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Michael P. Menz, CIH, CHMM
Robert J.DeMalo, M. Sc.

Unique Perspectives; Asbestos, Lead, Mold, Silica, Soot and More

This week we welcomed Rob DeMalo M. Sc. and Michael Menz, CIH, CHMM for a discussion about their unique perspective on industrial hygiene and IEQ. Having spent many years as executives at the largest lab in the country and being in the field now gives them a unique perspective into the big picture around IH and IEQ. In addition to getting their thoughts on the past, present and future of IH and IEQ, we dove into a few traditional IH topics that have not gotten a lot of attention recently including asbestos, lead, mercury and PCB's. Of course we also talked about mold, COVID, and other current events in IH and IEQ. Mike and Rob have known each other for 25+ years, worked together at EMSL and are now business partners.

Robert J. DeMalo, M.Sc

Rob DeMalo joined Indoor Environmental Concepts (IEC) as Vice President and Partner in November 2020. Rob holds a Master of Science degree in Industrial Hygiene and has over 30 years' experience in the industrial hygiene and environmental health and safety industries. Prior to joining IEC, he was Senior Vice President of Laboratory Services and Business Development at EMSL Analytical, Inc. in Cinnaminson, New Jersey, where he spent 25 years coordinating and implementing expansion strategy, business development and overseeing the laboratory technical operations.

Michael P. Menz, CIH, CHMM

Mike Menz founded Indoor Environmental Concepts (IEC) in 2011. IEC provides industrial hygiene and IEQ services out of their NJ headquarters. Mr. Menz is a Certified Industrial Hygienist, an EPA/Pennsylvania licensed Asbestos Building Inspector and Management Planner and a Certified Hazardous Material Manager. He has extensive experience teaching Asbestos, Lead, and Hazardous Waste

Operations courses. Prior to launching IEC, Mike was the Environmental, Health, and Safety Manager and Radiation Safety Officer at EMSL Analytical, Inc. in Cinnaminson, New Jersey.

We invite you to join us for continuing discussion of these issues at afterthoughts.iaqradio.com sponsored by First Onsite.

Nuggets mined from today's episode:

The Industrial Hygiene industry is regulatory driven.

The new silica standards were lowered in 2017 for construction and in 2018 for general industry. COVID heightened awareness of ventilation and IEQ. Flint Michigan's lead in water problem raised awareness of lead in drinking water.

Since 2020 landlords in Philadelphia, PA, renewing rental property licenses must do lead sampling. New Jersey will follow suit in June 2022.

Lead sampling involves a visual inspection of the condition of the paint. If paint is peeling, cracked or visually deteriorated it triggers the lead RRP (Renovation, Repair and Painting) program. The sampling for lead dust involves wipe sampling over a known area. Two surfaces must be sampled windowsill and floor. Sampling must be done in one common area (often the living room and in each bedroom). 10 micrograms per square foot is clearance level for floor and 100 for window sill.

Pricing for sample analysis is driven by turnaround time.

Philadelphia's old regulation only required sampling of properties with child occupants. The new regulation covers all rental properties. Philadelphia inherently has high levels of lead due to leaded gasoline and smelting. It's challenging to clean to the regulation's limits and complicated by cleaning often needing to be done in occupied properties. While professional cleaning is recommended property owners (and occupants) are permitted to do their own cleaning. When doing lead sampling IEC staff are careful and don booties and gloves. New Jersey is next in line and additional counties in PA are adopting Philadelphia's regulation.

Asbestos was big in the 1980s and then slowed down. Asbestos is the #1 task for IHs'. Day in and day out IEC does asbestos and mold inspections. While the easy to remove asbestos may be gone, the hard to remove asbestos was often left behind. The two applicable voluntary standards are ASTM 5755 MicroVac & ASTM 6480 wipe interpretive guide. Rob served on both the World Trade Center and Libby Montana committees. Three levels of Structures/Cubic Meter have been published: Millette/Hayes "settled dust" 1,000 low, 10,000 medium & 100,000 high for the World Trade Center cleanup the EPA lowered the medium level to 5,000 for the cleaning of accessible areas.

