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Army Industrial Hygiene News and Regulatory Summary

Hazardous Substances

Surgical Smoke Generated in Utah Operating Rooms Contains Same Hazards As Cigarette Smoke, Report Says

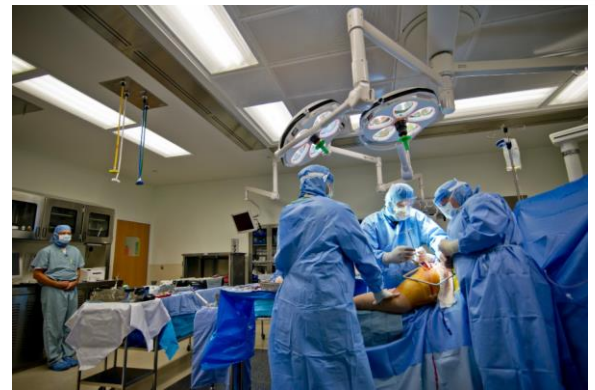
Special Interest Articles:

- [Detecting Radiation](#)
- [Soft Drinks](#)
- [Mixtures](#)
- [Spring Weather](#)
- [NIOSH Strategic Plan](#)

We've come a long way in limiting cigarette smoke in public places, but half a million health care workers in the U.S. are still exposed to cancer-causing smoke every year, according to the Occupational Safety and Health Administration, or OSHA.

We're all familiar with the "Mad Men" era of smoke-filled rooms, but this isn't the 1960s. It's what many operating rooms look like today. Surgical plumes are similar to cigarette smoke, and have the same dangers.

"What we just burned right there, basically, I just smoked two cigarettes," said Lisa Young, an operating room nurse with Shriners Hospitals for Children-Salt Lake City.



Several tools used in the OR like electro-surgery units and lasers, produce smoke.

Read more:

<https://www.ksl.com/article/46511047/surgical-smoke-generated-in-utah-operating-rooms-contains-same-hazards-as-cigarette-smoke-report-says>

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Contents:



Hazardous Substance	1
Radiation	7
Ventilation	7
PPE	8
Noise	9
Preventive Medicine	10
Environmental Health	13
Ergonomics	16
Safety	17
Emergency Preparedness & Response	19
Deployment Health	20
Nanotech	20
Regulatory Research & IH News	21
Training	24

Toxicological Assessment of Dust from Sanding Micronized Copper-Treated Lumber In Vivo



Micronized copper azole (MCA) is a lumber treatment improve longevity. In this study, the in vivo response to PM2.5 sanding dust generated from MCA-treated lumber was compared to that of untreated yellow pine (UYP) or soluble copper azole-treated (CA-C) lumber to determine if the MCA was more bioactive than CA-C. Mice were exposed to doses (28, 140, or 280 µg/mouse) of UYP, MCA, or CA-C sanding dust using oropharyngeal aspiration. Bronchoalveolar lavage fluid (BALF) lactate dehydrogenase activity was increased at 1 day post-exposure to 280 µg/mouse of MCA and CA-C compared to UYP. BALF polymorphonuclear

cells were increased by MCA and CA-C. There were increases in BALF cytokines in MCA and CA-C-exposed groups at 1 day post-exposure. Lung histopathology indicated inflammation with infiltration of neutrophils and macrophages. Pulmonary responses were more severe in MCA and CA-C-exposed groups at 1 day post-exposure. MCA caused more severe inflammatory responses than CA-C at 1 day post-exposure. These findings suggest that the MCA and CA-C sanding dusts are more bioactive than the UYP sanding dust, and, moreover, the MCA sanding dust is more bioactive in comparison to the CA-C sanding dust. No chronic toxic effects were observed among all observed sanding dusts. vant particle sizes.

Read more:

<https://www.sciencedirect.com/science/article/pii/S0304389419301980>

E-Cigarette Nicotine Deposition and Persistence on Glass and Cotton Surfaces

Nicotine from electronic cigarette aerosol will deposit on surfaces immediately after vaping, but how long deposited nicotine will persist on various surfaces is unknown. This work exposed glass and terrycloth (cotton) materials to electronic cigarette aerosols for 1 hr, assessed the initial nicotine sorption, and characterized surface persistence over a 72-hr period. Exponential decay of surface concentration was observed for both materials. Terrycloth had higher initial nicotine deposition and retained nicotine substantially longer than glass. Residual nicotine concentrations persisted on both surface types for 72 hr. Statistical modeling predicted surface concentrations to reach background levels after 4 and 16 days for glass and terrycloth, respectively. Nicotine persistence was long enough to pose a potential thirdhand nicotine exposure risk, and reactions to produce tobacco-specific nitrosamines may be possible from nicotine deposition from



electronic cigarette aerosols, but further study is needed.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 14 Mar 2019 (Available with AIHA membership)

Modelling of Exposure to Respirable and Inhalable Welding Fumes at German Workplaces



The International Agency for Research on Cancer classified welding fumes as carcinogenic to humans, and occupational exposure limits should be

