POSTER ABSTRACTS
Spring 2018
Orlando, Florida

HazCom 2012 Labels for Small Reference Standard Packages

Darcy Ramisch
US Pharmacopeia

USP is a scientific nonprofit organization that sets standards for medicines, food ingredients, and dietary supplements manufactured, distributed, and consumed worldwide. USP Reference Standards are highly-characterized physical specimens used in testing by pharmaceutical and related industries to help ensure the identity, strength, quality, and purity of medicines (drugs, biologics, and excipients), dietary supplements, and food ingredients. These reference standards are generally packaged in 5 milliliter vials or 2 to 5 milliliter ampules, with labels as small as 1 x 1.5 inches.

We were challenged by OSHA's practical accommodation for labeling of small packages under HazCom 2012. Ultimately, we used a combination of both methods given in OSHA's letter of interpretation: ampules are packed in secondary containers (plastic tubes or clamshell cases), and vials are labeled with a wrap-around label that can be unrolled to read the full text.

This presentation shows USP's label formats, discusses the challenges of adapting to them, and highlights improvements we have made to labeling since the HazCom 2012 implementation.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Exploring the Intersection of REACH, CLP and EU MDR

Joshua Nevels, D.C.
Arcadis U.S., Inc.

Since the promulgation of the new EU Medical Device Regulation (MDR) in May 2017, medical device manufacturers have been preparing for the upcoming mandatory compliance date of May 2020, after which significant new labeling for devices containing carcinogens, mutagens, reproductive toxicants (CMR) and/or endocrine disrupting chemicals (EDC) will be required. This poster seeks to examine the specific criteria from EC 1272/2008 (CLP) and EC 1907/2006 (REACH) that will trigger label declarations and justification under EU MDR. Specific considerations depending on use and composition are also addressed.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Poison Centre Requirements within Europe

Craig Thomson
The National Chemical Emergency Centre (NCEC), Ricardo Energy & Environment, UK

Under the implementation of Article 45 of the CLP Regulation in Europe, entities placing certain hazardous mixtures on the market within any of the European Union's Member States have to provide information to national appointed bodies. This information is then used by local poison centres to provide advice to users of the mixture who may then be exposed to it.

Notification of mixtures that have a health or physical effect classification is mandatory in all but one of the Member States. How the notification process works is determined by national law. As such, the requirements for industry and the delivery of the poison centre service differs from Member State to Member State.

We will present a poster which looks at the poison centre obligations on organisations putting hazardous mixtures on the market within Europe now, how they can achieve compliance within each Member State, and the approaches the European Commission is taking to harmonise aspects of the requirements for future notification. It will also briefly look at the enforcement activity we are seeing in particular member states and support the development of poison centre strategy.

This will also build upon Jon Gibbard's presentation at the Fall SCHC Meeting, providing more detail and specific take away actions and activities so delegates can go back to the offices with a clearer idea of the steps that need to be achieved to meet their obligations in this area.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Emergency Response and the Cost of Inaction

Craig Thomson
The National Chemical Emergency Centre (NCEC), Ricardo Energy & Environment, UK

In recent presentations at SCHC, NCEC have focused on the global requirements for emergency response telephone numbers from both a supply and transport perspective, i.e. emergency numbers on section 1.4 of the SDS, etc.

However, regulatory compliance is only part of the story when it comes to emergency response. Having an emergency number available which doesn't operate as intended during an incident could have significant implications to the business and the wider community. Loss of life or serious injury. Environmental damage. Irreparable harm to commercial reputation. The price of a chemical incident goes far beyond financial cost. But in today's dynamic chemical industry, implementing a comprehensive programme of risk mitigation, crisis management and regulatory compliance is a complex task. Here, NCEC will provide a step-by step framework to developing a competitive, compliant and commercially responsible chemical safety strategy across a product's supply chain.

This will include information from NCEC's economists on the Cost of Inaction. Using case studies from NCEC's call logs and other public incidents, we will illustrate examples where a poorly handled incident could have had significant financial and reputational impacts on an organisation, and the steps that can be taken to mitigate this risk.

