ASSP's Industrial Hygiene Practice Specialty Publishes Silica Resource Guide

ASSP's Industrial Hygiene Practice Specialty has developed a resource guide for contractors that pulls together frequently asked questions about complying with OSHA’s silica standard. The guide addresses issues such as air sampling, the use and sources of objective data, medical surveillance, respirator use and exposure control plans. It also contains links to a wide range of resources that provide detailed information, including OSHA documents, voluntary national consensus standards and tools created by key stakeholder organizations.

"The construction silica regulation is a complex, performance-oriented regulation that gives contractors flexibility for compliance. However, this flexibility also requires contractors to ensure that selected compliance methods protect workers to the maximum extent feasible," the guide explains. "Contractors should use all available resources, including insurance loss control, private consultants, OSHA consultation, university programs and tool manufacturers, in developing their programs and addressing concerns."

Controlled Fire Study Finds High Levels of Airborne Chemicals

What do plastic, polyester, and foam have in common? They are synthetic materials found throughout most modern homes in everything from toys to furniture to appliances. Unlike wood, cotton, and other natural materials, synthetic materials are made in laboratories through chemical processes.

During a fire, these chemicals can burn hotter and faster, and produce more toxic smoke than natural materials. Evidence suggests that work-related exposure to these toxicants among firefighters corresponds to an increased risk of acute cardiovascular events and cancer.

Read more: https://www.cdc.gov/niosh/research-rounds/resroundsv4n3.html

Evaluation of Chemical Exposures at Two Vape Shops

HHE Program investigators found low levels of flavoring chemicals in the air and residual nicotine on commonly touched surfaces. We recommended the employer not allow vaping in the workplace with e-liquids that contain diacetyl and 2,3-pentanedione and improving PPE use during work tasks involving nicotine or customers’ e-cigarettes.

Read more: https://www.cdc.gov/niosh/hh
Occupational Exposure to Trichloramine and Trihalomethanes: Adverse Health Effects among Personnel in Habilitation and Rehabilitation Swimming Pools

Personnel in swimming pool facilities typically experience ocular, nasal, and respiratory symptoms due to water chlorination and consequent exposure to disinfection by-products in the air. The aim of the study was to investigate exposure to trichloramine and trihalomethanes (chloroform, bromodichloromethane, dibromochloromethane, and bromoform) from the perspective of adverse health effects on the personnel at Swedish habilitation and rehabilitation swimming pools. The study included ten habilitation and rehabilitation swimming pool facilities in nine Swedish cities. The study population comprised 24 exposed swimming pool workers and 50 unexposed office workers.

Comparison between Personal Sampling Methodologies for Evaluating Diesel Particulate Matter Exposures in Mines: Submicron Total Carbon Corrected For the Adsorption of Vapor-Phase Organic Carbon versus Respirable Total Carbon

In the mining industry, personal measurements of elemental and total carbon are frequently used as surrogates of diesel particulate matter (DPM) exposure, and the respirable or submicron fractions are usually measured. However, vapor-phase organic carbon (OC) can be adsorbed in the filters, interfering with total carbon results. This study presents a comparative evaluation between the submicron fraction of DPM concentrations corrected for the adsorption of the vapor-phase OC (dynamic blank), and the respirable fraction of DPM corrected for a field blank. Respirable and submicron fractions of total carbon (TCR and TC1) and elemental carbon (ECR and
EC1) concentrations were sampled in parallel, in the workers’ breathing zone, in an underground gold mine. A total of 20 full-shift personal samples were taken for each size fraction. Field blanks were collected each day for both the submicron and respirable fractions, while dynamic blank correction was also applied for the submicron fraction. TCR presented a larger and statistically different geometric mean concentration compared to TC1 (98 µg/m³ versus 72 µg/m³; p = 0.01), while the concentrations of ECR and EC1 were not statistically different (58 µg/m³ versus 54 µg/m³; p = 0.74). Average TCR/ECR ratio was 1.7, while the TC1/EC1 ratio was 1.3. In addition, 93% of EC had an aerodynamic size lower than 1 µm, while the proportion of TC particles in the submicron fraction was lower (73%). Finally, a similar quantity of OC was found when analysing the dynamic and field blanks of the filters with the submicron fraction selective size (24 µg and 22 µg, respectively). In conclusion, the correction for the vapor phase OC by the dynamic blank was not a significant correction in our study design compared to the field blank samples. This study suggests that the differences in TC may be explained by the different aerodynamic fractions of DPM collected. In addition, elemental carbon measurements did not seem to be extensively affected by the aerodynamic size of the particles collected.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author version posted online: 04 Oct 2018 (Available with AIHA membership)