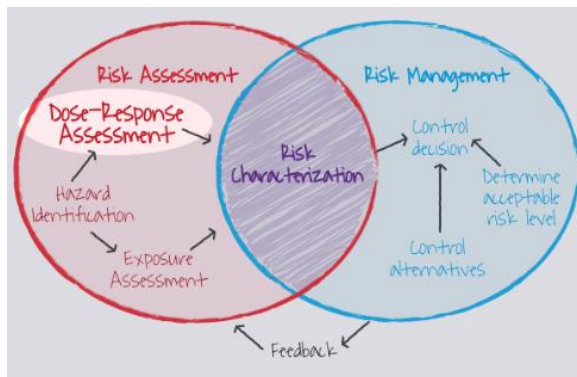
established to protect welders. The aim of this study is to estimate exposure levels to inhalable and respirable welding fumes by welding process to use them for exposure assessment in epidemiological studies and to derive occupational exposure limits. In total, 15,473 mass concentrations of inhalable and 9,161 concentrations of respirable welding fumes could be analyzed

along with welding-related and sampling information, which were compiled in the German database MEGA between 1983 and 2016. In both particle-size fractions, model-based geometric means of the concentrations were estimated by welding process and material for frequently used welding processes adjusted for sampling time and median-centered for calendar years. The inhalable concentrations were approximately twice the respirable concentrations, with medians of 3 mg/m³ (inter-quartile range: 1.2–7.0 mg/m³) and 1.5 mg/m³ (inter-quartile range: < limit of detection –3.8 mg/m³), respectively. The adjusted geometric means of flux-cored arc welding, metal inert and active gas welding, shielded metal arc welding and torch

cutting ranged from 0.9 to 2.2 mg/m³ for respirable welding fumes and from 2.3 to 4.7 mg/m³ for inhalable fumes. In both particle-size fractions, geometric means were between 0.1 and 0.9 mg/m³ when performing tungsten inert gas, autogeneous, resistance, laser, and plasma welding or spraying. Results derived from this large dataset are useful for a quantitative exposure assessment to estimate health risks of welders.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 25 Mar 2019 (Available with AIHA membership)

Derivation of Internal Dose-Based Thresholds of Toxicological Concern for Occupational Inhalation Exposure to Systemically Acting Organic Chemicals



This study aimed at deriving occupational thresholds of toxicological concern for inhalation exposure to systemically-acting organic chemicals using predicted internal doses. The latter were also used to evaluate the quantitative relationship between occupational exposure limit and internal

dose. Three internal dose measures were identified for investigation: (i) the daily area under the venous blood concentration vs. time curve, (ii) the daily rate of the amount of parent chemical metabolized, and (iii) the maximum venous blood concentration at the end of an 8-hr work shift. A dataset of 276 organic chemicals with 8-hr threshold limit values-time-weighted average was compiled along with their molecular structure and Cramer classes (Class I: low toxicity, Class II: intermediate toxicity, Class III: suggestive of significant toxicity). Using a human physiologically-based pharmacokinetic model, the three identified dose metrics were predicted for an 8-hr occupational inhalation exposure to the

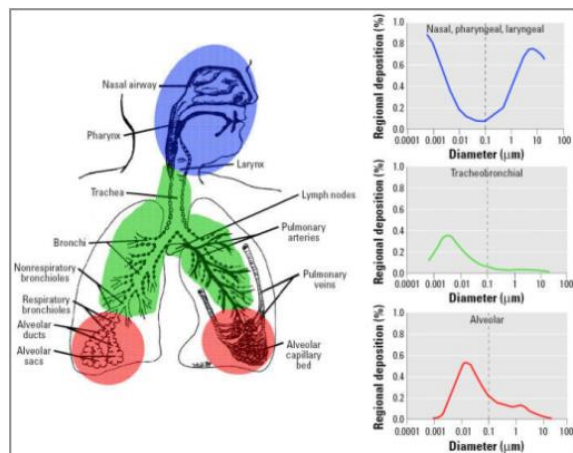
threshold limit value for each chemical. Distributional analyses of the predicted dose metrics were performed to identify the percentile values corresponding to the occupational thresholds of toxicological concern. Also, simple linear regression analyses were performed to evaluate the relationship between the 8-hr threshold limit value and each of the predicted dose metrics, respectively. No threshold of toxicological concern could be derived for class II due to few chemicals. Based on the daily rate of the amount of parent chemical metabolized, the proposed internal dose-based occupational thresholds of toxicological concern were 5.61×10^{-2} and 9×10^{-4} mmol/d at the 10th percentile level for classes I and III, respectively, while they were 4.55×10^{-1} and 8.5×10^{-3}

mmol/d at the 25th percentile level. Even though high and significant correlations were observed between the 8-hr threshold limit values and the predicted dose metrics, the one with the rate of the amount of chemical metabolized was remarkable regardless of the Cramer class ($r^2 = 0.81$; $n = 276$). The proposed internal dose-based occupational thresholds of toxicological concern are potentially useful for screening-level assessments as well as prioritization within an integrated occupational risk assessment framework.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 14 Mar 2019 (Available with AIHA membership)

Collection of Airborne Ultrafine Cellulose Nanocrystals by Impinger with an Efficiency Mimicking Deposition in the Human Respiratory System

As cellulose nanocrystals (CNCs) are increasing in production, establishing safe workplace practices in industry will be paramount to their continued use and growth. Particles other than CNCs with similar high aspect ratios have exhibited toxicity on inhalation. Safeguards are needed to monitor concentrations of CNCs in air in industrial and laboratory settings to protect workers. However, because of their size, morphology, and chemical makeup, CNCs are difficult to characterize and differentiate from other dust and cellulose products. This work is focused on developing an effective method of characterizing the concentration of airborne



ultrafine CNCs that may deposit in the respiratory tract. CNCs were tagged with rhodamine b (RhB-CNCs) for improved visualization and characterized using UV-vis

spectroscopy (UV-vis), transmission electron microscopy (TEM), and dynamic light scattering (DLS), then aerosolized and collected via a novel method using plastic impingers. Concentration of RhB-CNCs was measured using UV-vis and scanning mobility particle sizer (SMPS). The plastic impinger with 3D-printed nozzle collected

airborne CNCs at an efficiency that improves upon commercially available impingers for relevant particle sizes.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 01 Mar 2019 (Available with AIHA membership)

Evaluating Glyphosate Exposure Routes and Their Contribution to Total Body Burden: A Study among Amenity Horticulturalists



Objective

To evaluate determinants of dermal and inadvertent ingestion exposure and assess their contribution to total body burden among amenity horticultural users using glyphosate-based pesticide products.