Asbestos Wipe Sampling, is more aggressive and often capturing twice as many asbestos fibers as vacuum sampling and is recommended for hard surfaces. Micro vacuum (TEM cassette) sampling is recommended for use on porous surfaces and interior of HVAC systems.

Due to COVID, many old school buildings in Philadelphia wanted to reactivate use of house fans and want asbestos sampling prior to reactivating fan use. For wipe sample investigator must use special media or sample quality will suffer. Asbestos samples cannot be overloaded due to serial dilution.

Mercury was used in rubber floors to accelerate curing and aid in self leveling. Mercury vapors are the concern. There are two types of risks: real risk and perceived risk. One school district in New Jersey with 12 schools found mercury in the floors of 8 schools. There is a difference between occupational risks of a healthy adult worker and a 3 year old child playing on a gym floor. Various published levels exist, NJDOH guidance value is 0.8 ug/m3 while CA REL is 0.06 micrograms. It may not be possible to reduce mercury levels that low. The guiding principle of radiation safety is "ALARA". ALARA stands for "as low as reasonably achievable". There are 3 options for dealing with mercury in flooring: removal, repair, and managing in place. Management in place (with dilution ventilation) may be the lowest cost option.

Sampling for mercury in floors is hard work as several layers of flooring often need to be removed to get down to the concrete. Levels of mercury may increase with each additional layer of flooring removed. Mercury can penetrate concrete. Concrete may require scarifying prior to sealing and encapsulation. Sometimes mercury will penetrate through concrete into the soil below. On some projects,

concrete, aggregate and several inches of soil will all need to be removed. Mercury remediation requires more than asbestos, (e.g. HEPA filters in conjunction with activated carbon are needed). Building materials and soil contaminated are considered hazardous waste. There is no magic number as to what year manufacturers voluntarily stopped using PMA (phenyl mercuric acetate) in floors. If you are interested in obtaining a list of the recommended tools and equipment, for mercury sampling contact Mike.

IEC did COVID screening at a construction site for 54 consecutive weeks. While temporary worker screening isn't effective knowing that a sentry would be taking worker temperatures, sick workers stayed home. Dilution ventilation, social distancing are effective, doubling social distances reduces exposure by a factor of 4 which is an effective mitigation strategy.

Buildings reduced ventilation to save energy. Shutting down ventilation resulted in inadequate ventilation. Energy savings efforts contributed to mold problems. Reactivating fan systems could potentially spread asbestos. IEC samples before fan reactivation. Determine if HVAC system filtration could be upgraded? Some buildings could only open doors and crack open windows.

Legionella sampling was popular a year ago, now this sampling need is being filled by water treatment firms.

PCBs- Transformer burnouts and fires can spread PCBs throughout a building. Transformer and lighting are primary sources of PCBs in buildings. PCBs were used in some window caulking. It's recommended that window caulking and glazing putty be checked for PCBs prior to window removal and replacement. Before PCB sampling be sure owner is willing to comply with regulations if PCBs are found.

Roundup

Odors? Transient odors in residential properties are often more challenging than odors encountered in industry. Odor sources can often be traced to: deferred cleaning and maintenance, lack of HVAC system operation knowledge, and failure to understand airflow patterns.

Where are IH and IEQ headed?

- More emphasis on awareness
- New EPA regulations
- LEED standard
- WELL Standard (includes both air and drinking water)
- Consolidation of IEQ firms and labs, due to private equity interest in “green”, “renewable” which sounds good and looks good in investment portfolio.
- Silica was hot in 2017-2019 and now it’s not. OSHA PEL phased approach with silica first construction, then general industry & then fracking. Now most industries are compliant with Table 1 and they don’t have to sample.
- Mergers and Acquisitions- yes long-term contracts, top-line growth and diversification are all desirable; the most important factor is the people.
- ERMI should not be used and most often when it is used, ERMI isn’t used correctly. Buyer should beware in NJ and elsewhere where mold licensing is isn’t in effect.

