

RESPIRATOR BASICS

There are two primary means of respiratory protection:

Air Purifying Respirators

Atmosphere Supplying Respirators

Air Purifying Respirator (APR) – Is a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element. A filtering facepiece “dust mask”, where the filter is an integral part of the facepiece or the entire facepiece composed of the filter medium, is also considered an APR.



Note: The respirator on the left is an “Elastomeric Mask Respirator” and the one on the right is a “Filtering Facepiece Respirator”, commonly referred to as a dust mask. The difference between a “Nuisance Dust Mask” that is found at any hardware store is National Institute of Occupational Safety and Health (NIOSH) certification.

Filters - are component's used in APRs' to remove solid or liquid aerosols from the inspired air.



Particulate filters are graded as to their efficiency in removing monodisperse particles of 0.3 micrometers in diameter. These ratings are 95%, 99% and 99.97% (commonly referred to as 100%). Filters rated at 99.97% are known as **High Efficiency Particulate Air Filter (HEPA)**

Particulate filters are also given ratings that refer to the filters resistance to oil absorption. “N” = **Not** oil resistant, “R” = oil **R**esistant, “P” = oil **P**roof.



Canisters or Cartridges – Are container’s with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.



Atmosphere Supplying Respirator – Is a respirator that supplies the user with breathing air from a source independent of the ambient atmosphere. This category includes:

Supplied-Air Respirators (SARs)



AND

Self Contained Breathing Apparatus (SCBA)



Atmosphere supplying respirators are typically “Positive Pressure Respirators”. A positive pressure respirator is one in which the air pressure inside the facepiece is positive during inhalation with respect to the ambient pressure outside the respirator.

There are two types of fit with respirators:

Tight Fitting:

Half Mask



Full Facepiece



This type of respirator is typically known as a “Negative Pressure Respirator”. A negative pressure respirator is one in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient pressure outside the respirator.

Loose Fitting:

Hood

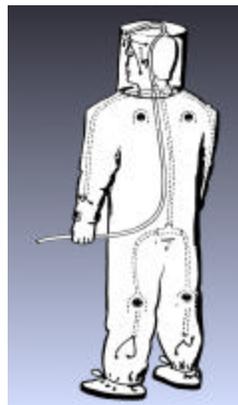


Helmet



Loose-Fitting Facepiece

Full Body Suit



Powered Air-Purifying Respirator (PAPR) – Is an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering. PAPR’s can either be tight fitting or loose fitting.



Escape Only Respirator – A respirator intended to be used only for emergency exit.



The table on the next page presents a simplified version of characteristics and factors used for respirator selection. It does not specify the contaminant or particle size.

Note: “Immediately dangerous to life or health” (IDLH) is any condition that poses either an immediate threat of severe exposure to contaminants, such as radioactive materials, which are likely to have adverse, delayed effects on health.

Hazard	Respirator
<p><i>Oxygen Deficiency</i></p> <p>Immediately dangerous to life or health.</p>	<p>Any positive-pressure SCBA.</p> <p>Combination positive-pressure with auxiliary self-contained air supply.</p>
<p>Not immediately dangerous to life</p>	<p>Any positive-pressure SCBA or</p>

or health.

supplied-air respirator.

Gas and Vapor Contaminants

Immediately dangerous to life or health.

Positive-pressure SCBA.

Combination positive-pressure SAR with auxiliary self-contained air supply respirator.

Not immediately dangerous to life or health.

Any positive-pressure SAR.

Gas mask.. (Note: Gas Masks with type “N” canisters have a finite shelf life). Check the expiration date before donning.

Particulate Contaminants

Chemical cartridge respirator.

Any positive-pressure SAR including abrasive blasting respirator.

Powered air-purifying respirator equipped with high-efficiency filters.

Any air-purifying respirator with a specific particulate filter.

Note: For bacteriological sized particles, any “N”, “R” or “P” 95%, 99%, or 99.97% filters may be used.

Hazard	Respirator
<i>Gaseous and Particulate Contaminants</i>	
Immediately dangerous to life or health.	Positive-pressure SCBA.
	Combination positive-pressure SAR with auxiliary self-contained air supply.
Not immediately dangerous to life or health.	Any positive-pressure supplied-air respirator.
	Gas mask.. (Note: Gas Masks with type “N” canisters have a finite shelf life). Check the expiration date before donning.
	Chemical-cartridge respirator.
<i>Escape from contaminated atmosphere that may be immediately dangerous to life or health</i>	Any positive-pressure SCBA.
	Gas mask.. (Note: Gas Masks with type “N” canisters have a finite shelf life). Check the expiration date before donning.
	Combination positive-pressure SAR with escape SCBA.
<i>Firefighting</i>	Any positive-pressure SCBA.