This will be presented in a positive and constructive approach, outlining steps that companies can take internally as well as through alternative arrangements, and how to take a risk based approach to making sensible risk mitigation decisions.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Selecting the Right Material for Your DOT Label and Placard Needs

Jim Garvic
Reliance Label Solutions

There are a variety of substrates available when selecting DOT labels and placards for hazardous materials transportation. The criteria for material selection can include: service temperature range, application temperature, expected product lifespan, method of affixing the label/placard, etc. External factors that affect these criteria can include exposure and weather conditions, method of affixing the label/placard and the age and condition of the container surface.

Choosing the wrong substrate can increase the chances of the label or placard failing, risking fines and increasing the cost of staying in compliance. Reviewing and understanding the material options available to you can help ensure the safety of your employees, the general public and the environment.

Our infographic will give SCHC attendees the opportunity to compare the features and specifications of the many substrates available today, and make an informed decision about selecting the correct DOT labels and placards for their transportation needs.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

One Fish, Two fish, Purple Fish, Orange Fish: Environmental Classification for Workplace and Transport

Kimberly Bull, M.Sc.
Sphera Solutions, Canada

What do you get when you cross an additivity formula, a summation method and the symbol P? A complex combination of aquatic toxicity, degradability, bioaccumulation, solubility, relevant ingredients, ingredient classifications, M factors and marine pollutants (and probably a headache!). Especially since many GHS countries and Transport modes have implemented the environmental classification criteria in various shades of purple and orange. Let's try to understand the differences we might see in Section 14 of the SDS for environmentally hazardous substances, as well as the data and calculations behind them.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Understanding Thailand's Chemical Regulations and Current Status

Dr. Piyatida (Tung) Pukclai
Dr. Knoell Consult Thai Co. Ltd., Thailand

The main chemical legislation in Thailand is the Hazardous Substances Act B.E. 2535, of which the latest amendment is the 2nd revised (No. 3) B.E. 2551 and the 3rd revision is expected to be released in 2018. The Department of Industrial Works (DIW) is responsible for the control of the hazardous substances used for industrial purpose. To do the hazardous substances notification/ registration, DIW strictly requires full disclosure on the chemical composition of hazardous items produced or imported into the territory. Suppliers may request to keep some composition information due to confidential business information (CBI) concern by submitting the CBI to DIW via email. For component considered as the hazardous substances, suppliers shall disclose the information of these components including the chemical name, CAS No., and percentage of the hazard ingredients. Thailand chemical regulations underwent large-scale reforms in last years. The most significant updates were in the requirements of Annex 5.6 to the List of Hazardous Chemicals and the nomination to the Inventory of Existing Chemicals. The intent of this poster is to share perspectives and understanding of existing chemical legislation in Thailand as the recent changes are challenging to keep an overview of the regulatory landscape. An early in-depth knowledge is important to be compliant with the chemical laws in Thailand market.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

EU Poison Centres - How to Keep Up with the Latest Changes

Tarn Brown (*Lead*), Fiona Moir (*Supporting*), Orla Myers (*Supporting*), Madhuri Sugand (*Supporting*)
Yordas Group, UK

Poison Centres play an important role in ensuring the safe use of chemicals by providing vital information in case of a poisoning incident. EU Poison Centres answer an average of 600,000 calls each year in response to accidental exposure, providing medical advice to general consumers and physicians when health emergencies arise from exposure to hazardous chemicals. Up until recently, industry requirements relating to Poison Centres differed between member states, however, under Article 45 of the CLP Regulation the requirements on industry are set to change with the aim of harmonisation of requirements across the EU.

Under CLP Implementing Regulation, importers and downstream users placing hazardous mixtures on the market will be responsible for submitting information to Poison Centres in the relevant Member State(s) with new online tools and a harmonised EU format aiming to help companies to submit this information. Deadlines for the submissions will apply in a stepwise manner depending on the intended use of the mixture. A distinction will be made between mixtures for consumer use, professional use and industrial use with more information than ever before having to be disclosed on the composition of relevant mixtures.

