

Respirators

INSIDE:

Basics of Respirators

- Half/Full Face
- Valved/Non-Valved
- Cartridges/Filters

Tips & More

- Respiratory Selection
- Size & Fit



DID YOU KNOW?



The National Institute for Occupational Safety and Health (NIOSH) estimates that deaths from work-related respiratory diseases and cancers account for about **70% of all occupational disease deaths**.

An estimated **5 million workers** are required to wear respirators in 1.3 million workplaces throughout the United States. – *United States Department of Labor*

Basics of Respirators

Types

Particulate

- Protects against dust, mist, liquids and some fumes
- Does not protect against gases or vapors
- Available in disposable and reusable models
- Replaceable filters available

Chemical Cartridge/Gas Mask

- Protects against airborne particles, gas and vapors
- Contain replaceable carbon filters
- Reusable models only

Characteristics

Half Face Mask

- Protects nose and mouth
- Found in particulate and chemical cartridge/gas masks
- Both in disposable and reusable respirator models
- Eyewear and additional face protection may be needed



Full Face Mask

- Protects eyes, nose and mouth
- Found in particulate and chemical cartridge/gas masks
- Reusable respirators only



Valved

- One-way exhalation valve near the mouth
- Allows user to experience cool, dry comfort
- Found on these respirator types
 - ⇒ Disposable and reusable particulate respirators
 - ⇒ Chemical cartridge/gas mask respirators



Non-valved

- No vents to allow air movement
- Hot air may build up inside respirator with long period of continuous use
- Found only on disposable, particulate respirators



Cartridges

- Used in respirators to protect against gases and vapors
- Chemical cartridges block out vapors but not particles
- Dual cartridges include a replaceable pre-filter to block airborne particles
- Found on these respirator types
 - ⇒ Disposable and reusable particulate respirators
 - ⇒ Chemical cartridge/gas mask respirators



Filters

- Used in respirators to protect against airborne particles
- Replacements are widely available
- Not found in disposable respirators
- Found in both particulate and chemical/gas mask respirators



Additional Information

- National Institute of Occupational Safety and Health (NIOSH): www.cdc.gov/niosh
- Occupational Safety and Health Administration (OSHA): www.osha.gov
- United States Department of Labor Workplace Safety and Health: www.dol.gov/dol/topic/safety-health

Considerations and Tips

Facts and Tips about Respirators

- Respirators cover the nose, mouth and sometimes the eyes and face. They provide protection from airborne particles including dust, mist, liquids and fumes, gases or vapors.
- Respirator types include particulate, gas/chemical masks, escape, self-contained breathing apparatus (SCBA) and airline respirators.
- The contaminants, exposure, time and concentration level are essential to know when choosing a respirator.
- Before using a respirator, it is critical to read and follow the User Instructions.
- The Occupational Safety & Health Administration (OSHA) develops and enforces the workplace safety and health regulations.
- If used in the workplace, a respiratory protection program must be in place according to the requirements set by OSHA Respiratory Protection Standards.
- When choosing respirators, choose only those rated and approved by the National Institute of Occupational Safety and Health (NIOSH).

Size and Fit Matter



A **fit test** and **user seal check** are both essential to making sure a respirator protects you from the contaminants in your work environment. For more information on the OSHA-accepted fit test procedure, click [here](#). For instructions on the user seal check, click [here](#).

Questions to Consider When Buying A Respirator

Environment

- What is the specific task/application where the respirator will be used?
- What hazards are in your environment?
- What airborne particles or chemicals are in your environment?
- How many hours do you work in this environment?

Equipment

- What do you like or dislike about your respirator, if using one now?
- What other safety equipment is needed to be protected against contaminants?
- Have you read the User Instructions?
- Have you conducted a fit test?

Popular Respirator Manufacturers



The Respirator Rating To Consider in Various Applications



All NIOSH-approved respirators are rated by the type of contaminants and how much they filters out. Each rating has a letter and number. The numbers refer to the percentage of one-micrometer particles removed during trials. Below is a chart with a rating and a corresponding application for each type:

Ratings
N Series • N - Not Oil Proof • Used in environments free of oil aerosols
R Series • R - Oil Resistant • Used in environments with oil and non-oil particles • Should only be used for 8 hours of continuous use
P Series • P - Oil Proof • Used in environments with oil and non-oil particles • Can be used beyond 8 hours of continuous use

Choosing the Right Particulate Respirator

	N95	N99	P95	R95	N100	P100
Filtering Efficiency %	95	99	95	95	99.97	99.97
Oil Resistance	None	None	High	Mod.	None	High
Applications						
Healthcare Settings	•					
Grinding	•	•				
Sanding	•	•				
Bagging	•	•				
Non-Oil Substance Processing	•	•				
Foundries			•	•		
Lab Settings			•	•		
Agriculture			•	•		
Petrochemical Manufacturing			•	•		
Undercoatings				•		
Welding					•	•
Pharmaceutical Manufacturing					•	•
Processing Minerals					•	
Coal					•	
Non-Oil Based Mists					•	
Lead						•
Cadmium Handling						•

www.cdc.gov/niosh/topics/respirators

For specific contaminant and rating information, consult the [NIOSH Pocket Guide to Chemical Hazards](#).