



SAFETY UNLIMITED, INC.

Weekly Safety Meeting

Respirator Change Schedules

Respirators are among the most important pieces of safety equipment available. With chemical cartridges, they can be used to filter out and protect workers from many different hazards

It's no longer acceptable to rely on odor thresholds and other warning properties as the primary way of determining cartridge life.

OSHA states, "If there is no ESLI [end-of-service-life indicator] appropriate for conditions in the employer's workplace, the employer implements a change schedule for canisters and cartridges based on objective information or data that will ensure the canisters are changed before the end of their service life."

The ESLI is an area on the cartridge that changes color when it's time to replace the cartridge.

If the cartridge does not have this indicator, employers must develop and enforce a change schedule based on reliable information. Currently, there are very few cartridges equipped with these NIOSH approved ESLIs.

Employers can simply acquire information from other sources that have the expertise to develop change schedules.

The employers must then include the source for this information in their written respiratory program.

Developing a Respirator Cartridge Change Schedule:

The following factors must be considered when developing a respirator cartridge change schedule:

- Contaminants;
- Concentration
- Frequency of use (e.g., continuously, intermittently) throughout the shift;
- Temperature;
- Humidity;
- Wearer's work rate; and
- The presence of potentially interfering chemicals.

OSHA Requirements for Change Schedules:

The following is a synopsis of some of the requirements of the standard.

- Employers develop cartridge/canister change schedules based on available data or information. Such information includes the exposure assessment and information based on breakthrough test data, mathematically-based estimates, and/or reliable use recommendations from the employer's respirator and/or chemical suppliers.
- Reliance on odor thresholds and other warning properties will not be permitted as the primary basis for determining the service life of gas and vapor cartridges and canisters.
- OSHA emphasizes that a conservative approach is recommended when evaluating service life testing data. Temperature, humidity, air flow through the filter, the work rate, and the presence of other potential interfering chemicals in the workplace all can have a serious effect on the service life of an air-purifying cartridge or canister.

Three valid ways for you to estimate a cartridge's service life:

Fortunately for employers, there are three options available to help them comply with the standard.

1. Conduct Experimental Tests

- Can save money by providing a more accurate service life value instead of relying on conservative assumptions made by other methods;
- Most reliable method, especially for multiple contaminants;
- Can be used to validate an existing change schedule; and
- Will likely take time and money to perform the tests.

2. Use the Manufacturer's Recommendation

- Can result in a more accurate estimate for your particular brand of respirator;
- Relies on the manufacturer's broad knowledge and expertise;
- May not be possible if the manufacturer is unable to provide a recommendation; and
- May not account for all workplace and user factors adequately.

3. Use a Math Model

- Inexpensive and takes little time;
- Requires no math calculations if you use NIOSH's MultiVapor™ Version 2.2.3 Application;
- Not as accurate as experimental testing and may result in a service life estimate that is shorter than it needs to be due to conservative assumptions; and
- Generally limited to single contaminant situations.

Remember:

In the event that a user experiences breakthrough, the cartridge or filter becomes soiled or breathing becomes difficult prior to the scheduled change out interval, the user should change the cartridge/filter immediately and notify his or her employer so that use conditions can be re-evaluated and adjustments made to the change schedule.

Personal protective equipment is self-defense!!

Safety Meeting Sign-In Sheet

<i>Supervisor:</i>	<i>Subject:</i>
<i>Location:</i>	<i>Date:</i>
<i>Conducted By:</i>	<i>Trainer Signature:</i>

Name (print clearly)	Signature	Comments / Safety Concerns / Training Requests

