



CONNECTION

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“Solid Solutions Seeking Sustainability”

WELCOME MR. SPENCER CHICHESTER!

In 2015, Spencer Chichester joined Caliche Ltd. as an intern while attending Steven F. Austin State University and upon graduation, with a B.S. in Forestry and a minor in spatial science he became a full-time employee. While at university Spencer volunteered with Nacogdoches Naturally becoming a NASP certified Basic Archery Instructor to assist with after school nature programs.

Spencer is currently employed as an Industrial Hygiene and Geographic Information Systems Technician. He is currently under the tutelage of Frank Parker, Gerry Luther and Robert Luther in a variety of subjects ranging from Environmental to Industrial Hygiene practices. Spencer is currently in the process of obtaining an EPI® Certification.



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“...asbestos containing materials are still widely present in buildings and industrial facilities.”

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ASBESTOS - STILL AN ISSUE

BY: Frank M. Parker, III – CIH, CSP, PE, BCEE

A recent article in the Wall Street Journal [March 18, 2020 p. A3] reports on litigation against Pennsylvania State University. A retired long time professor developed mesothelioma, a rare cancer primarily related to asbestos exposure, that he alleges was caused by his exposure to asbestos containing materials in the building where he worked. Regardless of the merits of the case, it is a reminder that asbestos containing materials are still widely present in buildings and industrial facilities. Some estimates indicate that only about half of the asbestos installed in buildings and industrial plants has been abated and much of the abatement was improperly conducted. Consequently, people have been and are currently being exposed to asbestos in these places. As long as occupational asbestos exposures continue there will likely be additional more cases of asbestos related diseases and associated litigation.

If you have any questions please feel free to contact us and we would be glad to help.

OTOTOXICANTS AND HEARING IMPAIRMENT

BY: Gerry Luther – CIE, OHST

It is traditionally accepted that noise is the primary risk factor when referring to hearing loss but due to variety and complexities in the industrial environments today as well as exposures to hazardous materials in the workplace, NIOSH believes "...it may be inappropriate to restrict occupational hearing loss to only a noise-induced origin." Recent evidence suggests chemicals that industrial environmental workers are exposed to, "...may affect hearing alone or in combination with noise exposure."

Ototoxicants are defined as substances that may damage the inner ear, by either affecting the structures in the ear itself or by affecting the nervous system. These substances are found in various categories including solvents, metals (and their compounds), asphyxiants, nitriles and pharmaceuticals. The Department of the United States Army identifies twenty-one (21) chemicals as ototoxicants. "Any exposure to these ototoxicants, either in combination with noise or alone, that is greater than 50 percent of each chemical's respective occupational exposure limit would trigger enrollment in a hearing conservation program."

Periodic audiograms are being recommended by ACGIH® when workers are in settings which, "combine exposures to noise to noise and carbon monoxide, hydrogen cyanide, lead, and solvent mixtures and recommends audiograms when ethylbenzene, styrene, toluene, or xylene exposures occur in the absence of noise."

Though "research suggests that OELs may need to be lower to adequately protect workers from hearing loss when both noise and ototoxicants are present in the workplace", additional information/studies, regarding single and combination exposures of chemical(s) and/or noise, are needed in order to determine what concentrations contribute to hearing impairment.

For more information, read the full article by N. Cody Schaal in the December 2019 issue of *thesynergist*.

RESPIRATORS

BY: FRANK M. PARKER, III – CIH, CSP, PE, BCEE

Everywhere you look these days you see folks wearing disposable masks. They're on TV, in the stores and on the street. Here's an overview of respirators, their types, nomenclature and, most importantly, their limitations.

The ones most often seen are the "Disposables". They are frequently described as a "paper" mask that fits over the nose and mouth. They are also commonly identified as N95 masks. The body of a disposable mask, the white material, is the filtration media. For the N95 at least 95% of particles greater than 0.3 μ microns, or 300 nanometers, will be captured and removed from the air you breathe that has passed through the filtration media. Unfortunately, viruses are in the size range of 100 nanometers. Consequently, a single virus most likely won't be stopped by a N95 mask. Fortunately, most viruses are contained in droplets from a cough or sneeze and which are much larger than 0.3 μ . Also, the filter media on a NIOSH approved N95 masks is at least 95% efficient, some are more that 99% efficient. However, they were not designed to be used in environments containing acute hazards where failure would result in putting the wearer in acute danger.