Exposure to Flame Retardants in Foam Found among Gymnastics Coaches

To protect gymnasts from injury during training, polyurethane foam provides padding in the form of loose blocks, mats, and other equipment. To prevent the spread of fire, this foam also may contain flame retardants, potentially hazardous chemicals that could cause health problems for both gymnasts and coaches.
In 2004, the United States banned the use of one class of these flame retardants, PBDE, or polybrominated diphenyl ethers, following reports of links to hormonal disruption and increased risk of cancer. Since then, other flame retardants have taken their place in many products, including foam. The potential harmful effects of these new flame retardants are unclear, but some studies indicate that they, like their banned predecessors, also could disrupt the hormonal system and increase cancer risk. But questions exist: Does work-related exposure occur, and if so, by which route? Does cleaning or removing a source prevent exposure?

Read more: [https://www.cdc.gov/niosh/research-rounds/resroundsv4n3.html](https://www.cdc.gov/niosh/research-rounds/resroundsv4n3.html)

### Radiation

**A Big Move Toward Small: Micro-reactors and the Pentagon**

The Pentagon, with the support of Congress, is exploring the potential for the deployment of micro-reactors at its defense installations. These reactors could run for years, independent of the grid, to provide secure, reliable power and sustain defense functions, including during an extended blackout. The Nuclear Energy Institute has released a Roadmap on what steps are needed for deployment.

**Fast Facts:**

- The U.S. Congress and U.S. Department of Defense (DOD) have been interested in the use of small reactors for nearly a decade. Deployment of micro-reactors for DOD could happen in as soon as five to seven years, replace conventional diesel generators or coal boilers with a new source of electricity that would operate independently of the power grid, and run cleanly and quietly for years, with long intervals between re-fuelings. DOD manages more than 500 fixed installations and is the single largest energy consumer in the U.S.

Ventilation

Maintaining Optimal Indoor Air Quality

Buildings can be places of work, learning, healing, vacationing and more. Proper building maintenance helps ensure that residents, customers, patients and other people remain healthy and safe while inside. One of the most important ways a building can achieve their goals while protecting occupant health is to promote optimal indoor air quality (IAQ). To help curb the spread of respiratory illness, control odor and improve overall IAQ, ventilation must be treated as an integral component of building maintenance. Implementing regular air conditioning (A/C) deep cleanings is the best way to face the challenges associated with poor IAQ.


PPE

The Impact of Canister Geometry on Chemical Biological Radiological and Nuclear Filter Performance: A Computational Fluid Dynamics Analysis

Steady-state axisymmetric simulations using the Reynolds-Averaged Navier-Stokes equations have been carried out in order to optimize the performance of a Chemical, Biological, Radiological and Nuclear (CBRN) canister filter for its use in a powered air-purifying respirator (PAPR). Alterations have been made to the shape of the canister, the spacing of the rear wall of the canister with regard to the carbon filter, and the bracketing between (i) the particulate filter and the carbon bed and (ii) the carbon bed.
and the canister wall. The pressure drop across the canister and the residence time distribution at the rear of the carbon bed have been analysed in detail based on an extensive parametric analysis involving the aforementioned variations. It has been demonstrated that the non-uniform porosity profile of the carbon bed resulted in alternating regions of high and low velocity close to the canister wall, providing a possible route for breakthrough. Designs, which included a bracket at the rear of the carbon bed, blocked this route and consequently had a longer minimum mean residence time than those, which did not. It has also been shown that the spacing between the carbon bed and the canister rear wall had a large impact on both residence time and pressure drop. In cases where the carbon backed directly onto the canister rear wall flow in the axial direction from the outside wall towards the canister axis resulted in far greater pressure drop and a reduction in minimum mean residence time within the carbon bed.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author version posted online: 09 Oct 2018 (Available with AIHA membership)

Patterns and Predictors of Personal Protection Compliance and Workplace Hygiene Behaviors among Workers with Elevated Blood Lead Levels in New York State