This poster aims to summarise the main changes to poison centre notification requirements and provide a stepwise approach to successfully preparing notifications in order to ensure compliance.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Product Stewardship Taken to a New Level

Panagiotis "Noti" Mikroudis and Josh Staniscia
Covestro, LLC

We are taking product safety and stewardship to the next level by educating the chemical industry to safely and effectively handle chemicals, and develop a better understanding of the lifecycle of a product. The industrial hygiene services and state of the art product stewardship website provide valuable information to not only our customers, but the public as well. The Industrial Hygiene group is a major component in effectively communicating the hazards and risk associated with our products. The group conducts air sampling and lab analysis against occupational exposure limits in the workplace, while also evaluating the effectiveness of ventilation systems. In addition, they provide safe use and handling presentations to customers by evaluating potential health effects, methods to reduce exposure, and spill responses. As a Responsible Care company, it is our duty to promote the safe, responsible, and sustainable management of chemicals throughout their entire life cycle and for their intended uses. The product stewardship website helps us in our Responsible Care initiatives by providing key information to improve health, safety, and the environment throughout the product life cycle of our products. On the website, product safety assessments have been conducted of product hazards and exposure scenarios, along with life cycle assessments of the environmental impact of product. Also found on the website are product safety data sheets (SDS), guidance documents, and product compliance documents. These are vital resources in promoting product safety for customers and downstream users. Both the industrial hygiene group and product stewardship website help make a difference in promoting the importance of chemical product safety and stewardship in the chemical industry.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Visualizing the US EPA Sustainable Futures Program

Kate Sullivan, Jeffrey Hafer, Kelly Mayo
knoell USA, LLC

Under the US New Chemicals Program, US EPA must determine the potential risk of a substance before entering commerce. Without base set testing requirements, US EPA often uses screening level tools to conduct the initial risk assessment. The Sustainable Futures website allows companies access to these same tools and training prior to Premanufacture Notice (PMN) submission. The flowchart provides a visual guide on how these free US EPA tools can be leveraged during the PMN process. A Tier 1 analysis is when companies do not take full advantage of the tools and provide minimal data to US EPA. This may result in US EPA using conservative values and worst-case scenarios in the risk assessment. This approach may jeopardize the potential success of the PMN and increase US EPA's review time. A Tier 2 analysis uses the tools along with available data to create a risk characterization by the company. The benefit of conducting a Tier 2 analysis in advance of submission is that it (1) allows companies to identify concerns prior to PMN submittal; (2) prepares the submitter for any questions from the Agency; (3) helps companies estimate the risk of their chemical; (4) allows for variation of modeling variables based on input data; and (5) provides an in-depth understanding of the PMN process.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

eLearning and Development: Internal Training for Global Hazard Communication Program

B. Reeves, H. Senlitonga, C. Arteaga-Forcelledo, S. Snajdr, J. Sims, S. Murray, L. Triboletti
DuPont

SCOPE: This eLearning and Development (eL&D) program instructs HAZCOM and PS&R professionals, at a standard level of knowledge, providing a valuable contribution to those working in the discipline. Compliant Hazard Communication documents (SDS, Labels, C&L proposals) are required for product registration and communication across the supply chain. This implies the acquisition of a proficient level of knowledge about relevant information concerning the legislation of chemicals and the potential inherent hazards they contribute.

GOAL: To develop a quantifiable training program where the acquisition of a foundation level of knowledge about relevant information can be achieved. The goal is for the professional to learn and develop to enable them to support the business in his or her domain and provide high quality documentation.

CHALLENGE: Specific local variations in GHS acceptance do not provide a single overall doctrine. The risk of misinterpretation of the common language and interpretation of the concepts being applied could result in an inaccurately classified material.

SOLUTION: The outcome of this web-based training module provides a tracking of the completion of the eL&D program. This is then combined with a mentoring program to advance the understanding and competency the HazCom regulations.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

R&D Laboratory Risk Assessment Tool

Pam Sheets, CIH, SDSRP
The Redstone Group, LLC.

OSHA 1910.1450 (e)(3)(ii) states that the Chemical Hygiene Plan (CHP) must include criteria for identifying and implementing adequate controls, criteria for obtaining prior approval before implementation, and specific provisions for exceptionally hazardous substances.

