

Respiratory Protection

Respiratory hazards can include dusts, biological contaminants, mists, fumes, gases, and oxygen-deficient atmospheres. There are several levels of controls that can be implemented to minimize or eliminate exposure to these hazards, which are listed below from the most to least effective:

Elimination: Physically remove the hazard, like raising equipment out of a confined space to service it.

Substitution: Replace a hazard with a less dangerous substitute, like using non-lead-based paint.

Engineering Controls: Isolate workers from hazards, like adding fume hoods to filter contaminants from the air.

Administrative Controls: Change the way people work, like reducing the amount of time working with a chemical.

Personal Protective Equipment (PPE): Protect the worker with PPE, like wearing a respirator.

By implementing the above controls, we can focus on more effective means of protecting employees before considering PPE. As PPE is often incorrectly worn, not cared for or stored correctly, incompatible with other PPE being worn, or not suitable for the hazards, it is considered the last line of defense.

Tips for Success When Talking to Your Team

Preparation is Key: Keep the topic relevant. Work with your team and Risk Management to assess potential airborne hazards in your work area, and discuss how the hazards can be avoided.

Stay Positive: Keep the focus on what can be done to create a safe workplace instead of focusing on what has gone wrong in the past.

Share a Story, Ask for a Story: Storytelling is a powerful method to convey information. Stories from your employees make the topic even more relatable.

Assessing Respiratory Hazards

When responding to respiratory concerns, Risk Management reviews Safety Data Sheets (SDSs) and conducts air monitoring and analyzes the samples to determine the levels of hazardous contaminants on the SDSs. After consulting the SDSs, OSHA's Permissible Exposure Limits, and other OSHA requirements, Risk Management uses the hierarchy of controls to determine what measures to implement to reduce exposure. If respirators are deemed necessary, Risk Management helps select the appropriate respirator and cartridges to ensure they are effective, as well as enrolls employees in the University's Respiratory Protection Program, which includes a medical evaluation to ensure you are physically capable of wearing a respirator, training to ensure you are aware of the hazards and how to properly care for and wear your respirator, and fit testing to ensure the respirator fits your face properly.



Selecting a Respirator

There are two types of respirators: air-purifying and supplied-air. Tight-fitting *air-purifying respirators* utilize cartridges to filter contaminants from the air, and as such cannot be used in potentially oxygen-deficient atmospheres. *Supplied-air respirators* provide breathable air from a reliable source (e.g., tank), and can be tight-fitting or loose-fitting; loose-fitting respirators are beneficial when a tight-seal is not feasible (e.g., due to facial hair).

Voluntary Use

If controls are implemented a respirator is not deemed necessary, if you still would like to wear a respirator, you may be permitted to voluntarily wear a filtering facepiece respirator (e.g., N95) or air-purifying respirator. Permission is required from your supervisor and Risk Management or Research Safety, and OSHA requires you to review information and sign a form. Employees who voluntarily wear air-purifying respirators must also obtain medical clearance, due to the strain they create on the body.

Save Your Breath, Wear Your Respirator

Respiratory hazards can cause cancer, lung impairment, diseases, and death. When additional controls are not sufficient protection and respirators are required, always ensure you are using them correctly, as not doing so can take your livelihood or your life.

Report all injuries on Risk Management's [website](#) or call (847) 491-5582.

Learn more: Complete [Respiratory Protection training](#).

Safety at Home

Keep the following limitations and cautions in mind while completing DIY projects and using hazardous chemicals, from pesticides to paint thinners.

- Always purchase NIOSH-approved respirators that are adequate protection for the work you are going to perform.
- Check the SDS for the chemicals/products you are working with to ensure you purchase the correct PPE. For example, while an N95 may be sufficient for sanding drywall, a half-face respirator with a vapor cartridges would be required while spraying aerosols, like spray paint.
- If you have a heart disease or respiratory condition, consider consulting with your doctor prior to wearing a respirator.

For additional information, contact Gwen Butler, Director, Environmental Health and Safety, at (847) 491-4936.

Do you or your team have a safety story you'd like to share? Contact Risk Management at gwen.butler@northwestern.edu for details.