Despite increasing awareness and significant progress in reducing lead exposure among workers, elevated blood lead levels (BLLs) continue to be an occupational health problem. Little is currently known about the extent of personal protective equipment (PPE) use among lead-exposed workers. We examined the patterns and predictors of consistent PPE use and workplace hygiene behaviors among workers with elevated BLLs using a survey of 1,459 workers with an occupational lead exposure in New York State (NYS). Routine availability of respirators was commonplace, however only approximately half of workers consistently wore PPE while working with lead. Regular access to showers was reported by 41% of workers, but less than a
quarter took showers and subsequently changed into clean clothing before leaving work site. Significant predictors of consistent PPE use and good hygiene behaviors were identified. The findings highlight the need for further educational and policy interventions for lead-exposed employees. Increased employer efforts are also required to provide workplace structures and a culture that supports compliance. These include the provision of routine training and hazard communication, provision of appropriate PPE and hygiene facilities, and enforcing its use where necessary.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 04 Oct 2018 (Available with AIHA membership)

### Noise

**Noise: The Other Pollution Hurting Our Health**

One in five Europeans is regularly exposed to noise levels that could "significantly" damage their health, the World Health Organization says, and it updated guidelines on those levels in Europe on Tuesday.

Environmental noise is among the "top environmental risks to health," according to the WHO report. More than 100 million Europeans are affected by road traffic noise alone each year. "Noise continues to be a concern," noted Dr. Dorota Jarosińska, program manager for living and working environments at the WHO regional office for Europe.

The new guidelines are "an important update," given the evidence and links to health problems, said Stephen Stansfeld, professor at Barts and Queen Mary.

Infectious Diarrhea Spores Survive High Temperatures of Hospital Laundering

Washing contaminated hospital bedsheets in a commercial washing machine with industrial detergent at high disinfecting temperatures failed to remove all traces of *Clostridium difficile* (*C. difficile*), a bacteria that causes infectious diarrhea, suggesting that linens could be a source of infection among patients and even other hospitals, according to a study published today in *Infection Control & Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America.

Read more: [https://www.sciencedaily.com/releases/2018/10/181016110105.htm](https://www.sciencedaily.com/releases/2018/10/181016110105.htm)

Study Links Hospital Candida Auris Outbreak to Reusable Thermometers

A large *Candida auris* outbreak at a hospital in England appears to be linked to reusable patient-monitoring equipment, a team of researchers reports today in the *New England Journal of Medicine*.

The outbreak in the neurosciences intensive care unit (ICU) at Oxford University Hospitals involved 70 patients who were infected or colonized with *C auris*, a fungus that has become increasingly resistant to azoles, echinocandins, and polyenes—the three classes of antifungals used to treat infections caused by *Candida* and other fungal species.

New Test Detects 100s of Bacteria, Resistance Genes

A team of scientists at Columbia University Mailman School of Public Health has developed a diagnostic platform that can detect all known human pathogenic bacterial species, plus antimicrobial resistance and virulence genes. In a study yesterday in *mBio*, the scientists report that the bacterial capture sequencing (BacCapSeq) system outperformed conventional DNA sequencing methods in identifying pathogenic bacteria and resistance genes in blood samples. It also detected a pathogen that tests that are commonly used for diagnosing bacterial infections would not be able to identify.


Modeling the Role of Fomites in a Norovirus Outbreak

Norovirus accounts for a large portion of the gastroenteritis disease burden, and outbreaks have occurred in a wide variety of environments. Understanding the role of fomites in norovirus transmission will inform behavioral interventions, such as hand washing and surface disinfection. The purpose of this study was to estimate the contribution of fomite-mediated exposures to infection and illness risks in outbreaks. A simulation model in discrete time that accounted for hand-to-porous surfaces, hand-to-nonporous surfaces, hand-to-mouth, -eyes, -nose, and hand washing events was used to predict 17 hr of simulated human behavior. Norovirus concentrations originated from monitoring contamination levels on surfaces during an outbreak on houseboats. To predict infection risk, two dose-response models (fractional Poisson and 2F1 hypergeometric) were used to capture a range of infection risks. A triangular distribution describing the conditional probability of illness given an
infection was multiplied by modeled infection risks to estimate illness risks. Infection risks ranged from 70.22% to 72.20% and illness risks ranged from 21.29% to 70.36%. A sensitivity analysis revealed that the number of hand-to-mouth contacts and the number of hand washing events had strong relationships with model-predicted doses. Predicted infection risks ranged from 21.29% to 70.36%, overlapping with leisure setting and environmental attack rates reported in the literature. In the outbreak associated with the viral concentrations used in this study, attack rates ranged from 50% to 86%. This model suggests that fomites may have accounted for 25% to 82% of illnesses in this outbreak. Fomite-mediated exposures may contribute to a large portion of total attack rates in outbreaks involving multiple transmission modes. The findings of this study reinforce the importance of frequent fomite cleaning and hand washing, especially when ill persons are present.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author version posted online: 01 Oct 2018 (Available with AIHA membership)