Methods

A dermal and inadvertent ingestion exposure assessment was completed alongside a biomonitoring study among amenity horticultural workers. Linear mixed effect regression models were elaborated to evaluate determinants of exposure and their contribution to total body burden.

Results

A total of 343 wipe and glove samples were collected from 20 workers across 29 work tasks. Geometric mean (GM) glyphosate concentrations of 0.01, 0.04 and 0.05 $\mu\text{g cm}^{-2}$ were obtained on wipes from the workers' perioral region and left and right hands, respectively. For disposable and reusable gloves, respectively, GM glyphosate concentrations of 0.43 and 7.99 $\mu\text{g cm}^{-2}$ were detected. The combined hand and perioral region glyphosate concentrations explained 40% of the variance in the urinary ($\mu\text{g l}^{-1}$) biomonitoring data.

Read more:

<https://academic.oup.com/annweh/article/63/2/133/5273149>

Radiation

Detecting Radioactive Material Remotely

Physicists at the University of Maryland have developed a powerful new method to detect radioactive material. By using an infrared laser beam to induce a phenomenon known as an electron avalanche breakdown near the material, the new technique is able to detect shielded material from a distance. The method improves upon current technologies that require close proximity to the radioactive material.

With additional engineering advancements, the method could be scaled up and used to scan trucks and shipping containers at ports of entry, providing a powerful new tool to detect concealed, dangerous radioactive material. The researchers described their



proof-of-concept experiments in a research paper published in the journal *Science Advances*.

Read more:

<http://www.homelandsecuritynewswire.com/dr20190325-detecting-radioactive-material-remotely>

Ventilation

Kinetics of Isoflurane and Sevoflurane in a Unidirectional Displacement Flow and the Relevance to Anesthetic Gas Exposure by Operating Room Personnel

International guidelines recommend the use of ventilation systems in operating rooms to reduce the concentration of potentially hazardous substances such as anesthetic gases. The exhaust air grilles of these systems are typically located in the lower corners of the operating room and

pick up two-thirds of the air volume, whereas the final third is taken from near the ceiling, which guarantees an optimal perfusion of the operating room with a sterile filtered air supply.

Army Industrial Hygiene News and Regulatory Summary



However, this setup is also employed because anesthetic gases have a higher molecular weight than the components of air and should pool on the floor if movement is kept to a minimum and if a ventilation system with a unidirectional displacement flow is employed. However, this anticipated pooling of volatile anesthetics at the floor level has never been

proven. Thus, we herein investigated the flow behaviors of isoflurane, sevoflurane, and carbon dioxide (for comparison) in a measuring chamber sized $2.46 \times 1.85 \times 5.40$ m with a velocity of 0.3 m/sec and a degree of turbulence $<20\%$. Gas concentrations were measured at 1,728 measuring positions throughout the measuring chamber, and the flow behaviors of isoflurane and sevoflurane were found to be similar, with an overlap of 90%. The largest spread of both gases was 55 cm at 5.4 m from the emission source. Interestingly, neither isoflurane nor sevoflurane was detected at floor level, but a continuous cone-like spreading was observed due to gravity. In contrast, carbon dioxide accumulated at floor level in the form of a gas cloud. Thus, floor level exhaust ventilation systems are likely unsuitable for the collection and removal of anesthetic gases from operating rooms.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 09 Mar 2019 (Available with AIHA membership)

PPE

Fogging Issues with Safety Glasses

The past three to five years have seen a rapid increase in anti-fog lens-coating technologies led by nearly every major eye protection manufacturer around the world. Specifically in North America, manufacturers are marketing their anti-fog



technology as industry-leading and outperforming the competition. And it seems that all the major manufacturers now offer a “premium” anti-fog coating/material above and beyond the standard anti-fog coating of years past.

Read more:

<https://www.safetyandhealthmagazine.com/articles/18174-fogging-issues-with-safety-glasses>

Noise

People under Age 50 with Hearing Loss More Likely to Misuse Alcohol and Drugs



People under age 50 with hearing loss misuse prescription opioids at twice the

rate of their hearing peers, and are also more likely to misuse alcohol and other drugs, a new national study finds.

This means that health care providers may need to take special care when treating pain and mental health conditions in deaf and hard-of-hearing young adults, the researchers say.

Read more: <https://www.news-medical.net/news/20190326/People-under-age-50-with-hearing-loss-more-likely-to-misuse-alcohol-and-drugs.aspx>

Sensorineural Hearing Loss and Volatile Organic Compound Metabolites in Urine

Oxidative stress in the auditory system contributes to acquired sensorineural hearing loss. Systemic oxidative stress, which may predict auditory oxidative stress, can be assessed by measuring volatile organic compound metabolite concentrations in urine. The purpose of this



retrospective study was to determine if hearing decreased in those with higher concentrations of urinary volatile organic compound metabolites.

Participants were grouped into quartiles based on concentration for each metabolite separately because many individuals were

at the lower limit of concentration detection for several metabolites, leading to a non-normal distribution.

