolutionary limited range bullet that self-destructs.

Three employees of the U.S. Army Armament Research, Development and Engineering Center (ARDEC) were awarded the patent for the proof-of-concept

projectile, which aims to reduce collateral damage.

Designed for use in close combat areas such as urban fighting, the projectile could reduce the risk of stray bullets hitting civilians or friendly forces. Researchers say that the bullet could also be useful on firing and training ranges and could potentially be used by civilian police.

Read more:

<http://www.foxnews.com/tech/2016/02/23/army-engineers-patent-limited-range-bullet-that-self-destructs.html>

### Soldiers Getting Junctional Tourniquet Designed to Save Lives

The U.S. Army Medical Materiel Agency (USAMMA), a subordinate command within the U.S. Army Medical Research and Materiel Command (USAMRMC), is fielding a new junctional tourniquet designed to save warfighters from dying on the battlefield after injuries to the groin or armpit area.

The SAM™ junctional tourniquet, which weighs about one pound, straps on like a belt and includes two inflatable air bladders that medics can inflate individually or both at the same time. The device is designed so that a person can position it in under a



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minute—a crucial factor for combat medics who only have mere minutes to save a fellow warfighter's life if he or she is hemorrhaging.

Exsanguination, or bleeding to death, is the most common cause of potentially survivable death to wounded warfighters. Groin and pelvic injuries have become increasingly common because of the enemy's use of Improvised Explosive

Devices. Blasts from IEDs often cause pelvic fractures and high leg injuries, which result in massive blood loss (i.e., hemorrhage) if not immediately treated.

*Read more:*

[http://www.army.mil/article/163229/Soldiers\\_getting\\_junctional\\_tourniquet\\_designed\\_to\\_save\\_lives/](http://www.army.mil/article/163229/Soldiers_getting_junctional_tourniquet_designed_to_save_lives/)

### Nanotechnology

#### No More Washing: Nano-Enhanced Textiles Clean Themselves with Light



A spot of sunshine is all it could take to get your washing done, thanks to pioneering nano research into self-cleaning textiles. Researchers at RMIT University in Melbourne, Australia, have developed a cheap and efficient new way to grow special nanostructures—which can degrade organic matter when exposed to light—directly onto textiles.

The work paves the way towards nano-enhanced textiles that can spontaneously clean themselves of stains and grime simply by being put under a light bulb or worn out in the sun.

Dr Rajesh Ramanathan said the process developed by the team had a variety of applications for catalysis-based industries such as agrochemicals, pharmaceuticals and natural products, and could be easily scaled up to industrial levels.

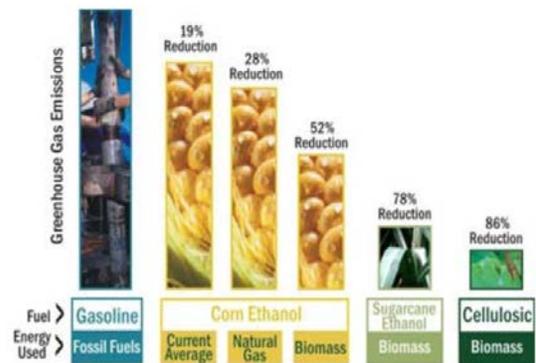
*Read more:* <http://phys.org/news/2016-03-nano-enhanced-textiles.html#jCp>

## Regulatory Research & Industrial Hygiene Professional News

### EPA

#### EPA Announces Update of Greenhouse Gas Emissions Guidance Documents for Biofuels

On March 7, 2016, the U.S. Environmental Protection Agency (EPA) announced the update of three greenhouse gas (GHG) inventory guidance documents. The documents have new emission factors and guidance on data estimation methods, with specific sections on waste and biomass derived fuels. The updated guidance documents are needed by organizations that must report GHG emissions to EPA and cover direct emissions from stationary combustion sources, direct emissions from mobile combustion sources, and indirect emissions from purchased electricity.



[a-announces-update-of-greenhouse-gas-emissions-guidance-documents-for-biofuels/](http://www.epa.gov/ghg-reports/2016/03/07/2016-03-07-ghg-emissions-guidance-documents-for-biofuels/)

Read more:

<http://breakingenergy.com/2016/03/24/ep>

### Congress

#### Brussels Subway Attack Prompts Worry in U.S. About Bus, Rail Safety



In the wake of the terrorist attacks on the airport and subway system in Brussels, a group of lawmakers in Congress is pushing to increase funding to provide better security on the United States' mass transit systems.