Assessment of Environmental and Surgical Mask Contamination at a Student Health Center — 2012–2013 Influenza Season

Increased understanding of influenza transmission is critical for pandemic planning and selecting appropriate controls for healthcare personnel safety and health. The goals of this pilot study were to assess environmental contamination in different areas and at two time periods in the influenza season and to determine the feasibility of using surgical mask contamination to evaluate potential exposure to influenza virus. Bioaerosol samples were collected over 12 days (two 6-day sessions) at 12 locations within a student health center using portable two-stage bioaerosol samplers operating 8 hr each day. Surface samples were collected each morning and afternoon from common high-contact non-porous hard surfaces from rooms and locations where bioaerosol samplers were located. Surgical masks worn by participants while in contact with patients with influenza-like illness were collected. A questionnaire administered to each of the 12 participants at the end of each workday and another at the end of each workweek assessed influenza-like illness symptoms, estimated the number of influenza-like illness patient contacts, hand hygiene, and surgical mask usage. All
samples were analyzed using qPCR. Over the 12 days of the study, three of the 127 (2.4%) bioaerosol samples, 2 of 483 (0.41%) surface samples, and 0 of 54 surgical masks were positive for influenza virus. For the duration of contact that occurred with an influenza patient on any of the 12 days, nurse practitioners and physicians reported contacts with influenza-like illness patients >60 min, medical assistants reported 15–44 min, and administrative staff reported <30 min. Given the limited number of bioaerosol and surface samples positive for influenza virus in the bioaerosol and surface samples, the absence of influenza virus on the surgical masks provides inconclusive evidence for the potential to use surgical masks to assess exposure to influenza viruses. Further studies are needed to determine feasibility of this approach in assessing healthcare personnel exposures. Information learned in this study can inform future field studies on influenza transmission.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 04 Oct 2018 (Available with AIHA membership)

Environmental Health

U.S. Prepares for Biggest-Ever Agent Orange Cleanup in Vietnam

U.S. Defense Secretary Jim Mattis on Wednesday visited a former American air base in southern Vietnam that will soon become the biggest-ever U.S. cleanup site for contamination left by the defoliant Agent Orange during the Vietnam War.

Standing near a skull-and-crossbones warning sign meant to keep people away from toxic soil, Mattis was briefed by Vietnamese officials about the massive contamination area. In a possible sign of the sensitivity surrounding Agent Orange in Vietnam, where millions of people are still suffering its effects, reporters were not allowed to attend the outdoor briefing for Mattis at Bien Hoa Air Base.

Climate Change Poses Large-Scale Threat to Mental Health

A large body of evidence supports the findings that environmental stressors produced by climate change negatively impact human mental health. Using meteorological data plus sampling data from almost 2 million U.S. residents across a 10-year span, researchers found that both hotter temperatures and added precipitation worsen mental health.

Read more: https://www.healio.com/psychiatry/practice-management/news/online/%7Be13d5c23-0f38-49a5-a426-2397600f0715%7D/climate-change-poses-large-scale-threat-to-mental-health

When It Comes to Respiratory Effects of Wood Smoke, Sex Matters

Exposure to wood smoke can have different effects on the respiratory immune systems of men and women -- effects that may be obscured when data from men and women are lumped together, according to a study published today in the American Journal of Respiratory and Critical Care Medicine by scientists at the UNC School of Medicine and the UNC Gillings School of Global Public Health.

The scientists exposed men and women volunteers to wood smoke or filtered air prior to inoculating them with a standard dose of the live-attenuated influenza virus vaccine, which causes a natural, yet mild, immune response in the nasal passages. They then later discovered that the men exposed to wood smoke had significantly higher markers of an inflammatory response in cells that line the nasal passages relative to men exposed to filtered air. By contrast, for women, the wood smoke exposure appeared to lower markers of the inflammatory response.