LINKS TO REFERENCES

Lead Renovation, Repair and Painting Program Rules | US EPA

EPA's 2008 Lead-Based Paint Renovation, Repair and Painting (RRP) Rule (as amended in 2010 and 2011), aims to protect the public from lead-based paint hazards associated with renovation, repair and painting activities. These activities can create hazardous lead dust when surfaces with lead paint, even from many decades ago, are disturbed.

ASTM-D5755 › Standard Test Method for Microvacuum Sampling and Indirect Analysis of Dust by Transmission Electron Microscopy for Asbestos Structure Number Surface Loading

https://www.document-center.com/standards/show/ASTM-D5755

ASTM-D6480 › Standard Test Method for Wipe Sampling of Surfaces, Indirect Preparation, and Analysis for Asbestos Structure Number Surface Loading by Transmission Electron Microscopy
https://www.document-center.com/standards/show/ASTM-D6480

Settled Asbestos Dust Sampling and Analysis, Hays, Steve M ...

Settled Asbestos Dust Sampling and Analysis - Kindle edition by Hays, Steve M., Millette, James R.. Download it once and read it on your Kindle device, PC, phones or tablets. Use features like bookmarks, note taking and highlighting while reading Settled Asbestos Dust Sampling and Analysis.

As discussed, please see the attached City of Philadelphia regulation and the pending NJ Legislation for Lead Safe Sampling (NJ's lead-based paint law goes into effect in July of 2022 and directly targets ALL pre-1978 rental properties. This new law is being referred to as, New Jersey's Lead Safe Certification and will require lead-paint inspections, (Visual &/or Dust wipes) on all nonexempt rental property at turnover.) 4 documents

- Philadelphia Lead Disclosure and Certification Law
- Frequently Asked Questions about Bill No. 180936-A What Landlords Need to Know
- A Landlord's Guide to the Philadelphia Lead Disclosure and Certification Law
- N.J.A.C. 5:17-1.1

The guiding principle of radiation safety is "ALARA". ALARA stands for "as low as reasonably achievable". This principle means that even if it is a small dose, if receiving that dose has no direct benefit, you should try to avoid it.
To do this, you can use three basic protective measures in radiation safety: time, distance, and shielding.
https://www.cdc.gov/nceh/radiation/alara.html

J Occup Environ Hyg 2008 Jun;5(6):360-6.
doi: 10.1080/15459620802017425.
Phenyl mercuric acetate (PMA): mercury-bearing flexible gymnasium floors in schools--evaluation of hazards and controlled abatement
Harry J Beaulieu[1], Serrita Beaulieu, Chris Brown
Affiliations expand
PMID: 18365889
DOI: 10.1080/15459620802017425

Abstract
Phenyl mercuric acetate (PMA) historically has been used as a catalyst in polyurethane systems. In the 1950s-1970s, PMA was used as a catalyst in the 3M Tartan brand polyurethane flexible floors that were installed commonly in school gymnasiums. Mercury vapor is released into air above the surface of these floors. Sampling mercury in bulk flooring material and mercury vapor in air was conducted in nine Idaho schools in the spring of 2006. These evaluations were conducted in response to concerns by school officials that the floors could contain mercury and could release the mercury vapor into the air, presenting a potential health hazard for students, staff, and visitors. Controlled abatement was conducted in one school where remodeling would impact the mercury-bearing flexible gym floors (approximately 9,000 ft(2) total). The controlled abatement consisted of containment of the work area with negative air technology; worker protection, including mercury-specific training, use of personal protective equipment, and biological and exposure monitoring; and environmental protection, including proper disposal of mercury-bearing hazardous waste material.
https://pubmed.ncbi.nlm.nih.gov/18365889/

Z-Man signing off

Trivia: What do actors Paul Gleason and Steve McQueen have in common?

Answer: Both succumbed to pleural mesothelioma

Answered by: Jack Springston