Read more:

<https://www.sciencedirect.com/science/article/pii/S0196070919300626>

Preventive Medicine

Case Investigations of Infectious Diseases Occurring in Workplaces, United States, 2006–2015



Workers in specific settings and activities are at increased risk for certain infectious diseases. When an infectious disease case occurs in a worker, investigators need to understand the mechanisms of disease propagation in the workplace. Few publications have explored these factors in

the United States; a literature search yielded 66 investigations of infectious disease occurring in US workplaces during 2006–2015. Reported cases appear to be concentrated in specific industries and occupations, especially the healthcare industry, laboratory workers, animal workers, and public service workers. A hierarchy-of-controls approach can help determine how to implement effective preventive measures in workplaces. Consideration of occupational risk factors and control of occupational exposures will help prevent disease transmission in the workplace and protect workers' health.

Read more:

https://wwwnc.cdc.gov/eid/article/25/3/18-0708_article

Soft Drinks, Heat and Exertion May Be a Recipe for Kidney Disease, Study Finds

Outdoor workers, take note: Drinking an ice-cold soda may help quench your thirst on a hot day. But it also may increase your risk for kidney disease, results of a recent study suggest.

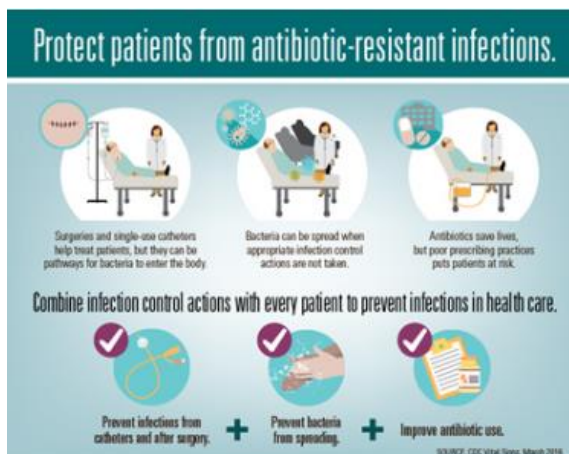
Researchers from the University at Buffalo had study participants take part in a 45-minute exercise routine in a room set at 95° F, followed by a 15-minute break. During the break, participants drank 16 ounces of high-fructose, caffeinated soft drinks or water. This cycle was repeated three more times in succession. After the four-hour trial, participants were given a final drink that was either 1 liter or the equivalent of 115 percent of their body weight lost through sweating.



Read more:

<https://www.safetyandhealthmagazine.com/articles/18118-soft-drinks-heat-and-exertion-may-be-a-recipe-for-kidney-disease-study-finds>

Contamination with MDROS after Patient Interaction Common, Study Finds



Researchers at a large tertiary-care teaching hospital in Chicago reported today in Infection Control and Epidemiology that more than a third of healthcare workers were contaminated with a multidrug-resistant organism (MDRO) after caring for patients infected or colonized with the bacteria, and that errors in donning personal protective equipment increased the risk of contamination.

The study, conducted at Rush University Medical Center in Chicago, enrolled 125

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healthcare workers (mainly physicians and nurses) who were caring for patients on contact precautions for methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant Enterococci, and multidrug-resistant gram-negative pathogens.

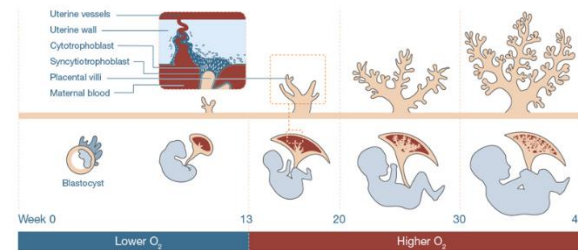
Read more:

<https://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20054261&f1=%2A&Staryear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&>

Maternal Titanium Dioxide Nanomaterial Inhalation Exposure Compromises Placental Hemodynamics

The fetal consequences of gestational engineered nanomaterial (ENM) exposure are unclear. The placenta is a barrier protecting the fetus and allowing transfer of substances from the maternal circulation. The purpose of this study was to determine the effects of maternal pulmonary titanium dioxide nanoparticle (nano-TiO₂) exposure on the placenta and umbilical vascular reactivity. We hypothesized that pulmonary nano-TiO₂ inhalation exposure increases placental vascular resistance and impairs umbilical vascular responsiveness

Placental Development: Fertilization to Full Term

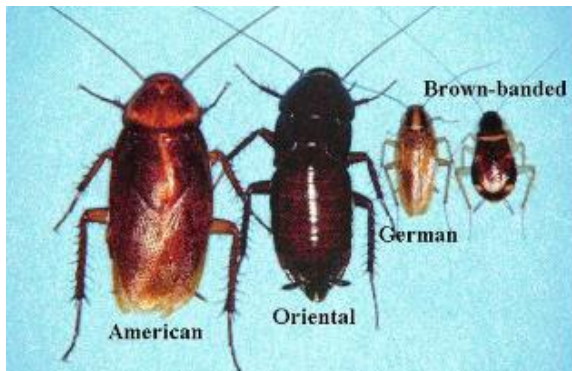


<https://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20054789&f1=%2A&Staryear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&>

Read more:

[https://www2a.cdc.gov/nioshtic-](https://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20054789&f1=%2A&Staryear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&)

Iranian Researchers Report High MRSA Rates in Hospital Cockroaches



Iranian investigators have discovered a high rate of methicillin-resistant *Staphylococcus aureus* (MRSA), a common superbug, in two types of cockroaches found in hospitals, according to a study yesterday in *Antimicrobial Resistance & Infection*

The group collected 533 *Periplaneta americana* and *Blattella germanica*

cockroaches and isolated bacteria from their gut content and exoskeleton.

