HOW TO USE HALF-MASK RESPIRATORS TO PREVENT LEAD POISONING

Half-mask air-purifying respirators are cheap and easy to take care of. They prevent lead poisoning by protecting the wearer from breathing lead-containing dust or smoke ("fume"). These respirators cannot protect against very high levels of lead, but they do provide enough protection for many industrial and construction workers.

This guide covers the basics of good respirator use and the main Cal/OSHA requirements. Page 4 of the guide contains phone numbers you can call for further assistance.

Whenever you see this icon it means the resource mentioned is listed on page 4.

← USE P-100, R-100 or N-100 FILTERS

MOVE TO BASIC CONTROLS

Local Exhaust Ventilation

Respirators may not be needed if you can reduce air lead levels by changing work practices, changing tools, or using local exhaust ventilation. Cal/OSHA requires that employers reduce high air lead levels (50 µg/M³ or higher) using these basic controls where possible. Respirators can be used until you have made these changes, and then afterwards if added protection is still needed.

For help selecting basic controls, contact the Cal/OSHA Consultation Service, workers' compensation insurance carriers, trade associations, or the Occupational Lead Poisoning Prevention Program (OLPPP).

NOT EVERYONE CAN WEAR A RESPIRATOR

Respirators can put too much stress on the heart and lungs for some people. Employers should pay for a medical evaluation first to see if workers can safely wear a respirator. This is especially important for smokers, people with heart or lung trouble, and anyone who has difficulty breathing when wearing a respirator.

For service or referral to a qualified doctor in your area, call a University of California occupational health clinic or see the "Physicians—Occupational Medicine" listing in the yellow pages.

USE THE CORRECT RESPIRATOR FILTERS

Use P-100, R-100, or N-100 respirator filters to protect against lead. These used to be called HEPA filters. Where oil mists are also present, be sure to use P-100 filters. Different filters are required for other toxic substances.

A RESPIRATOR MUST FIT WELL TO PROTECT WELL

1 SELECT SIZE AND SHAPE

Like shoes, respirators come in different shapes and sizes. A respirator has to fit well to provide good protection.

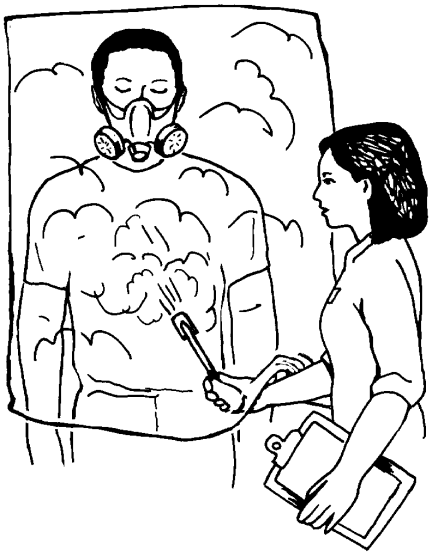
Respirator size and shape should be selected to fit snugly but comfortably. Shake your head. The respirator should stay in place.

2 TEST THE RESPIRATOR FIT

Cal/OSHA requires that the employer test the fit of the respirator. There are two kinds of fit tests. Both test how much the respirator leaks around the face seal. The "qualitative" fit test is simple and inexpensive to do. A testing chemical with a strong smell or taste is released around the respirator face seal. If the wearer can smell or taste the chemical, the respirator has failed the fit test.

The "quantitative" fit test uses electronic equipment to measure how much the respirator leaks. The advantage of this test is that it tells you ***how well*** the respirator fits. This allows you to compare different respirators and select the one that fits best.

Safety equipment suppliers (see yellow pages listing) or occupational health clinics can help select and fit test respirators. Employers can also buy a qualitative respirator fit testing kit from a safety equipment supplier.



Qualitative Fit Testing– Simple and Inexpensive

A RESPIRATOR MUST FIT WELL TO PROTECT WELL

3 ALWAYS CHECK THE FACE SEAL

It is important to do a "user seal check" every time you put on a respirator. Getting into the habit is the best thing a wearer can do to ensure good protection.

Negative Seal Check

Positive Seal Check

Negative Seal Check

- Cover the filters so that air cannot be drawn through them.
- Collapse the mask against your face by inhaling gently. Hold your breath for 10 seconds.
- If air leaks in and the mask reinflates, check the valves, adjust the straps and try again.
- If air does not leak in and the mask stays collapsed against your face, it has passed the negative face seal check.

Positive Seal Check

- Cover the exhalation valve with the palm of your hand.
- Inflate the mask slightly by exhaling gently. Wait a few seconds.
- If air leaks out and the mask deflates, check the valves, adjust the straps and try again.
- If the face seal holds the air and the mask stays inflated, it has passed the positive face seal check.