First, and foremost, please read the manufacturer's instructions on the proper use and limitations of their mask. Knowing what the mask **WON'T DO** is critical! Read the instructions.

These disposable masks have several basic problems. First is obtaining and preserving a tight face seal throughout the time it is worn. Without a face seal the air simply bypasses the filter media and is inhaled unfiltered. We did a study of over 700 fit tests on a variety of these masks during the H1N1 outbreak. Untrained workers, who simply donned these masks, failed to obtain a face seal some half the time. Some 10% of the workers never obtained a satisfactory face seal with the masks we had available.

The second problem is durability. These disposable masks were not designed, nor marketed, for use over long periods of time. The thought being that there would be ample supply to replace many times a day if necessary. Wearing a disposable mask all day, and even longer, is very problematic. They are not that durable. Moisture buildup, especially those masks without exhalation valves, leads to structural failure and loss of face seal rather quickly. Also, any time they are touched or bumped the face seal is threatened.

Finally, like all personal protective equipment [PPE], the mask can become a source of contamination itself. Viruses can collect on the mask's surface and be directly transmitted to the wearer, especially when being removed. It is important that the mask be the **LAST** piece of PPE removed and that the wearer take great caution not to touch the outside of the mask. Remove using the straps or inserting a finger inside the mask at the chin. Discard immediately. Reuse of a mask raises the possibility that the inside of the mask has been contaminated and will make the virus directly accessible to your respiratory system.

There are other disposable masks, in addition to the N95, to consider. These include the P95, R95, N100, P100 and the R100. The 100 series approaches 100% efficiency. The "P" notation indicates use for protection against oil & non-oil particles with **time limitations** specified by the manufacturer. The "R" notation indicates use for protection against oil and non-oil particles with **time limitations** specified by NIOSH.

For people with colds, or anyone coughing and/or sneezing, wearing a disposable mask helps protect those other folks in your immediate area. However, any mask or other barrier can be used for this purpose. Using an N, P or R designated mask should not be used unless no other class of mask is available.

If you have any questions or if we can be of any help during these trying times just give us a call.

OSHA's National Emphasis Program - Respirable Crystalline Silica Directive

By: Michael Luther

OSHA has a new National Emphasis Program (NEP) - Respirable Crystalline Silica (RCS) directive which went into effect on the fourth of February this year. The NEP aims at specific industries expected to have highest RCS exposures and applies OSHA wide.

Significant Changes are as follows:

This Instruction follows the cancellation of the 2008 Crystalline Silica NEP in October 2017.

The following list highlights the differences between this replacement NEP and the former NEP:

- This replacement NEP addresses enforcement of OSHA's standards for RCS, promulgated in 2016. One standard covers general industry and maritime, and the other covers construction. Both standards set a permissible exposure limit (PEL) for RCS of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as an 8-hour time-weighted average (TWA). The former TWA PELs for respirable quartz silica were calculated based on silica content and were approximately equivalent to 100 $\mu\text{g}/\text{m}^3$ for general industry and 250 $\mu\text{g}/\text{m}^3$ for construction and shipyards (81 FR at 16294, March 25, 2016).
- This NEP contains an updated list of target industries, listed by North American Industry
- Classification System (NAICS) codes.
- For inspection procedures, this NEP refers compliance safety and health officers (CSHOs) to current enforcement guidance for the Respirable Crystalline Silica Standards.
- State Plan participation in this NEP has been made mandatory.
- Area and Regional Offices shall comply with this NEP, but they are not required to develop and implement corresponding Local Emphasis Programs (LEPs) or Regional Emphasis Programs (REPs).
- Area Offices will conduct outreach programs three months prior to initiating NEP-related
- RCS inspections.
- Area Offices are no longer required to send abatement verification to the National Office.

To read more information or the full Directive, please refer to OSHA Instruction Directive Number CPL 03-00-023.