[perspective/2019/03/stewardship-resistance-scan-mar-14-2019](http://www.cidrap.umn.edu/news-perspective/2019/03/stewardship-resistance-scan-mar-14-2019)

Read more:

<http://www.cidrap.umn.edu/news->

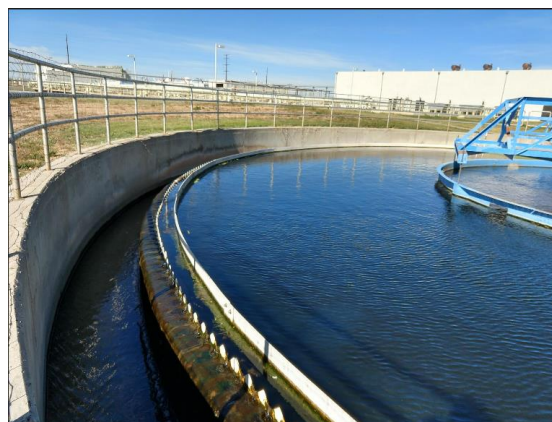
Environmental Health

Wastewater Is an Asset – It Contains Nutrients, Energy and Precious Metals, and Scientists Are Learning How to Recover Them

Most people think as little as possible about the wastewater that is produced daily from their showers, bathtubs, sinks, dishwashers and toilets. But with the right techniques, it can become a valuable resource.

On average, every Americans uses about 60 gallons of water per day for purposes that include flushing toilets, showering and doing laundry. This figure can easily double if outdoor uses, such as watering lawns and filling swimming pools, are also included.

Most of the used water will eventually become wastewater that must be treated before it can be discharged into nature. And that treatment uses a lot of energy. According to the U.S. Environmental Protection Agency, water and wastewater



facilities account for more than a third of municipal energy budgets.

Read more:

<https://theconversation.com/wastewater-is-an-asset-it-contains-nutrients-energy-and-precious-metals-and-scientists-are-learning-how-to-recover-them-113264>

Efficacy of Paired Electrochemical Sensors for Measuring Ozone Concentrations

Typical low-cost electrochemical sensors for ozone (O₃) are also highly responsive to nitrogen dioxide (NO₂). Consequently, a

single sensor's response to O₃ is indistinguishable from its response to NO₂. Recently, a method for quantifying O₃

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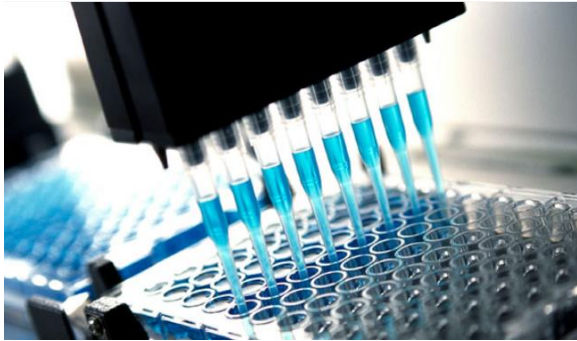
concentrations became commercially available (Alphasense Ltd., Essex, UK): collocating a pair of sensors, a typical oxidative gas sensor that responds to both O₃ and NO₂ (model OX-B431) and a second similar sensor that filters O₃ and responds only to NO₂ (model NO₂-B43F). By pairing the two sensors, O₃ concentrations can be calculated. We calibrated samples of three NO₂-B43F sensors and three OX-B431 sensors with NO₂ and O₃ exclusively and conducted mixture experiments over a range of 0–1.0 ppm NO₂ and 0–125 ppb O₃ to evaluate the ability of the paired sensors to quantify NO₂ and O₃ concentrations in mixture. Although the slopes of the response among our samples of three sensors of each type varied by as much as 37%, the individual response of the NO₂-B43F sensors to NO₂ and OX-B431 sensors to NO₂ and O₃ were highly linear over the concentrations studied ($R^2 \geq 0.99$). The NO₂-B43F sensors responded minimally to O₃ gas with statistically non-significant slopes of response. In mixtures of NO₂ and O₃, quantification of NO₂ was generally accurate with overestimates up to 29%, compared to O₃, which was generally underestimated by as much as 187%. We observed changes in sensor baseline over 4 days of experiments equivalent to 34 ppb O₃, prompting an alternate method of



calculating concentrations by baseline-correcting sensor signal. The baseline-correction method resulted in underestimates of NO₂ up to 44% and decreases in the underestimation of O₃ up to 107% for O₃. Both methods for calculating gas concentrations progressively underestimated O₃ concentrations as the ratio of NO₂ signal to O₃ signal increased. Our results suggest that paired NO₂-B43F and OX-B431 sensors permit quantification of NO₂ and O₃ in mixture, but that O₃ concentration estimates are less accurate and precise than those for NO₂.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 21 Mar 2019 (Available with AIHA membership)

Health Risks Associated With Mixtures of Man-Made Chemicals Are Underestimated



The cocktail of man-made chemicals that we are exposed to daily is a health risk which current regulations and risk assessment overlook. This is the conclusion of the EU Horizon 2020 EDC-MixRisk project that is now being presented.

We are exposed to a large number of man-made chemicals in our everyday life. This

creates combinations of chemical mixtures, to which we are subjected during our whole lifespan. Current risk assessment and management practices, however, focus mainly on exposure to single substances. Exposure to hazardous substances, especially endocrine disrupting chemicals (EDCs), during the foetal period is of particular concern, as it can lead to irreversible changes in the development of organs and tissues and increased susceptibility to diseases later in life.