A HALF-MASK RESPIRATOR DOES NOT ALWAYS PROVIDE ENOUGH PROTECTION

Half-mask respirators leak too much to protect against very high levels of lead. A half-mask offers good protection only if the amount of lead in the air around the worker is less than 500 micrograms per cubic meter of air (500 $\mu g/M^3$). To find out how much lead workers are exposed to, Cal/OSHA requires that employers do "personal air sampling." Note: Half-mask air-purifying respirators do not protect the wearer in areas where there is not enough oxygen.

General Industry

Until good local exhaust ventilation is installed, half-mask respirators generally provide enough protection for the following tasks:

- Automotive radiator repair
- Spraying lead glaze or paint
- Casting and machining lead-containing metals

Construction

According to Cal/OSHA, if you are working on surfaces coated with lead paint, half-mask respirators probably provide enough protection for the following tasks:

- Manual demolition
- Hand sanding and scraping
- Heat gun use
- HEPA vacuum-attached power sanding

For these tasks start with half-mask respirators, then do air sampling to make sure that the air levels are not above 500 $\mu g/M^3$. Start with a more protective respirator if you are doing work that creates more dust or fume such as power sanding, abrasive blasting, welding or torch cutting.

Personal air sampling is not difficult, but employers who have not done it before will need help. The Cal/OSHA Consultation Service and some workers' compensation insurance carriers will do free air sampling.

DON'T IGNORE MAINTENANCE– IT IS SIMPLE AND *VERY* IMPORTANT!

Respirators come with the manufacturer's recommendations for maintenance and care. Here are a few tips:

- ***Clean respirators at the end of the day***. Wash your hands first. Remove the filters and wipe clean if possible. Change the filters as soon as you notice it is slightly harder to breathe through them. The respirator mask should be washed with a mild detergent in warm water, and then rinsed well. If there is no water available, use disposable towelettes such as baby-wipes. Dry the respirator before storing it.
- ***Store the respirator in a rigid plastic container.*** Plastic containers commonly used for food left-overs are perfect for storing half-mask respirators. The filters should be stored in a resealable plastic bag and placed in the container.
- ***Regularly inspect the respirator and replace worn or damaged parts.*** The wearer or an assigned person should regularly inspect the respirator and replace worn or damaged parts. Replacement parts for half-mask respirators are inexpensive and should be stocked on-site.

MAKE SURE EMPLOYEES ARE TRAINED

Cal/OSHA requires that employers train employees in how respirators work, how to wear them, and how to take care of them.

Safety equipment suppliers carry training materials, including videos, that are available to help employers do this (see listing in the yellow pages). Some safety equipment suppliers can also arrange employee training for customers.

GET WITH THE PROGRAM!

Cal/OSHA requires employers to have a written respiratory protection program documenting their use of respirators.

A sample "fill in the blanks" written respiratory protection program is available at no cost from the Cal/OSHA Consultation Service.

CALL FOR HELP...

CAL/OSHA CONSULTATION SERVICE

The Consultation Service offers free health and safety assistance upon request. It does **not** enforce regulations or fine employers. It also does not share any information with Cal/OSHA enforcement.

Headquarters	**(800) 963-9294**
Local offices:	
Fresno	(559) 454-1295
Oakland	(510) 622-2891
Sacramento	(916) 263-0704
San Bernardino	(909) 383-4567
San Diego	(619) 767-2060
San Fernando Valley/Santa Barbara	(818) 901-5754
Santa Fe Springs	(562) 944-9366

SAFETY EQUIPMENT SUPPLIERS

These are companies that specialize in supplying workplace safety products, including respirators and related supplies. Look for suppliers that carry a wide selection of respirator brands and sizes to choose from. Some will provide respirator training. Some sell fit testing kits, or will provide fit testing as a service to their customers.

Look under "**Safety Equipment**" in the yellow pages.

UNIVERSITY-BASED OCCUPATIONAL AND ENVIRONMENTAL HEALTH CLINICS

For service or referral to a doctor qualified in occupational health issues, these clinics are a good place to start.

Irvine	(949) 824-8641
Los Angeles	(310) 794-8144
Sacramento	(916) 734-3572
San Diego	(619) 294-6206
San Francisco	(415) 206-4320

OLPPP– The Occupational Lead Poisoning Prevention Program, California Department of Health Services

OLPPP provides free consultation and educational materials to employers and workers on workplace lead poisoning prevention. OLPPP does not enforce regulations or fine employers. OLPPP can provide copies of the relevant CAl/OSHA lead and respiratory protection standards. OLPPP produced this guide.

Contact OLPPP at (866) 627-1587 or visit www.cdph.ca.gov/programs/olppp

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DESIGN & ILLUSTRATION: Jane Norling Design