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On Wednesday, 66 House Democrats urged the Homeland Security appropriations subcommittee to set aside \$105 million to help local transit systems improve security. That's \$20 million more than President Barack Obama requested in his 2017 budget proposal and a drop in the bucket

compared to the billions the country spends annually on aviation security.

*Read more:*

<http://www.emergencymgmt.com/safety/Bussells-Subway-Attack-Prompts-Worry-Bus-Rail-Safety.html>

**DOE**

### DOE Releases First Annual National Energy Employment Analysis

The U.S. Department of Energy today released the agency's first annual analysis of how changes in America's energy profile are affecting national employment in multiple energy sectors. By using a combination of existing energy employment data and a new survey of energy sector employers, the inaugural U.S. Energy and Employment Report (USEER) provides a broad view of the national current energy employment landscape.

USEER examines four sectors of the economy -- electric power generation and fuels; transmission, wholesale distribution, and storage; energy efficiency; and motor vehicles -- which cumulatively account for almost all of the United States' energy production and distribution system and roughly 70 percent of U.S. energy consumption. By looking at such a wide portion of the energy economy, USEER can provide the public and policy makers with a clearer picture of how changes in energy



technology, systems, and usage are affecting the economy and creating or displacing jobs.

*Read more:*

<http://energy.gov/articles/doe-releases-first-annual-national-energy-employment-analysis>

## **U.S. Department of Energy Announces Asset Score Partnership Program**

The U.S. Department of Energy (DOE) recently announced partnerships with 21 companies, federal agencies, and state and local governments to promote the use of its Building Energy Asset Scoring Tool (Asset Score).



First released in 2014, Asset Score is a free Web-based software tool that identifies opportunities to improve the energy efficiency of a building's structure and energy-related systems.

activities, as well as help guide future improvements to the tool. The DOE has committed to provide technical assistance to support these commitments, which will occur throughout 2016.

Participants in the Asset Score National Leadership Network committed to use Asset Score on 10 buildings, work with the DOE to produce a case study, or promote Asset Score usage through educational

*Read more:*  
<http://hpac.com/archive/us-department-energy-announces-asset-score-partnership-program>

### **OSHA**

## **Over 10K Severe Worker Injuries Reported In First Year of OSHA Requirement Most Employers Cooperated With OSHA to Fix Hazards, but Some Tried To Hide Them**



In the first year of a new reporting requirement, employers notified the U.S. Department of Labor's Occupational Safety and Health Administration of more than 10,000 severe work-related injuries, creating the opportunity for the agency to work with employers to eliminate hazards and protect other workers.

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Since Jan. 1, 2015, employers have been required to report any severe work-related injury - defined as a hospitalization, amputation or loss of an eye - within 24 hours. The requirement that an employer report a workplace fatality within eight hours remains in force.

In the first full year of the program, employers reported 10,388 severe injuries, including 7,636 hospitalizations and 2,644

amputations. In a majority of those cases, OSHA responded by working with the employer to identify and eliminate hazards, rather than conducting a worksite inspection.

*Read more:*

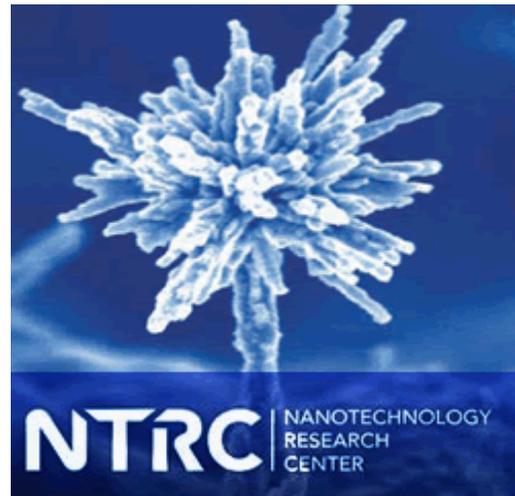
[https://www.osha.gov/pls/oshaweb/owadi.sp.show\\_document?p\\_table=NEWS\\_RELEASES&p\\_id=30363](https://www.osha.gov/pls/oshaweb/owadi.sp.show_document?p_table=NEWS_RELEASES&p_id=30363)

**NIOSH**

### Researchers to Present and Discuss Findings at the Society of Toxicology's 55th Annual Meeting and Toxexpo

This year's meeting, which draws more than 6,500 toxicologists from around the world, is in New Orleans, La., from March 13-17, 2016.