Read more:

<https://medicalxpress.com/news/2019-03-health-mixtures-man-made-chemicals-underestimated.html>

Environmental Degradation Threat to Health, Says UN

Environmental degradation due to factors such as urbanisation, rapid population growth, economic development and transportation, especially in the global south, could have serious consequences on people's health, warns a UN report.

The report cautions that cities and regions in Africa, Asia and the Middle East could see millions of premature deaths by 2050, while pollutants in freshwater systems could lead to anti-microbial resistance becoming a major cause of death globally.



Scientists and experts who compiled the sixth Global Environmental Outlook report

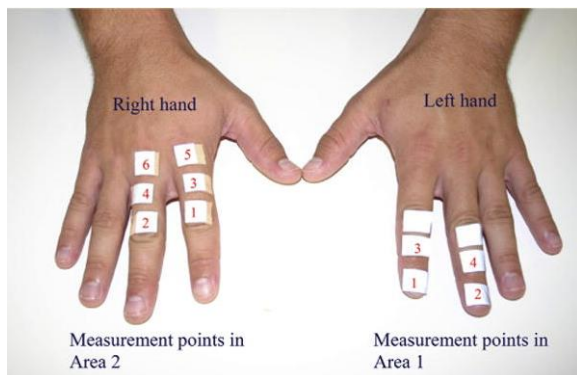
released at the UN Environment Assembly (11-15 March) in Nairobi are calling for urgent action to reduce land degradation, air pollution, and biodiversity loss, and improve climate change mitigation, water management and disaster prevention and response.

Read more:

<https://www.enn.com/articles/57189-environmental-degradation-threat-to-health-says-un>

Ergonomics

Development of a Finger Adapter Method for Testing and Evaluating Vibration-Reducing Gloves and Materials



The objective of this study was to develop a convenient and reliable adapter method for testing and evaluating vibration-reducing (VR) gloves and VR materials at the fingers. The general requirements and technical specifications for the design of the new adapter were based on our previous studies of hand-held adapters for vibration measurement and a conceptual model of

the fingers-adapter-glove-handle system developed in this study. Two thicknesses (2 mm and 3 mm) of the adapter beam were fabricated using a 3-D printer. Each adapter is a thin beam equipped with a miniature tri-axial accelerometer (1.1 g) mounted at its center, with a total weight > 2.2 g. To measure glove vibration transmissibility, the adapter is held with two gloved fingers; a finger is positioned on each side of the accelerometer.

Read more:

<https://www2a.cdc.gov/nioshtic-2/BuildQyr.asp?s1=20054680&f1=%2A&Staryear=&Adv=0&terms=1&EndYear=&Limit=10000&sort=&D1=10&PageNo=1&RecNo=1&View=f&>

Safety

Results of Trial to Stem Hospital-Acquired Bacterial Infections Published

New findings from a large, randomized clinical trial that compared two infection control techniques are already being incorporated into practice within the network of U.S. community hospitals where the trial took place. The trial evaluated whether daily bathing with the antiseptic soap chlorhexidine (CHG)—and in those patients with methicillin-resistant *Staphylococcus aureus* (MRSA), adding the nasal antibiotic mupirocin—more effectively reduced hospital-acquired bacterial infections than bathing with ordinary soap and water. While no statistically significant difference between the two intervention groups was seen within the population overall, the researchers did find that one subset of



patients—those with medical devices—experienced a substantial benefit if they received the CHG/mupirocin intervention.

Read more:

<https://www.niaid.nih.gov/news-events/results-trial-stem-hospital-acquired-bacterial-infections-published>

Pregnant Women Who Work at Night Face Miscarriage Risk



Pregnant women who work at least two night shifts in a week may increase their risk of miscarriage in the next seven days, a new European study finds.

Danish researchers led by Dr. Luise Moelenberg Begtrup, from the Department of Occupational and Environmental Medicine at Bispebjerg and Frederiksberg Hospital in Copenhagen, analyzed data on nearly 23,000 pregnant women to learn

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how night work might affect the odds of miscarriage between the fourth and 22nd week of pregnancy.

After the eighth week, women who had worked two or more night shifts in the previous week had a 32 percent higher risk of miscarriage than those who had not worked any nights, the study found.

Read more:

<https://consumer.healthday.com/sexual-health-information-32/miscarriage-news-478/pregnant-women-who-work-at-night-face-miscarriage-risk-744139.html>

Prepare for Spring Weather

Spring weather can be unpredictable. When severe weather hits unexpectedly, the risk of injury and death increases, so planning makes sense. Prepare for storms, floods, and tornadoes as if you know in advance they are coming, because in the spring, they very likely will.

Spring is the time of year when many things change—including the weather.

Temperatures can swing back and forth between balmy and frigid. Sunny days may be followed by a week of stormy weather. Sometimes extreme weather changes can occur even

Thunderstorms cause most of the severe spring weather. They can bring lightning, tornadoes, and flooding. Whenever warm,



moist air collides with cool, dry air, thunderstorms can occur. For much of the world, this happens in spring and summer.

Read more:

<https://www.cdc.gov/features/springweather/index.html>

Study Explores Use of Medical Treatment Guidelines in Workers' Comp Systems



More than half of U.S. states have not adopted medical treatment guidelines for workers' compensation cases, a recent study from the Workers Compensation Research Institute shows.

Army Industrial Hygiene News and Regulatory Summary

Released Feb. 5, the survey-based study also looks at 22 of the 23 states that either have developed or adopted evidence-based guidelines, which WCRI states are “useful in the delivery of consistent and effective medical care.”