Many chemical hygiene plans may not include sufficient detail to adequately describe selection of appropriate engineering controls in a dynamic laboratory research and development environment. Laboratory workers could be at risk if insufficient controls are utilized either for an initial experiment, or a revised experiment for which initial controls are no longer protective.

By using the concepts of assigning Control Bands using GHS H-codes, and developing a laboratory-focused risk matrix and controls approach, a solution can be developed and incorporated into the CHP that can be utilized by bench laboratory workers to satisfy the requirements above.

This poster will describe the use of the ILO Chemical Control Toolkit as a foundation to create a risk assessment tool for research and development laboratory environments via the following steps:

1. Use GHS H-codes to assign hazard categories (safety, health and environment);
2. Define exposure potentials based on chemical properties and proposed use;
3. Identify acceptable control schemes.

This tool is under development with plans to test in a client laboratory in 2018.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

A Product Is Classified as a Carcinogen in the United States, But Not in Another Jurisdiction… Why So?

Jeremy Long, Joanne Houck, Elizabeth Dederick, PhD
knoell USA

In order to expand a product line, a foreign supplier may choose to export their industrial chemical product to the United States, but they are often surprised that cancer-specific precautionary information must be added to the product's U.S.-compliant safety data sheets (SDS) and workplace labels even if their non-U.S. SDSs and labels do not report a carcinogenic health hazard. This scenario reveals how even though the U.S. Hazard Communication 2012 (HazCom 2012) guidelines published by the Occupational Safety and Health Administration (OSHA) have adopted the United Nation's Globally Harmonized System of Classification (GHS), it is important to understand the specific variances of the HazCom 2012 guidelines regarding carcinogenicity classification compared to other jurisdictions such as the European Union or Canada. This poster will review the various OSHA prescribed methods of carcinogenicity classification including the review of evidence from toxicological studies and using published lists from credible organizations such as the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP), "Report on Carcinogens" (latest edition). Using sources such as IARC as the sole means of establishing that a substance is a carcinogen can lead to varying classifications among jurisdictions. A supplier may also need to take into account particular physical or chemical characteristics specific to their product when classifying.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

GHS Labeling and Global Products: the Struggle is Real

Martina Werner and Jenny Altman
Henkel Corporation

Current GHS regulations create challenges for global companies. Products that are sold in the global marketplace have unique difficulties in complying with this "Globally Harmonized System" that is not fully harmonized. Poster board will show several differences that create these challenges, label samples of these challenges and offer potential solutions. The poster will also discuss the details and challenges of the various solutions. Our aim is to offer potential solutions but also to get insight from others within industry. The solution that would be easiest for industry would be to have a truly "Globally Harmonized System." Other Solutions includes bill of lading, dual labeling, re-labeling, etc.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Are Your HMIS® Ratings Aligned with the GHS/HMIS® 4th Edition?

Michele Sullivan, Ph.D.
MRS Associates

The American Coatings Association's (formerly NPCA) HMIS® hazard rating scheme is designed to be compatible with the workplace labeling requirements of the OSHA revised Hazard Communication Standard (HCS 2012). It is designed to communicate in-plant hazard information to employees through training and the use of colors, numbers, letters, and symbols for personnel protective equipment (PPE).

Under HCS 2012 general requirements for workplace labeling remain the same. The HMIS® rating system may still be used for workplace labeling as long as it is consistent with the requirements of HCS 2012. In the 2013 OSHA Brief titled "Hazard Communication Standard: Labels and Pictograms", OSHA re-affirmed employers may continue to use their workplace labeling systems as long as it meets the requirements of the OSHA HCS 2012.

Comparison Tables in the HMIS® 4th Edition are designed to provide the user an easy way to convert GHS classifications to HMIS® ratings. The user must first determine the GHS classification of the substance and then go to the Comparison Tables to find the HMIS® Health (H), Flammability (F), and Physical Hazard (PH) ratings. A mixture reflects the highest HMIS® rating for each of the groups of Health, Flammability and Physical Hazards. If the generation of various HMIS® ratings for multiple hazard classes is required, the highest subsequent rating of each group should be used to represent the overall mixture.

This poster will examine the 4th Edition HMIS® ratings. Have you updated your HMIS® ratings to align with the GHS/HMIS® 4th Edition?

