

Limitations of Respirators

GENERAL DISCUSSION

A half mask cartridge-type respirator is the most common type used for protection against organic vapors, dusts, mists, acid gases, and fumes. You should be aware, however, that respirators of this type provide adequate protection only under limited conditions. This type of respirator is designed mainly for short-term operations that do not contain atmospheres that are 'immediately dangerous to life.' To use this type of respirator you must know both the type and concentration of contaminants in the air.

Cartridge type respirators are approved only for low concentrations of contaminants in the air, the maximum permitted level of which depends on the 'respiratory protection factor' (a measure of the degree of protection provided to the wearer). If a qualitative fit test is used (for example banana oil, or smoke tubes) a respiratory protection factor of 10 must be used. To determine the maximum concentration of airborne contaminants permitted in the air where the respirator will be used, the permissible time weighted average concentration (TWA or TLV) of the contaminant is multiplied by 10. For example, the TLV for lead fume is .15 mg/m³, so the maximum concentration permitted in the air when using this type of respirator is 1.5 mg/m³. (The American Conference of Governmental Industrial Hygienists (ACGIH) publishes TLVs.)

Also, remember that a cartridge-type respirator does not generate breathing air and the oxygen content of the area must be at least 19.5% to use this type of respirator. In addition, it must also be worn only in the presence of moderately toxic air contaminants that have distinctive warning properties such as odor, irritation, or taste. The purpose of this requirement is to allow the user to tell when the cartridges have become exhausted. If you can detect the contaminant inside the mask, it means you must exit the area immediately and change the cartridge.

Other things you should be aware of when wearing a cartridge-type respirator:

1. Never enter a confined space with a cartridge-type respirator unless you know for sure that the space has been tested for oxygen content and toxic air contaminants, and that entry with this type of respirator is allowable and that entry has been approved.
2. Never work in toxic vapors for which the respirator cartridge was not intended. There are many different types and combinations of cartridges--

- each for a specific type of hazard that is described on the band surrounding the cartridge. Also be sure the cartridges are the type the manufacturer specifies for your respirator. In general, they are not interchangeable from one manufacture to another. Ask your supervisor if you have doubts about these factors.
3. Be sure your respirator fits your face properly. Most manufacturers provide at least three sizes of face pieces and one of them should fit you better than others. Your supervisor will help you select the proper size so that you get a good respirator fit.
 4. Be sure to check the respirator seal by performing positive and negative pressure tests immediately prior to entering a contaminated area. Tighten the straps and move the respirator around if you can't get a good seal. Beards, mustaches and long sideburns usually prevent obtaining a good seal.

GENERAL SAFETY REVIEW

This is a time to review all safety concerns, not just today's topic. Keep your notes on this page before, during and after the safety meeting.

Are you aware of any safety hazards from any other crews? Point out any hazards other crews are creating that this crew should know about. Tell the crew what you intend to do about those hazards.

Do we have any other safety business? Discuss any past issues or problems. Report any progress of investigations and action taken.

Have there been any accidents, near misses or complaints? Discuss any accidents, near misses, and complaints that have happened since the last safety meeting. Also recognize the safety contributions made by members of the crew.

Please remember, we want to hear from you about any health and safety issues that come up. If we don't know about problems, we can't take action to fix them.

ENDING THE MEETING

Circulate Sign-Off Form.

Assign one or more crew member(s) to help with next safety meeting.

Refer action items for follow-up.

Do you have any Safety Recommendations?

Do you have any Job Specific Topics you would like us to discuss?

Have you reviewed the M.S.D.S Sheet for this safety topic? Yes____ No____
N/A____

Comments