Read more:

<https://www.safetyandhealthmagazine.com/articles/18238-study-explores-use-of-medical-treatment-guidelines-in-workers-comp-systems>

Keeping First Responders, High-Risk Workers Safer

Researchers have created a motion-powered, fireproof sensor that can track the movements of firefighters, steelworkers, miners and others who work in high-risk environments where they cannot always be seen.

Researchers, working with partners at other universities, have created a motion-powered, fireproof sensor that can track the movements of firefighters, steelworkers, miners and others who work in high-risk environments where they cannot always be seen.



Read more:

<http://www.homelandsecuritynewswire.com/dr20190313-keeping-first-responders-highrisk-workers-safer>

Emergency Preparedness

Historic, Widespread Flooding to Continue through May



Nearly two-thirds of the Lower 48 states face an elevated risk for flooding through May, with the potential for major or

moderate flooding in 25 states, according to NOAA’s U.S. Spring Outlook issued today. The majority of the country is favored to experience above-average precipitation this spring, increasing the flood risk.

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Army Industrial Hygiene News and Regulatory Summary

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Read more:

<http://www.homelandsecuritynewswire.com/dr20190325-historic-widespread-flooding-to-continue-through-may>

Deployment Health

Defense and Veterans Brain Injury Center Releases New Concussion Screening Tool

Providers who screen patients for concussion now have a new and improved tool. The latest version of the Military Acute Concussion Evaluation, known as the MACE 2, is now available. The MACE 2 is for use by all medically trained personnel who treat service members with suspected traumatic brain injury (TBI). This includes medics, corpsmen, and other health care providers.



Read more:

<https://www.health.mil/News/Articles/2019/03/15/Defense-and-Veterans-Brain->

[Injury-Center-releases-new-concussion-screening-tool](https://www.health.mil/News/Articles/2019/03/15/Defense-and-Veterans-Brain-)

Nanotechnology

Size, Composition, Morphology, and Health Implications of Airborne Incidental Metal-Containing Nanoparticles



There is great concern regarding the adverse health implications of engineered nanoparticles. However, there are many circumstances where the production of incidental nanoparticles, i.e., nanoparticles unintentionally generated as a side product

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of some anthropogenic process, is of even greater concern. In this study, metal-based incidental nanoparticles were measured in two occupational settings: a machining center and a foundry. On-site characterization of substrate-deposited incidental nanoparticles using a field-portable X-ray fluorescence provided some insights into the chemical characteristics of these metal-containing particles. The same substrates were then used to carry out further off-site analysis including single-particle analysis using scanning electron microscopy and energy-dispersive X-ray spectroscopy. Between the two sites, there were similarities in the size and composition of the incidental nanoparticles as well as in the agglomeration and coagulation behavior of nanoparticles. In particular, incidental nanoparticles were identified in

two forms: submicrometer fractal-like agglomerates from activities such as welding and supermicrometer particles with incidental nanoparticles coagulated to their surface, herein referenced as nanoparticle collectors. These agglomerates will affect deposition and transport inside the respiratory system of the respirable incidental nanoparticles and the corresponding health implications. The studies of incidental nanoparticles generated in occupational settings lay the groundwork on which occupational health and safety protocols should be built.

Read more: Journal of Occupational and Environmental Hygiene, Published online: 14 Mar 2019 (Available with AIHA membership)

Regulatory Research & Industrial Hygiene Professional News

DoD

GAO Report Calls For ‘Enhanced Information’ On DOD Contractors’ Worker Safety Records



Nearly 4 out of 5 Department of Defense manufacturing or construction contractors inspected by OSHA or state agencies over a recent five-year period were cited for at least one worker safety or health violation, according to a new report from the Government Accountability Office.

Researchers used federal data to examine previous safety and health violations of 192 selected companies with DOD contracts in fiscal year 2017, as well as how DOD and its components addressed contractor workplace safety and health during the acquisition process.

Read more:
<https://www.safetyandhealthmagazine.co>

[m/articles/18144-gao-report-calls-for-enhanced-information-on-dod-contractors-safety-records](https://www.osha-slc.gov/articles/18144-gao-report-calls-for-enhanced-information-on-dod-contractors-safety-records)

OSHA

OSHA Eyes Update of Powered Industrial Trucks Standard; Issues Request for Information

OSHA is seeking input to aid in a possible update of its powered industrial trucks standard (1910.178), which covers forklifts, fork trucks, tractors, platform lift trucks and motorized hand trucks, among others, according to a Request for Information published in the March 11 Federal Register.



Read more:

<https://www.safetyandhealthmagazine.com/articles/18143-oseha-eyes-update-of-powered-industrial-trucks-stands-issues-request-for-information>

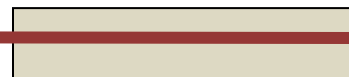
NIOSH

NIOSH Strategic Plan: FYs 2019–2023



The NIOSH Strategic Plan reports the Institute’s research and service goals for

fiscal years 2019-2023. These goals address a broad range of occupational health and safety hazards, affecting an ever-changing workforce. Jobs in the U.S. economy continue to shift from manufacturing to services. Longer hours, compressed workweeks, an aging workforce, reduced job security, and part-time and temporary work have also changed the workforce. These changes represent a major challenge



Army Industrial Hygiene News and Regulatory Summary

for NIOSH as it manages limited resources to address its research priorities.

