Poor Respirator Fit: It’ll Take Your Breath Away

Employees at a metal products finishing company were exposed repeatedly to toxic, cancer- causing hexavalent chromium and isocyanate because of improperly fitted respirators.

Respirators were often used, but due to poor fit and lack of fit testing, employees’ facial hair came between the respirator and the employee’s skin, breaking the air-tight seal that provides protection from exposure to hazardous substances. As a result, cancer-causing, toxic hexavalent chromium and isocyanates were inhaled regularly and contacted employees’ skin as well. This situation is unfortunately a true story. The company involved was cited by OSHA and fined over $300,000.

What’s at Stake?

When working in air containing hazardous substances, properly-fitting respiratory protection ensures you can breathe clean air, free of toxic gases and other contaminants that can kill you or cause severe illness.

If the respiratory protection you use fits poorly, it can be as hazardous as using nothing at all. Welders exposed to metal fumes, for example, have a 30 to 40 percent higher risk of lung cancer, a disease that can dramatically disrupt life – and the life of everyone who depends on you. Is that a risk you’re ready to accept?

Today we’ll review why respirator fit is important and why poor respirator fit can injure or kill you. We’ll also talk about how you can ensure your respirator always fits properly.

What’s the Danger?

Clean air can become contaminated through numerous routes:

- Gases which are toxic or which displace oxygen
- Dust created when materials are ground down into small particles – Mists created when liquids are sprayed
- Fumes created when materials are heated or burned
- Vapors given off by volatile liquids

Oxygen can also be in short supply in confined spaces where materials have rotted, rusted, burned or where chemical processes have been carried out.

In many cases, you can’t see, smell, taste, or otherwise recognize these types of hazards – nor can your lungs – until it’s already too late. If vital organs like your lungs or brain are exposed to hazardous substances – even for a short period – the result can be severe illness, permanent injury, or death.

How to Protect Yourself

Always wear properly-fitting respiratory protection if you might be exposed to respiratory hazards.

Choosing the proper equipment and using it correctly is critical. If you have not received guidance in picking and fitting of respiratory equipment, or are not clear on how to use or maintain your respiratory protection equipment correctly, immediately ask your supervisor or a manager and ask for guidance.

Here are example of respiratory protective equipment:

- For protection against mild hazards of airborne particles, dust masks are used.
- When there is enough oxygen and the contamination is not immediately life-threatening, respirators which capture the contaminants and purify the air are used, for example a negative- pressure respirator
- When there is not enough oxygen or when the substance is immediately life-threatening, respirators which provide a separate air supply are needed, for example a supplied-air respirator

Below are a couple common causes of poorly-fitting respiratory protection – if any of these apply to you now or in the future, speak with your supervisor or manager about taking steps to ensure proper fit before you begin work:

- Facial hair, scars, jewelry, headgear, or eyeglasses that interfere with the air-tight seal created between a respirator and your skin, eliminating the air-tight seal that protects you
- Changes in facial structure, causing a previously well-fitting respirator to no longer fit properly

Here are a couple ways to avoid poor-fitting respiratory equipment:

- Routine fit-testing: Fit-testing is often performed for new employees and checked at least once each year; common regulations and standards require this activity
- Check for proper fit every time you use your respiratory equipment – and this should always happen when there's a change in working conditions or other equipment used near/around your respiratory equipment, such as a change in protective clothing used
- Ask for help if you're not certain: If you ever feel your respiratory protection is not fitting properly or not working as expected, immediately speak with your supervisor or a manager

Final Word

Using poor-fitting respiratory protection can be as bad as using nothing at all. Even worse, the harm to your body from respiratory hazards can be impossible to detect or even take years to develop. Don't let poor-fitting respiratory equipment take your breath away – make sure it fits right every time you use it.