Read more: https://www.sciencedaily.com/releases/2018/10/181026083024.htm
A Randomized Controlled Trial of a Truck Seat Intervention: Part 1—Assessment of Whole Body Vibration Exposures

Full-time vehicle and heavy equipment operators often have a high prevalence of musculoskeletal disorders, especially low back pain (LBP). In occupations requiring vehicles or heavy equipment operation, exposure to whole body vibration (WBV) has been consistently associated with LBP. LBP is the most common cause of work-related disability and continues to be the leading cause of morbidity and lost productivity in the US workforce. Using a parallel randomized controlled trial design, over a 12-month period, this study evaluated two different seating interventions designed to reduce WBV exposures. Forty professional truck drivers were initially recruited and randomly assigned to one of two groups: (i) a passive suspension/control group—20 drivers who received a new, industry-standard air-suspension seat, and (ii) an intervention group—20 drivers who received an active-suspension seat, which has been shown to reduce vertical WBV exposures by up to 50% compared to passive seats. WBV exposures from the truck seat and floor were collected during driver’s full shifts (6–18 h) before (pre-intervention) and after the intervention (0, 3, 6, and 12 months post-intervention) per International Standards Organization (ISO) 2631-1 and 2631–5 WBV standards. After subject dropout and turnover, 16 truck drivers remained in each group. The pre-intervention WBV data showed that there were no differences in the daily equivalent time-weighted average WBV exposures [A(8)], vibration dose values [VDV(8)], and static spinal compression doses [Sed(8)] between the two groups (P’s > 0.36). After the new seats were installed, the A(8) values showed that the active suspension/intervention group experienced much greater reduction in the vertical (z) axis [~50%; P = <0.0001; Cohen’s d effect size (95% CI) = 1.80 (1.12, 2.48)] exposures when compared to in the passive suspension/control group [~20%; P = 0.23; 0.33 (−0.36, 1.02)]. The post-intervention z-axis VDV(8) and Sed(8) WBV exposure measures were not different between the two seat groups [VDV(8), P = 0.33; 0.35 (−0.32, 1.03); Sed(8), P = 0.61; 0.08 (−0.59, 0.76)]. These study findings indicate that, relative to the current industry-standard, passive air-suspension seats which are ubiquitous in all semi-trucks today, the active suspension seat dramatically reduced
average continuous [A(8)] WBV exposures but not periodic, cumulative impulsive exposures [VDV(8) and Sed(8)].


Safety

Actual and Simulated Weather Data to Evaluate Wet Bulb Globe Temperature and Heat Index as Alerts for Occupational Heat-Related Illness

Heat stress occupational exposure limits (OELs) were developed in the 1970s to prevent heat-related illnesses (HRIs). The OELs define the maximum safe wet bulb globe temperature (WBGT) for a given physical activity level. This study’s objectives were to compute the sensitivity of heat stress OELs and determine if Heat Index could be a surrogate for WBGT. We performed a retrospective analysis of 234 outdoor work-related HRIs reported to the Occupational Safety and Health Administration in 2016. Archived NOAA weather data were used to compute each day’s maximum WBGT and Heat Index. We defined the OELs’ sensitivity as the percentage of incidents with WBGT > OEL. Sensitivity of the OELs was between 88% and 97%, depending upon our assumption about acclimatization status. In fatal cases, the OELs’ sensitivity was somewhat higher (92% to 100%). We also computed the sensitivity of each possible Heat Index discrimination threshold. A Heat Index threshold of 80°F (26.7°C) was exceeded in 100% of fatalities and 99% of non-fatal HRIs. In a separate analysis, we created simulated weather data to assess associations of WBGT with Heat Index over a range of realistic outdoor heat conditions. These simulations demonstrated that for a given Heat Index, when radiant heat was included, WBGT was often higher than previously reported. The imperfect correlation between WBGT and Heat Index precluded a direct translation of OELs from WBGT into Heat Index. We conclude that WBGT-based heat stress exposure limits are
highly sensitive and should be used for workplace heat hazard assessment. When WBGT is unavailable, a Heat Index alert threshold of approximately 80°F (26.7°C) could identify potentially hazardous workplace environmental heat.

