Respiratory Protection: Types of Respirators

Handout

Before being fit-tested or required to use a respirator in the workplace, your employer must provide you with a medical evaluation to determine your ability to use a respirator. A respirator may place a physical burden on the user — varying by the type of respirator worn, the job and workplace conditions, and the medical status of the individual.

There are two classes of respirators designed to keep you safe on the job:

Air-Purifying Respirators

Air-purifying respirators remove contaminants from the air through filters, cartridges, or canisters as you breathe.

Atmosphere-Supplying Respirators

Atmosphere-supplying respirators provide clean, breathable air from an independent, uncontaminated source.

Air-Purifying Respirators

Filter Classifications

Non-powered, air-purifying respirator filters are classified with a letter and number code. The letter describes the filter's ability to function when exposed to oils:

- **N** means **N**ot resistant to oil
- **R** means somewhat **R**esistant to oil, and
- **P** means oil-**P**roof, or very resistant to oil

The number refers to the filter's ability to remove particulates. Filter ratings range from 95 percent to 99.7 percent efficient. The filter classes are: N95, N99, N100, R95, R99, R100, and P95, P99, and P100. So, a "P100" is an oil-proof filter with nearly 100 percent efficiency. Know that you need a chemical cartridge or canister to remove gas or vapor hazards.

Cartridge & Canister Classifications

No single cartridge or canister can protect you from all gas or vapor hazards. Chemical cartridges and canisters are color-coded to designate the contaminant that they filter:

Contaminant	**Color-Coding on Cartridge or Canister**
Acid gases	**White**
Hydrocyanic acid gas	**White** with ½-inch green stripe completely around the canister near the bottom
Chlorine gas	**White** with ½-inch yellow stripe completely around the canister near the bottom
Organic vapors	**Black**
Ammonia gas	**Green**
Acid gases and ammonia gas	**Green** with ½-inch white stripe completely around the canister near the bottom
Carbon monoxide	**Blue**
Acid gases & organic vapors	**Yellow**

Hydrocyanic acid gas and chloropicrin vapor	**Yellow** with ½-inch blue stripe completely around the canister near the bottom
Acid gases, organic vapors, and ammonia gases	**Brown**
Radioactive materials, except tritium & noble gases	**Purple** (magenta)
Pesticides	Organic vapor canister plus a particulate filter
Multi-Contaminant and CBRN agent	**Olive**
Any particulates – P100	**Purple**
Any particulates – P95, P99, R95, R99, R100	**Orange**
Any particulates free of oil – N95, N99, N100	**Teal**

Atmosphere-Supplying Respirators

There are two main types of atmosphere-supplying respirators:

Supplied-air respirators (SAR), also known as airline respirators, provide breathable air not carried by the user. It's critical to keep the air hose from being tangled or interfering with your work.

Self-contained breathing apparatus (SCBA), similar to underwater scuba equipment, provide breathable air where the user carries the air source. An SCBA generally provides a 30- to 60-minute supply of air, and emergency-only respirators may contain only 5 minutes of air. So, it's very important to carefully monitor time and allow yourself enough time to safely exit the contaminated area.

Both SAR and SCBA equipment are used for atmospheres considered immediately dangerous to life or health (IDLH).

Always wear the correct respiratory protection for the job at hand!