

# Respirator Selection

Chapter 296-842 WAC

## Rule

WAC 296-842-13005

### Select and provide appropriate respirators

#### Important:

See chapter 296-841 WAC, Airborne Contaminants, for:

- Hazard evaluation requirements. Evaluation results are necessary for respirator selection.
- References to substance-specific rules that may also apply to you and have additional respirator selection requirements. These references are found in the permissible exposure limit (PEL) table.



#### Helpful Tool:

##### Information about Respirator Selection and Classification

This document provides guidance about respirator selection and classification. You can find a copy in the Resources section of this chapter.

Select and provide, at no cost to employees, appropriate respirators for routine use, infrequent use, and reasonably foreseeable emergencies (such as escape, emergency, and spill response situations) by completing the following process:

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### Respirator Selection Process

- Step 1:** If your only respirator use is for escape, skip to Step 8 to select appropriate respirators.
- Step 2:** If the respiratory hazard is a biological aerosol, such as TB (tuberculosis), anthrax, psittacosis (parrot fever), or hanta virus, select a respirator appropriate for **nonemergency** activities recognized to present a health risk to workers **and** skip to Step 8.
- If respirator use will occur during **emergencies**, skip to Step 8 and document the analysis used to select the appropriate respirator.
  - Use Centers for Disease Control (CDC) selection guidance for exposures to specific biological agents when this guidance exists.  
Visit <http://www.cdc.gov>.
- Step 3:** If the respiratory hazard is a pesticide, follow the respirator specification on the pesticide label **and** skip to Step 9.
- Step 4:** Determine the expected exposure concentration for each respiratory hazard of concern. Use the results from the evaluation required by Chapter 296-841 WAC, Airborne Contaminants.

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**Step 5:** Determine if the respiratory hazard is classified as IDLH; if it's **not** IDLH skip to Step 7.

- The respiratory hazard **is** classified as IDLH if:
  - The atmosphere is oxygen deficient or oxygen enriched
- or**
- You **can't** measure or estimate your expected exposure concentration
- or**
- Your measured or estimated expected exposure concentration is greater or equal to the IDLH value in the NIOSH *Pocket Guide to Chemical Hazards*



**Note:**

- WISHA uses the IDLH values in the 1990 edition of the NIOSH *Pocket Guide to Hazardous Chemicals* to determine the existence of IDLH conditions. You may use more recent editions of this guide. Visit [www.cdc.gov/niosh](http://www.cdc.gov/niosh) for more information.
- If your measured or estimated expected exposure concentration is below NIOSH's IDLH values, proceed to Step 7.

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**Step 6:** Select an appropriate respirator from one of the following respirators for IDLH conditions and skip to Step 8:

- Full-facepiece, pressure demand, self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of 30 minutes
- or**
- Full-facepiece, pressure demand air-line respirator equipped with an auxiliary self-contained air supply

**Exception:**

If the respiratory hazard is oxygen deficiency **and** you can show oxygen concentrations can be controlled within the ranges listed in **Table 4** under **all** foreseeable conditions, you are allowed to select **any** type of SCBA or air-line respirator:

Altitude (as ft. above sea level)	Oxygen Concentration Range (as percent oxygen)
Below 3,001	16.0 -19.5
3,001 - 4,000	16.4 -19.5
4,001 - 5,000	17.1 - 19.5
5,001 - 6,000	17.8 - 19.5
6,001 - 7,000	18.5 – 19.5
7,001 - 8,000	19.3 – 19.5

Above 8,000 feet the exception doesn't apply. Oxygen enriched breathing air must be supplied above 14,000 feet.

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**Step 7:** Select respirator types with assigned protection factors (APFs) from **Table 5** that are appropriate to protect employees from the expected exposure concentration.



**Note:**

- The helpful tool, Using Assigned Protection Factors (APFs) for respirator selection, found in the resource section of this chapter, utilizes the hazard-ratio approach established by ANSI Z88.2-1992 to determine which respirator types can provide a sufficient level of protection.
- If **no** permissible exposure limit (PEL) is established for an airborne contaminant, use relevant available information and informed professional judgment to determine an acceptable exposure limit value to use for calculating hazard ratios. For example, you may use exposure limit values established by the American Conference of Governmental Industrial Hygienists (ACGIH).

**Step 8:** Consider hazards that could require selection of specific respirator types. For example, select full-facepiece respirators to prevent eye irritation or abrasive blasting helmets to provide particle rebound protection.



**Note:**

- Rules for specific substances have additional selection specifications that apply to escape and other types of respirators. Make sure you follow those additional requirements before finalizing your selection.

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**Step 9:** Evaluate user and workplace factors that might compromise respirator performance, reliability or safety.

**Examples:**

- High humidity or temperature extremes in the workplace.
- Necessary voice communication.
- High traffic areas and moving machinery.
- Time or distance for escape.
- If respirator use is for escape only, follow this step and then skip to **Step 11**.
- If the respiratory hazard is a pesticide, follow the requirements on the pesticide label and skip to **Step 11**.

**Step 10:** Follow **Table 6** requirements to select an air-purifying respirator.

- If Table 6 requirements can't be met, you must select an appropriate air-line respirator or an SCBA.

**Step 11:** Make sure respirators you select are certified by the National Institute for Occupational Safety and Health (NIOSH).

