

Filter and Cartridge Change-Out Schedule

A. FILTER CHANGE OUT SCHEDULES

The service life of all filters is limited by considerations of hygiene, damage, and breathing resistance. All filters should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance.

Filter Series	Recommended Change Schedule
N	When breathing becomes difficult, or when breakthrough odor or taste is detected
R	After each 8-hour shift or 8 hours of use
P	Follow manufacturer's time-use recommendation

B. CARTRIDGE CHANGE SCHEDULES

OSHA has substance-specific standards that provide mandatory change out schedules. Employees exposed to any of the following contaminants at or above the OSHA Permissible Exposure Limit (PEL) shall change cartridges/canisters according to their requirements:

Contaminant	OSHA Mandatory Cartridge Change Rules
Acrylonitrile	End of service life or end of shift
Benzene	End of service life or beginning of shift
Butadiene	Every 1, 2 or 4 hours based on concentration and at the beginning of each shift
Formaldehyde	Cartridges every 3 hours or end of shift; canisters every 2 or 4 hours, according to (g)(2)(ii) of Formaldehyde Standard 1910.1048
Vinyl Chloride	End of service life or end of shift in which they are first used
Methylene Chloride	Canisters for emergency escape only, replace after use

Employees NOT included under OSHA's substance specific requirements shall change their cartridges/canisters according to the Program Administrator's recommendations for their department/area. **For conservative purposes, employees should change their cartridges every 8 hours of work or at the end of the shift.**

Since hazards and their concentrations continuously vary at University of California, Riverside, EH&S as with other facilities, the development of change schedules will rely on good judgment and available data. There is no OSHA-accepted method for determining a cartridge's service life when

exposed to mixtures; therefore, OSHA's recognized rules of thumb and factors affecting cartridge service life are taken into consideration:

OSHA's Rules of Thumb

- If the chemical's boiling point is $>70^{\circ}\text{C}$ (158°F) and the concentration is less than 200 ppm, you can expect a service life of 8 hours at a normal work rate
- Service life is inversely proportional to work rate
- Reducing concentration by a factor of 10 will increase the service life by a factor of 5
- Humidity above 85% will reduce service life by 50%

Factors that Reduce Cartridge Service Life

- Exertion level (work rate)
- Cartridge variability (charcoal content, characteristics)
- Temperature
- Humidity
- Multiple Contaminants

RESPIRATOR CARTRIDGE CHANGE-OUT SCHEDULE/LOG

Use the following log form to determine when respirator cartridges have reached their end of service and should be replaced with a new cartridge

Cartridge Change-Out Information				
Date	Amount of time Respirator is Worn (Min)	Total (Cumulative) Time respirator has been worn	Where worn	Product / Chemical Used
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				

Each time you use the respirator/set of cartridges, record the time it was used under “Amount of Time Respirator is Worn”, add that amount to the time in the “Total/Cumulative Time” column. Replace the cartridge after a maximum of 30 hours of use.

For specific information regarding respirator use and cartridge selection contact the UCR Environmental Health and Safety Office: 951-827-5528