- NIOSH will present nearly 40 posters, as well as lead discussions about such topics as:
  - Occupational exposure to beryllium
  - Inhalation of sand dust in hydraulic fracturing operations
  - Nanotoxicology and exposures to nanoparticles
  - Metal toxins exposures to upstream oil and gas workers
  - Health and environmental hazard assessments of nanomaterials
  - Toxic inhalant exposures in metal working
  - Other recent advances in nanotoxicology



For information about the Meeting and ToxExpo, visit:  
<http://www.toxicology.org/events/>.

*Read more:*

<http://www.cdc.gov/niosh/updates/upd-03-09-16.html>

## Training

### APHC

## Something is Wrong, I Can't Get My Blackboard Certificate

Instructors are happy to issue students a certificate upon successfully completing a course in Blackboard. However, Blackboard can no longer send mail and certificates to your Army Knowledge Online (AKO) email address.

AKO EMAIL CHANGES

*Want to receive e-mails from ATSC-ELLC at another e-mail address?*

Users can now update their ATSC-ELLC Online profile to direct course communications to ANY email, whether .mil, .com or other. By updating their user profile email address, users can direct where course announcements, notifications, and course communication are delivered.

To enable, update the e-mail field located [here](#). Upon doing so, all e-mails sent from ATSC-ELLC Online will be sent to the address in your profile. **This WILL NOT impact messages sent from other systems.**

*Non-Army AKO Holders: This change impacts the ATSC-ELLC profile only. To maintain AKO sponsorship, your AKO external email addresses will remain the same, and must remain populated with a .mil (non-AKO) email address.*

AKO email addresses will no longer be valid as of March 31, 2015. Please update your Blackboard profile by changing your email address from AKO (@us.army.mil) address to the preferred military Enterprise address (@mail.mil).

If you have any questions or concerns, please contact the Army Training Help Desk at 1-800-275-2872 (option 2) or Email-athd@mailds01.csd.disa.mil, Subject: Blackboard.

Thank you,  
ATSC-Blackboard Team

The Blackboard Administrator requested almost a year ago that all users change their email address from the outdated AKO format ([your.name@us.army.mil](#)) and replace it with the new enterprise format ([your.name.civ@mail.mil](#)). When students register for courses in Blackboard, the outdated AKO email automatically becomes the default email. If you don't update your email address using the new enterprise format ([your.name.civ@mail.mil](#)) BEFORE you begin to take a course and take the exam, you will not receive emails and certificates. In order to get credit for your hard work and receive CEUs, you must change your email address in Blackboard to

[your.name.civ@mail.mil](#) or [your.name.ctr@mail.mil](#), for contractors. You and only you have the capability to change your email address in Blackboard.

Once you have changed your email address to the proper format ([your.name.civ@mail.mil](#) or [your.name.ctr@mail.mil](#)), it can take up to 48 hours before it is registered in Blackboard. Wait 2 days, then log back into Blackboard and confirm the changes before proceeding to complete the course work and exam.

Please follow the instructions on the Blackboard website! Remember Blackboard no longer uses AKO email. To ensure that you can receive your Blackboard certificates and emails, change

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your email address to the new enterprise format. For more information about updates and changes, go to <https://amsc.elic.learn.army.mil> and log into Blackboard.

## 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

# Army Industrial Hygiene News and Regulatory Summary

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:

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Office: (410) 436-3161

FAX: (410) 436-8795

### On the Web:

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



## New Army DOEHRS-IH Training Opportunities

- May 16-20 at APG, MD (North Campus-28 seats)
- May 31- June 3, 2016 at APG, MD (Edgewood Campus-16 seats)
- Phase 1 must be completed in Blackboard prior to attending
- The enrollment password is 201

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