EnPro Learning System

Weekly Safety Briefings

Week 4: August 26 – 30, 2019

Respiratory Protection and Silica Standards

Introduction

People generally take physical hazards seriously; however, what happens when hazards are invisible and their effects are not immediately noticed? Respiratory protection is often times neglected, as opposed to hearing, sight, and body protection, despite being just as important! You need your lungs to breathe just as much as you need your eyes to see and ears to hear, so why isn't respiratory protection discussed as frequently?

This week we'll focus on new OSHA standards for respiratory protection from silica particles and other contaminants. We'll also talk about proper use of respirators and PPE. We'll wrap up the week with contaminant protection at home that might surprise you.

Monday – OSHA Silica Standards

OSHA recently updated their silica standards for the first time in 40 years. This is to ensure workers are guaranteed proper protection against health risks from respirable crystalline silica. These standards are estimated to save more than 600 lives and prevent almost 1000 cases of silicosis each year. Silicosis feels like breathing through a straw that is too small. Before we talk about prevention, what *is* crystalline silica and why is it dangerous to our health?

Silica is a compound typically found in concrete, stone, sand, and plaster among many other materials. Silica in and of itself is not hazardous to our health. However, when silica based materials are grinded, cut, jackhammered or drilled, tiny dust particles are generated and pose serious health risks when inhaled. Over time the microscopic silica dust fills lungs like sand in an hour glass.

Under these updated OSHA regulations, employees are guaranteed:

- Employer provided respiratory protection (PPE)
- Silica exposure control plan
- Employer provided medical exams every 3 years – this is for employees who are required to wear a respirator for at least 30 days per year
- Training and communication about specific work hazards

Tuesday – OSHA Silica Standards (Cont.)

The new OSHA silica standards require exposure assessments for employees who are or may be exposed to respirable crystalline silica. There is a Permissable Exposure Limit and a Action Level Limit (see the OSHA silicia standards for details).

Employees who are exposed to Silica while on the job are expected to undergo an exposure assessment that is covered by the employer.

Employers must communicate results to assessed employees with 5 working days of completion. If exposure assessments show exposures above the Permissable Limit, corrective actions to reduce employee exposure must be communicated to all employees with their results. If corrective actions cannot be identified within 5 days, respiratory protection will be listed.

Wednesday – Proper Respirator Use

When working in an environment that exposes you to silica and dust, respiratory protectors can filter out contaminants only when protectors are selected and used properly. There are two main types of respiratory protectors, and each one has a different purpose.

1) **Air-Purifying Respirator** [refer to image]**:** removes contaminants from the air through a filter, cartridge, or canister.

2) **Supplied-Air Respirator:** provide clean air from an uncontaminated source.

Hazards, work environment, and user factors determine which respirator type is most appropriate. Combination Respirators are more commonly used in the workplace. These filter the air as you breathe and provide adequate protection against both chemical fumes and silica dust.

Full protection from a respirator requires proper fit and functionality testing. Employers are required by law to provide both respirators and qualified fit testing to identify the size and model that is best for each employee.

Before using a respirator, remember to always conduct a seal check. This ensures that nothing leaks out of your mask when you inhale or exhale.

- **To check for exhalation leaks:** Cover the exhalation port of the mask with your hand and exhale strongly – if the mask does not slightly bulge or you feel air escape, replace the mask immediately.
- **To check for inhalation leaks:** Cover the cartridges with your hands and inhale strongly – if the mask does not slightly collapse or you feel air enter, replace the mask immediately.

Properly fitted and working respirators should only allow air in and out from the appropriate components. Once you are properly fitted and make sure your respirator does not have any leaks, work may begin!

Thursday – Respiration Safety at Home

At home DIY or home improvement projects can pose just as much danger to your respiratory system as working in a plant or facility. Prior to tearing down drywall, pulling up carpets, or starting your framing renovations, ensure you have proper respiratory protection and a good understanding about how your project can affect your breathing.

Before you start any home project, consider your current state of health. For those with previous lung or respiratory conditions, such as asthma or allergies, particles from dust and fumes can cause irritation and old issues may act up. Next, ask yourself if this is really a task you can safely do on your own. If you do not feel that you are capable of safely executing your project by yourself, a home services professional can complete it quicker and safer.

If you decide to carry out your project, take into consideration what tools you need. Are you working with gas, paint, and concrete? Are you encountering any fumes, dust, and potentially silica? Pay attention to the age of your house as older houses typically contain dangerous fibers and substances such as asbestos.

Finally, do not forget your respiratory protector! Disposable N95 ARPs provide basic protection, and are cheap and easy to find. Some of these may come with an exhalation port but some may look like basic dust masks; however, dust masks **cannot** be used in place of ARPs as they will not provide proper protection. Ensure your mask has N95 or NIOSH certification – never use masks without this.

Friday – Discussion

How has working in this type of dust-filled environment affected your health? Do you feel adequately protected by the equipment you currently use? Have you encountered any potential respiratory dangers while doing a project at home? Discuss with the group and come up with ways to prevent breathing contaminants that damage our lungs.