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Technical Challenges to Complying with the New Requirements of Proposition 65

Ari S. Lewis, Kim Reid, Mike Peterson
Gradient

Compliance with California's Prop 65 regulations will become further complicated when new Clear and Reasonable Warning labeling rules take effect August 30, 2018. With this legal imperative, companies selling products in California may need to consider compliance strategies to address the various implications of the rule. In particular, labels will be required to list at least one chemical that prompted the warning with its associated health effects. Complying with the rule can pose some significant technical challenges. Some of the most significant issues relate to identifying and testing for chemicals in products for relevant routes of exposure, quantifying exposure under many different scenarios, and developing specific safe harbor levels for listed chemicals that do not currently have them. This poster will provide a brief overview of the recent Prop 65 changes and some of the legal consequences of non-compliance. The main objective of the poster however, will be to present some of the technical considerations involved in ensuring compliance with Prop 65 Strategies. General methodologies for analytical testing program design as well as toxicological and exposure evaluations will be presented, along with case examples.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

A Simple, Cost Effective Excel Application for Tracking Volumes under EU REACH

Helen Hatch, DGSA, SDSRP
FMC Corporation

Companies who have sites in Europe need to be able to track volumes of chemical substances imported by their sites in Europe. Starting in 2018, all chemical substances imported into the EU in quantities over 1,000 kg must be registered under REACH. Business units in the EU must be able to track imports of substances to determine and confirm that they are either: under 1000 kg for unregistered substances, or within the registration limits for the substances they have registered.

This is a challenge because most business systems, (like SAP) are set up for financial and business process operations and the available reports do not provide *substance specific* information needed to comply with EU REACH. Extracting information from business systems and converting into terms that can be used to monitor compliance is a difficult and time-consuming process.

This Excel application uses a simple function in Excel to transfer product volume information into substance-specific volumes in kg. These volumes are summed to determine how our business is doing with respect to REACH limits. A simple dashboard is created to show managers how much we have imported and how close we are to the limits imposed by REACH.

The program pulls readily available product volume information typical of most business systems, and uses Excel pivot tables to create an EU REACH status report.

The application cost less than $2000 to set up. It takes just a few minutes a month or quarter to run a report on import status. The report is easy to read and is color coded for priority.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

How to Conduct Technical Due Diligence for Mergers and Acquisitions

Jiaru Zhang, MPH
Gradient

Since 2014, there have been over 600 merger & acquisition (M&A) transactions in the global chemicals sector each year. In 2016, global chemical M&A activity reached over $200 billion in value, and this trend is expected to remain strong for 2018 and beyond. Increasingly, Environmental Health and Safety (EHS) professionals and product stewards are becoming a critical part of the technical due diligence team. Due diligence efforts are often constrained by time, cost, and confidentiality. Since knowing everything is nearly impossible, this poster will present a checklist of critical due diligence tasks, as well as case studies and practical takeaways. In many cases, technical due diligence would not kill a deal but rather help assign appropriate value and mitigate liability for the buyer. For the seller, good technical due diligence would ensure a smooth and timely acquisition.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Hidden Hazards: What's in Your Chemical Portfolio?

Jiaru Zhang, MPH
Gradient

Gone are the days of "no data, no hazard." Customers, regulators, and consumers are demanding more transparency with respect to product ingredients and their hazards. Environmental Health and Safety (EHS) professionals and product stewards serve on the front line to inform customers and ensure that there are no "secret" hazards. This poster will highlight common sources of toxicity data for Globally Harmonized System of Classification and Labelling (GHS) hazard classification including supplier, company-owned, European Chemicals Agency (ECHA) Classification and Labelling (C&L), ECHA harmonized Classification, Labelling, and Packaging (CLP), and peer-reviewed published literature. Using a sample size of approximately 2,000 GHS hazard assessments, we will discuss the adequacy (and inadequacy) of each hazard source, as well as the use and reliability of read-across data for GHS hazard assessment. This poster will also provide takeaways to combine multiple lines of evidence to minimize hazard uncertainty and derive scientifically-defensible hazard conclusions for customers, regulators, and consumers.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Validation of the GHS Additivity Formula for Determining Acute Toxicity Classification of Mixtures: a Review of the Existing Research