Read more:

<https://www.cdc.gov/niosh/about/strategic-plan/>

EPA

EPA Identifies 40 Chemicals, Including Formaldehyde, to Prioritize for Risk Evaluation

EPA released a list of 40 chemicals to prioritize for risk evaluation under the amended Toxic Substances Control Act. TSCA requires the agency to publish this list of chemicals to begin the prioritization process to determine if chemical substances are a high or low priority for risk evaluation. EPA has designated 20 “high-priority” chemicals for subsequent risk evaluation, and 20 more have been designated as “low priority,” which means that the agency has determined that risk evaluation is not warranted at this time.



Read more:

<https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/EPA-Identifies-40-Chemicals,-Including-Formaldehyde,-to-Prioritize-for-Risk-Evaluation.aspx>

CDC

Health-Care Providers Say CDC’s Opioid Guidelines Are Harming Pain Patients



More than 300 health-care experts told the Centers for Disease Control and Prevention Wednesday that the agency’s landmark guidelines for the use of opioids against chronic pain are harming patients who suffer from long-term pain and benefit from the prescription narcotics.

Army Industrial Hygiene News and Regulatory Summary

The health-care providers, including three former U.S. drug czars, said the CDC recommendation of a daily numerical threshold for opioid use has led insurers to refuse reimbursement, pharmacies to erect obstacles to obtaining drugs and risks for doctors who want to give out more.

Read more:

https://www.washingtonpost.com/national/health-science/health-care-providers-say-cdcs-opioid-guidelines-are-harming-pain-patients/2019/03/06/be5fa49c-4066-11e9-9361-301ffb5bd5e6_story.html?utm_term=.f5afe40e6134

APHC

Training

2019 Update Brief Mold-Related Issues in Army Housing (1.5hrs)

AVAILABLE ONLINE at <https://aiph-dohs.ellc.learn.army.mil>

This course is designed for interested parties and stakeholders.


The course is self enrollment and self paced. The course provides a certificate of completion solely based upon participation. There are no quiz questions or exams.

Subject matter experts from OTSG and Army Public Health Center present this 2019 Update Brief Mold-Related Issues in Army Housing. Discussion includes the Army policy on mold assessment, prevention, and remediation; and sampling protocols. Current policy remains firm that mold sampling is not recommended, except with a specific medical requirement.

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APHC
April 18, 2018

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Army Field Operations Manual Webinar (DOERHS-IH Army Business Practice) Episode #1 Introduction

AVAILABLE ONLINE at <https://aiph-dohs.elc.learn.army.mil>

The Army FOM is being developed to provide IH staff with guidelines for DOERHS-IH data entry using the Army business practices.

- ▶ The FOM follows the DoD Exposure Assessment Model
- ▶ Ensures Army IH Program offices are credited for work they do Documents Army Business Practices Creates Standardization across
- ▶ Enterprise Improves data integrity Improves IH metrics and performance Supports APHC Strategic Planning Guidance
- ▶ FOM is a Level V mission service Collaboration with RHC IH consultants Creates culture of quality to solve Army Public Health problems Provides continued process improvement
- ▶ Capitalizes on untapped talent across the Enterprise

Each webinar provides an FOM update, FOM drafts, and recorded webinars.

All information is located in the “Army IH Webinar” course shell in Blackboard.
<https://AIPH-DOHS.elc.learn.army.mil>

FOM Drafts are also available at <https://www.milsuite.mil/book/groups/ih-fom-milsuite-page>

Army Industrial Hygiene News and Regulatory Summary

Industrial Work Environments: Welding Processes (2hrs)

NOW AVAILABLE ONLINE at <https://aiph-dohs.ellc.learn.army.mil>

This course is self enrollment and self paced. The lecture has embedded multiple attempt knowledge checks. Passing score is 70%.

The purpose of this course is to provide a basic awareness of the different welding processes Occupational Health and Safety Professionals might encounter when inspecting/surveying worksites. Lessons provide explanations of basic welding terms, descriptions of different welding and cutting processes, a summary of hazards, illustrations of control measures, lists of applicable OSHA and other standards, and descriptions of sampling methods.

Terminal Learning Objectives:

TLO1. Demonstrate knowledge of how to use the DoD 8-Step Exposure Assessment Model to evaluate work-place environments for potential occupational health hazards. Stressors include but are not limited to confined space entry, spray painting, firing ranges, medical treatment facilities, welding, metal-working, foundries and general indoor environmental issues.

TLO2. Demonstrate knowledge of stressors to include but are not limited to confined space entry, spray painting, firing ranges, medical treatment facilities, welding, metal-working, foundries and general indoor environmental issues.

After completing this training, the student will be able to:

1. Demonstrate knowledge of stressors by recognizing common types of welding processes and equipment.
2. Demonstrate knowledge of stressors by recognizing hazards associated with welding processes.
3. Demonstrate knowledge of how to use the DoD 8-Step Exposure Assessment Model Basic Characterization Step by recognizing commonly found controls.
4. Demonstrate knowledge of how to use the DoD 8-Step Exposure Assessment Model Basic Characterization Step by stating the applicable OSHA and other standards.
5. Demonstrate knowledge of how to use the DoD 8-Step Exposure Assessment Model Characterize Exposures Step by describing typical evaluation techniques (sampling and workplace monitoring plans).
6. Demonstrate knowledge of how to use the DoD 8-Step Exposure Assessment Model Reporting/Recording Step by describing typical findings and recommendations (controls and medical surveillance).
7. Demonstrate knowledge of how to use the DoD 8-Step Exposure Assessment Model Reporting/Recording Step by describing how this data is entered/tracked using DOEHS-IH.

Army Industrial Hygiene News and Regulatory Summary

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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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