**More than Two-Thirds of Employees Are Tired at Work**

According to a survey report released Oct. 1 by the National Safety Council, 69 percent of employees are tired on the job, which increases the risk of workplace injuries and incidents. The report focuses on results from high-risk industries where fatigue can have dire consequences for those in safety-critical positions.

The report, Fatigue in Safety-Critical Industries: Impact, Risks and Recommendations, summarizes the results of two national surveys. One survey was given to employers and the other was a probability-based survey given to employees. The report focuses on industries such as construction, manufacturing, transportation, and utilities, which often use shift work, a common risk factor for fatigue.

Efficacy of Four Cleaning Solutions for the Decontamination of Selected Cytotoxic Drugs on the Different Surfaces of an Automated Compounding System

The automated aseptic preparation of ready-to-administer antineoplastic drug solutions with robotic systems reduces the risk of occupational exposure. However, the surfaces in the preparation area of the robot are to be cleaned by wiping with an appropriate cleaning solution. The aim of the study was to evaluate the cleaning efficacy of four cleaning solutions on four surface materials installed in the APOTECAchemo robot. Predefined amounts of cisplatin (Cis), 5-fluorouracil (5-FU) and cyclophosphamide (CP) were intentionally spread on test plates made of stainless steel, aluminium, polyoxymethylene and polycarbonate just as installed in the robotic system APOTECAchemo. After drying, the plates were cleaned with 0.2% ethanolic NaOH, 0.23% isopropanolic sodium dodecylsulfate (SDS-2P), 0.5% sodium hypochlorite (NaOCl), and 0.1% benzalkonium chloride (BZK) solutions following a standardized wiping protocol. Residual contamination was recovered with wipe tests, Pt was quantified by voltammetry, and 5-FU and CP was quantified by gas chromatography-tandem mass spectrometry (GC-MSMS). The mean residual contamination after cleaning and the cleaning efficacy (CE) rates were calculated and aggregated on different levels. The CE rates varied between 81.5% and 100% and lay in the majority of cases above 90%. The lowest CE rates were registered for Pt contamination. Especially on aluminium surfaces the residual contamination was high. The overall CE rates of the three different drugs and four different surface types amounted to 98.3% for NaOCl, 97.9% for SDS-2P, 96.9% for ethanolic NaOH, and 96.5% for BZK. The tested cleaning solutions proved to be higher than 90% in most cases, but none of them was able to eliminate 100% of the intentional surface contamination of three antineoplastic drugs on the test plates. The cleaning efficacy varied according to the different surface types and antineoplastic drug. Results could be used in the daily clinical practice to develop and implement effective cleaning procedures.

Read more: Journal of Occupational and Environmental Hygiene, Accepted author version posted online: 19 Sep 2018 (Available with AIHA membership)
10 Work Safety Violations to Avoid

The Occupational Safety and Health Administration (OSHA) recently announced the 10 most frequently cited work safety violations for 2018. New to the list in 2018 was “eye and face protection,” ranked at No. 10.

“Knowing how workers [get] hurt can go a long way toward keeping them safe,” said Deborah A.P. Hersman, CEO and president of the National Safety Council in a recent press release. “OSHA Top 10 list calls out areas that require increased vigilance to ensure everyone goes home safely each day.” This year’s top ten are:

1. Fall protection, general requirements
2. Hazard communication
3. Scaffolding
4. Respiratory protection
5. Lockout/tagout
6. Ladders
7. Powered industrial trucks
8. Fall protection, training requirements
9. Machine guarding
10. Eye and face protection

Read more: https://www.agweb.com/article/10-work-safety-violations-to-avoid/

Construction Personal Protective Equipment for the Female Workforce

In 2015, women accounted for only 2.2% of production occupations in construction, which is one-sixth the level of “all other industries.” One of the challenges facing women in the construction industry is finding personal protective equipment (PPE) that fits properly. This is a serious issue because PPE that does not fit properly will not adequately protect against occupational hazards and may increase the risk for illnesses, injuries and death. For example, oversized protective clothing can lead to tripping hazards or get caught in machinery and result in a serious injury. Poorly fitted fall protection harnesses may lead to other injuries or may not be effective in the event
of a fall. Similarly, gloves that are too big put a worker at risk of coming in contact with chemicals that can cause dermatitis or other skin diseases.