- Respirators provided exclusively for escape from IDLH atmospheres must be NIOSH-certified for escape from the atmosphere in which they will be used.
- To maintain certification, make sure the respirator is used according to cautions and limitations specified on the NIOSH approval label. This includes manufacturer restrictions on cartridges and canisters.



**Note:**

While selecting respirators, you will need to select a sufficient number of types, models or sizes to provide for fit testing. You can also consider other respirator use issues, such as accommodating facial hair with a loose fitting respirator.



**Helpful Tool:**

**Key Information about NIOSH Certified Respirators**

This document will help you understand how to find and use NIOSH certification information. You can find a copy in the Resources section of this chapter

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**Use Table 5** to identify the assigned protection factor for different types of respirators.

These assigned protection factors are only effective when the employer implements a continuing, effective respirator program as required by this chapter, including training, fit testing, maintenance, and use requirements.

You may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required use is independent of concentration.

Table 5 Assigned Protection Factors (APF) for Respirator Types	
If the respirator is a(n)	Then the APF is
Air-purifying respirator with a: <ul style="list-style-type: none"><li>• Quarter-mask</li><li>• Half-facepiece. This category includes filtering facepiece and elastomeric facepiece</li><li>• Full-facepiece</li></ul>	5 10 50
Powered air-purifying respirator (PAPR) with a: <ul style="list-style-type: none"><li>• Loose-fitting facepiece</li><li>• Half-facepiece</li><li>• Full-facepiece</li><li>• Hood or helmet</li></ul> <p><b>Note:</b> PAPRs with helmets/hoods may receive an APF of 1000 only when you have evidence that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater. Such evidence must be provided by the respirator manufacturer. This level of performance can best be demonstrated by performing a workplace protection factor (WPF) or simulated workplace protection factor (SWPF) study or equivalent testing.</p>	25 50 1000 25/1000 (see note)

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Table 5 (continued) Assigned Protection Factors (APF) for Respirator Types	
If the respirator is a(n)	Then the APF is
<p>Air-line respirator with a:</p> <ul style="list-style-type: none"> <li>• Half-facepiece and designed to operate in demand mode</li> <li>• Loose-fitting facepiece and designed to operate in continuous flow mode</li> <li>• Half-facepiece and designed to operate in continuous-flow mode</li> <li>• Half-facepiece and designed to operate in pressure-demand or other positive-pressure mode</li> <li>• Full-facepiece and designed to operate in demand mode.</li> <li>• Full-facepiece and designed to operate in continuous-flow mode</li> <li>• Full-facepiece and designed to operate in pressure-demand or other positive-pressure mode.</li> <li>• Helmet or hood and designed to operate in continuous-flow mode</li> </ul> <p><b>Note:</b> Air-line respirators with helmets/hoods designed to operate in continuous-flow mode may receive an APF of 1000 when you have evidence that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater. Such evidence must be provided by the respirator manufacturer. This level of performance can best be demonstrated by performing a workplace protection factor (WPF) or simulated workplace protection factor (SWPF) study or equivalent testing.</p>	<p>10</p> <p>25</p> <p>50</p> <p>50</p> <p>50</p> <p>1000</p> <p>1000</p> <p>25/1000 (see note)</p>
<p>Self-contained breathing apparatus (SCBA) with a tight fitting:</p> <ul style="list-style-type: none"> <li>• Half-facepiece and designed to operate in demand mode</li> <li>• Full facepiece and designed to operate in demand mode</li> <li>• Full-facepiece and designed to operate in pressure-demand mode or other positive pressure mode (e.g. open/closed circuit)</li> <li>• Helmet or hood and designed to operate in demand mode</li> <li>• Helmet or hood and designed to operate in pressure-demand or other positive-pressure mode (e.g., open/closed circuit).</li> </ul>	<p>10</p> <p>50</p> <p>10,000</p> <p>50</p> <p>10,000</p>
<p>Combination respirators:</p> <ul style="list-style-type: none"> <li>• When using a combination respirator, such as an air-line respirator with an air-purifying filter, you must make sure the APF is appropriate to the mode of operation in which the respirator is used.</li> </ul>	
<p>Escape respirators:</p> <ul style="list-style-type: none"> <li>• APFs in this table do not apply to respirators used solely for escape. To select escape respirators, go to Step 8 of this section.</li> </ul>	

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Use Table 6 to select air-purifying respirators for particle, vapor, or gas contaminants.

Table 6 Requirements for Selecting Any Air-purifying Respirator	
If the contaminant is a	Then
Gas or vapor	<p>Provide a respirator with canisters or cartridges equipped with a NIOSH-certified, end-of-service-life indicator (ESLI)</p> <p><b>or</b></p> <p>If a canister or cartridge with an ESLI is <b>not</b> available, develop a cartridge change schedule to make sure the canisters or cartridges are replaced before they are no longer effective</p> <p><b>or</b></p> <p>Select an atmosphere-supplying respirator</p>
Particle, such as a dust, spray, mist, fog, fume, or aerosol	<p>Select respirators with filters certified to be at least 95% efficient by NIOSH. For example, N95s, R99s, P100s, or High Efficiency Particulate Air (HEPA) filters</p> <p><b>or</b></p> <p>You may select respirators NIOSH certified as "dust and mist," "dust, fume, or mist," or "pesticides." You can only use these respirators if particles primarily have a mass median aerodynamic diameter of at least 2 micrometers.</p> <p><b>Note:</b> These respirators are no longer sold for occupational use.</p>



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# Notes

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