Christian Thorvaldson and Raleigh Schmidt
3M

To determine the acute toxicity hazard classification of mixtures for which there is no test data (and bridging principles do not apply), GHS provides the "additivity formula," which gives an acute toxicity estimate (ATE) based on the LD/LC_{50} values of the individual components of the mixture. While the additivity formula is a regulatory construct, there has been some research done to validate the formula's accuracy in determining acute toxicity classifications. Two recent studies have been done by Dow Agrosciences (2016) and BASF Corporation (2018) to determine the validity of the GHS additivity formula in determining acute toxicity classifications of a sampling of their chemical mixtures. This was done by comparing the classifications of the mixtures as determined by mixture-level test data to the classifications as determined by the GHS additivity formula. While these two studies came to different conclusions regarding the validity of the additivity formula, the results provide a necessary starting point for a larger-scale study on the validation of the GHS additivity formula, and raise certain questions regarding the appropriate application of the formula. The two studies will be discussed, with emphasis placed on the implications of the findings, as well as the framework for a potential large-scale validation study, and how the findings could aid in modifying the GHS additivity formula to improve its accuracy in determining acute toxicity classifications.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Lean Environmental, Health and Safety (EHS) in the Real World: Error-proofing Chemical Safety for Fatigue and Other Cognitive Impairments

Kathy Malone, CHMM
Manguard Systems, Inc.

Did you know that fatigue can result in impairment that exceeds the level for Driving under the Influence? And that judgment is one of the first cognitive capabilities to "shut down", resulting in tunnel vision and a lack of questioning situations that are out of the ordinary? And that this was found by the Chemical Safety Board to be a contributing factor in the BP Texas City Refinery Accident?

See examples of how business intelligence tools combined with SDS information and error-proofed chemical SOP's can help make chemical safety better in instances where fatigue, chemical impairment, cognitive limitations such as age or language barriers, or disengagement are factors.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Investigation of the Impact of Learning Community Immersion on Chemical Hazard Communication Awareness, Knowledge and Commitment to Best Practices: Second Phase

Brooklyn Scherer and Joseph Lupica, Ph.D.
Walsh University

Phase one of this study was designed to compare the effectiveness of chemical hazard training as a consequence of exposure to standard "content only lectures", versus additional immersion in a chemical hazards communication learning community setting. This comparison was conducted with college students enrolled in first-year chemistry labs. Both groups were exposed to a series of identically structured lectures that focused on the safe handling and disposal of hazardous material commonly found in garages, bathrooms, laundry rooms, and garden sheds. A segment was included on identification and interpretation of Hazardous Material Placards and SDS literature. One group was then assigned to attend a weekly fifteen to twenty-minute learning community meeting as well. This study yielded interesting results in correlation to retention levels among participants. It was shown that participants in the general population showed an average of a 12 percent increase in chemical hazard knowledge, meanwhile the learning community showed an average of a 16 percent increase. However, time and logistical restraints presented scheduling difficulties. We then wanted to explore the effectiveness of using a short-term forum enhanced with interactive online videos. Non-science major students were exposed to standard video content lectures (of the same information the previous study contained) followed with a one-time immersion in a chemical hazards communication learning community setting. All student participants had no chemistry backgrounds. The results of this study claim that although the online portion did show an increase in chemical hazard knowledge (6.85 percent increase), the one time-learning community experience still allowed for the greater increase of chemical hazards communication knowledge (23.35 percent increase). One conclusion of this two phase study may lead universities and companies who are dealing with chemical hazard communication to more effectively train their students and workers by using the high impact practice learning communities as a tool for high retention training.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Hazard Communication Challenges with Consumer Cleaning Products

Michael Benjamin and Michael Maier, Ph.D.
University of Cincinnati

Introduction: Small businesses often purchase consumer products in local retail stores for common tasks such as cleaning. The presence of irritant chemical ingredients in these products and their association with occupational asthma have increased concerns about cleaning product chemical use. These consumer cleaning products usually do not provide safety data sheets (SDSs) at the point of purchase, requiring the end user to find the SDS on their own. If a SDS is found, information can be limited due to different rules for consumer product ingredients compared to industrial chemicals. Ultimately, these challenges can hinder hazard communication in small businesses, where having a designated EHS professional is unlikely.