Read more:

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**Patient Care in Chemical and Biological Attacks**

"We wrote this article to help neurohospitalists and other health care providers identify unusual neurologic illnesses that could result from potential biological or chemical attacks," said senior author Daniel M. Pastula, MD, MHS. "While we hope such attacks never happen, our goal is to provide a resource for health care providers so that we can all be prepared in an emergency."

Read more:
https://www.sciencedaily.com/releases/2018/10/181026121528.htm
**Even A Little Bit of Poison Is Still ... Poison**

When soldiers are exposed to small doses of toxins, their symptoms may be mistaken for common illness. Doctors can miss a key window for delivering early treatment, and military planners may never know that chemical or other hazards were present on the battlefield.

With this in mind, scientists at the U.S. Army Edgewood Chemical Biological Center at Aberdeen Proving Ground, Maryland, are developing a more accurate detector. “Right now we have samplers, not detectors,” said Bruce King, a research chemist at the center. “Our real-time tools are not very specific. They maybe look at just a class of chemicals, so a pesticide would look just like [nerve agent] VX on current wearable sensor technology.”


**A Review of Workplace Risk Management Measures for Nanomaterials to Mitigate Inhalation and Dermal Exposure**

This review describes an evaluation of the effectiveness of Risk Management Measures (RMM) for nanomaterials in the workplace. Our aim was to review the effectiveness of workplace RMM for nanomaterials and to determine whether established effectiveness values of conventional chemical substances applied for modelling purposes should be adopted.
or revised based on available evidence. A literature review was conducted to collate nano-specific data on workplace RMM. Besides the quantitative efficacy values, the library was populated with important covariables such as the study design, measurement type, size of particles or agglomerates/aggregates, and metrics applied. In total 770 records were retrieved from 41 studies for three general types of RMM (engineering controls, respiratory equipment and skin protective equipment: gloves and clothing). Records were found for various sub-categories of the different types of RMM although the number of records for each was generally limited.


DOL Proposes Change in HO 7 on Patient Lifts

The NPRM points out that some members of Congress have sought this change for several years, contending that the current HO 7 discourages health care employers in their states from employing 16- and 17-year-olds, which deprives the teens of training opportunities and causes staff shortages in health facilities, particularly those located in rural areas.

Army Industrial Hygiene News and Regulatory Summary

OSHA

Agenda Outlines OSHA Rulemaking Plans for Emergency Response, Beryllium

Occupational health and safety issues listed on the Department of Labor’s most recent regulatory agenda include emergency response and preparedness, workplace violence in healthcare and social assistance, and revisions to OSHA’s beryllium and crystalline silica standards. The agenda was released last week.

Read more:

EPA

Evaluation and Optimization of Pharmacokinetic Models for in Vitro to in Vivo Extrapolation of Estrogenic Activity for Environmental Chemicals

In vitro assays are routinely used to provide mechanistic insight on the bioactivity of xenobiotics and offer the potential for more human-relevant, humane, and efficient alternatives to toxicity testing in animals. Over the past decade, significant effort has been devoted to overcoming the many challenges associated with implementing high-throughput screening (HTS) programs for environmental chemicals (e.g., establishing and managing chemical libraries, chemical dispensing, analytical quality control (QC), data processing and management, analytical precision, etc.)
EPA Edges into 15 Percent Ethanol Blend

A contentious U.S. EPA decision allowing higher blends of ethanol into gasoline is unlikely to spur immediate changes at corner gas stations, industry officials said yesterday.

EPA approved the use of 15 percent ethanol in newer model vehicles yesterday, drawing fire from unlikely bedfellows, including some environmental groups and the auto industry, which called the decision "premature." Meanwhile, ethanol advocates said the approval did not go far enough.

Read more: https://www.scientificamerican.com/article/epa-edges-into-15-percent/
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This monthly summary is published by the Industrial Hygiene Program Management Division for the Army Public Health Center.

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### Professional Development and Career Programs

For Army Industrial Hygienists and Industrial Hygiene Technicians, Professional Development is through the Army Safety and Occupational Health (SOH) Career Program, known as Career Program 12 (CP-12).

Career Programs were established to ensure there is an adequate base of qualified and trained professional, technical, and administrative personnel to meet the Army’s current and future needs.

Planned training and development are essential elements to building a successful career.

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