

General Respiratory Protection Programme Guidance II

According to US OSHA Safety & Health Topic on respiratory protection, an estimated 5 million workers are required to wear respirator in 1.3 million workplaces. It is one of the most crucial protection programme in implementing OSHA.

We always stress on using an approved PPE, whether respirator, gloves, shoes, helmet or coverall. Let's have a simple Q&A to have an overview of respiratory protection standards available.

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Q6: How are particulate filters classified?

A: In U.S., there are 9 classes of particulate filters which are broken down into three series: N, R and P. Each series is available at three efficiency levels: 95%, 99% and 99.97%. N series is used in environment free from oil mist; R series can be exposed to oil mist for one work shift or 8 hours; P filter can be exposed for a max of 40 hours. In Europe, only P1, P2 and P3. P1 is used for dust and mist, whereas P2 & P3 can be used for dust, mist and fume. For practical reference, Europe P2 and P3 are equivalent to US 95% and 99.97% efficiency, but not the same, as the testing method are different.

Q7: Are there any cautions or limitations when using respirators?

A: Yes. Each type of respirator can come in several varieties, each with its own set of cautions, limitations, and restrictions of use. Tight fitting respirators require fit testing to ensure an adequate fit to the face, and cannot be used with facial hair. Certain escape respirators use a nose clip and mouthpiece, which is clenched between your teeth, similar to a snorkel. Some respirators prevent the user from talking while others have speaking diaphragms or electronic communication devices. Every respirator contaminated with hazardous chemicals should be cleaned and decontaminated or disposed of properly.

All respirators require training in order to be properly used. Sometimes you can practice using your own respirator. Some escape respirators come in a package that must remain sealed until use, so you need to be trained using a special "practice" version. Training is extremely important in regard to the storage, maintenance, use, and disposal of the respirator. This information is provided by the supplier of the respirator (i.e., seller, distributor, or manufacturer).

If you do not use a respirator correctly, it is very likely that it will not adequately protect you and may even hurt you.

Q8: How well does a respirator need to fit me?

A: If your mask does not make a tight seal all the way around your face when you inhale, you may breathe contaminated air that leaks around the edges of the face seal. Most respirators come in different styles and sizes, and fit different people differently because people's faces have different shapes. Training to correctly put the mask on and wear it is mandatory for respirator users. This information should be provided by the supplier of the respirator.

The only way to know if a tight-fitting respirator fits properly, and is capable of protecting user, is to fit test the respirator. Fit testing can be accomplished a number of different ways and should be done by a health and safety professional before workers wear a respirator in a hazardous environment. Respirators must be checked for proper fit each time they are donned to ensure they provide adequate protection.

Q9: Can I wear a respirator if I have a beard?

A: Anything that prevents the face mask from fitting tightly against your face, such as a beard or long sideburns, may cause leakage. If your respirator requires a tight fit, you must trim back your beard so that it will not interfere with the face-facepiece seal. If your respirator is a loose-fitting (hooded) positive pressure respirator (e.g., a powered air-purifying respirator, PAPR) then you may have a beard.

Q10: If I have the right cartridges/filters for a certain hazard, and my mask fits, will they always protect me against that hazard?

A: No. Gas masks and respirators reduce exposure to the hazard, but if the exposure is such that it goes beyond what the filter is capable of handling (either because the amount of toxic gas or particles is more than what the filter is designed to handle, or because the exposure lasts longer than what the filter is designed to handle), the filter may not be effective in providing required protection. Also, there may be a small amount of leakage even if the fit of the respirator has been tested. If so, and if there is a large amount of a toxic chemical in the outside air, even that small leakage can be dangerous.

Q11: Can anyone wear a respirator?

A: No. Breathing through a respirator is more difficult than breathing in open air. People with lung diseases, such as asthma or emphysema, elderly people, and others may have trouble breathing through negative pressure respirator. Doing a lung function test would determine if he/she is fit to wear respirator. Positive pressure respirator is an option to overcome the challenge. People with claustrophobia may not be able to wear a full facepiece or hooded respirator. People with vision problems may have trouble seeing while wearing a mask or hood (there are special masks for people who need glasses). Employees must be medically evaluated before assigned to use a respirator.

Q12: Will my cartridge/filter and respirator mask protect forever?

A: No. Cartridges, filters, and masks get old. If the filter cartridges are outdated, have been open to the air or are damaged, you may not be protected. Cartridges that contain charcoal or other chemicals for filtering the air should be kept in air-tight packages until use. If cartridges are open or not packed in air-tight packaging, they should not be used. Even cartridges in original packaging have expiration dates that should be checked before purchase and use. Also, over time your mask can get old and break down. Keep your mask in a clean, dry place, away from extreme heat or cold. Inspect it before and after use according to the manufacturer's instructions. Cartridges also have a limited service life; they must be changed periodically during use.

Q13: Will a gas mask protect me if there is not enough oxygen in the air?

A: No. Air-purifying respirators do not provide oxygen. If used in an environment with low oxygen levels, such as in a fire or a confined space, you are in danger of asphyxiation.

Q14: Will a gas mask protect me if there is a fire?

A: Most will not. It's important to read the manufacturer's information if your main concern is to be able to escape from a smoke-filled building. Smoke particles can rapidly clog gas mask filters, and filters with special chemicals are needed to protect against carbon monoxide and other gases that may occur in a fire. Not all gas masks or escape respirators protect against these hazards. Some components, including hoods and facepieces, of many of the gas masks and escape respirators may melt if exposed to a fire. During fire, usually oxygen deficiency is a critical issue, filtering facepiece gas mask doesn't supply oxygen, and thus, additional hazards prevail.

Q15: Once I put on my gas mask, how long will it last?

A: That depends on how much filtering capacity the respirator has and the amount of hazard in the air—the more chemical or biological hazard in the air (higher concentration), the shorter the time your filter will last. There is no absolute time limit, and it will vary by each respirator model's capacities and the concentration of the hazard. Change schedule should be established based on work environment, mathematical extrapolation model or practical test data. Some cartridge design in the market carry end of service life indicator, which alert user of replacing one.



Questions To Consider Before Buying Any Respirator

- What protection (which chemicals and particles, and at what levels) does the respirator provide?
- Is there more than one size?
- Which size should I use?
- How do I know if the gas mask or respirator will fit?
- What type of training do I need?
- Are there any special maintenance or storage conditions?
- Will I be able to talk while wearing the respirator?
- Does the hood restrict vision or head movement in any way?
- Can I carry the device in the trunk of my car?
- Is training for respirator users available?
- Are the respirator spare parts available?

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Main Office

No. 23 & 25, Jalan PJU 5/13,
Dataran Sunway, Kota Damansara,
47810 Petaling Jaya, Selangor, Malaysia.
Tel: (603)-6157 8822 Fax: (603)-6156 0748
Email: info@amsales.com.my
Website: www.amsales.com.my

Melaka Branch

No. 40C, Lorong Pasar Medan, Sin Hoe Garden, Bukit Baru, 75150 Melaka, Malaysia.
Tel: (606)-283 6519/ 6529 Fax: (606)-283 6569
Email: S1@amsales.com.my/ ammelaka@amsales.com.my

Penang Branch

No. 1-04-16, Sri Relau Kompleks, Persiaran Bukit Jambul 1, Bayan Baru, 11900 Bayan Lepas, Penang, Malaysia.
Tel: (604)-643 9137/ 646 3917 Fax: (604)-646 3917
Email: N1@amsales.com.my/ ampenang@amsales.com.my