Objective: To evaluate the availability and content of safety data sheets for consumer cleaning products found in local stores.

Methods: Consumer cleaning product sprays currently available in local stores were inventoried, and safety data sheets (SDSs) were collected on the manufacturer's website or by email for ingredient information as well as occupational exposure limits for those ingredients.

Results: Of the 108 cleaning product sprays found, about 20% did not have SDSs available on the manufacturer's website or by email. Of those with SDSs, about 25% had statements indicating no hazardous chemicals were present instead of listing chemical ingredients in Section 3, and the remaining products only gave ranges for the ingredient composition. Information provided in Section 8 of the SDSs (Occupational Exposure Limits or OELs) varied considerably, but typically provided OELs from ACGIH, OSHA, and NIOSH if any existed for those chemicals. In addition, about a third of the products had OELs from agencies outside of the US, including those for Canada, Mexico, Europe/UK, and Singapore.

Conclusion: Small businesses face several hazard communication challenges when using consumer cleaning products, such as finding the SDS for a given product, finding relevant information within the SDS, and deciding which guidance to follow when multiple OELs are present in a safety data sheet. Efforts to address these issues should continue in order to address hazard communication challenges in the small business community.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Antineoplastic Drugs in Clinical Healthcare Settings: Understanding Potential Exposure Pathways to Healthcare Professionals

Hannah Kaup and Susan Arnold, PhD, MSOH, CIH
University of Minnesota

Antineoplastic drugs (AD) used to treat cancer patients present an occupational health risk to healthcare workers; exposures may result in genetic damage, adverse reproductive effects, and cancer. Surface contamination of AD has been widely documented in areas where these drugs are used, despite safe handling recommendations from multiple agencies. The most likely route of exposure is through the skin, but very little is known about the variability of contamination across surfaces, making it difficult to develop effective sampling guidance. The work practices resulting in contamination of these surfaces are not well understood, presenting further barriers to training and effective hazard communication. There are currently no regulated exposure limits in the U.S., or elsewhere, for acceptable levels of surface contamination. Despite this limitation, United States Pharmacopia (USP) Chapter 800 guidelines will be adopted in the U.S. and Canada in 2019, requiring regular surface sampling for AD contamination. USP Chapter 800 gives very little guidance on when and where to sample, revealing a critical knowledge gap in our understanding of AD exposure pathways, and the work practices that contribute to surface contaminations. This study was conducted to identify surfaces that are likely to come into contact with AD, as well as give insight into any inter- and intra- worker variability, and differences between clinics based on size and patient load. These insights will be incorporated into worker training and hazard communication as part of a larger intervention initiative.

POSTER ABSTRACTS
Spring 2018
Orlando, Florida

Understanding the Occupational Health and Safety Knowledge and Behaviors Among Cosmetologists in Minnesota

Jennifer Saunders, MSW, Patricia McGovern, PhD, MPH, Susan Arnold, PHD, MSOH, CIH
University of Minnesota

Cosmetologists, estheticians and nail technicians are exposed to a range of chemicals while working with personal care products, and have an increased risk of injury and poor health outcomes. Occupational health and safety training is important to reduce workers' exposures, but little information is known about their current knowledge and attitudes about job safety and health. This study aims to understand the knowledge, attitudes and beliefs about work-related exposures in this population. Focus groups were conducted to explore workers' job characteristics, knowledge and attitudes about occupational health and safety, and health concerns. Audio recordings were transcribed, and key themes were identified across responses. Cosmetologists, estheticians and nail technicians have complex job structures, perform a diverse set of tasks, and use a range of products. The primary health concerns among workers were ergonomic issues and injuries, and mental stress. Workers had limited knowledge about the chemicals in products they used, infrequently used workplace protections, and were generally trusting of product safety. Workers relied on co-workers or more senior professionals, beauty school curriculum, and online resources for information about occupational health and safety. These results can inform occupational health and safety trainings for this workforce, including chemical hazard communication activities.