

Facts on respiratory protection and different transmission routes, and handling of contaminated material

In contrast to a mouth piece, which is intended to prevent the spread of droplets from the wearer, the purpose of a respiratory protective device is to protect the wearer from inhaling something dangerous, e.g. a virus.

Choice of protection

A mouth piece is not sufficient to protect the wearer against airborne transmission, but can to some extent reduce exposure to droplet transmission. It is primarily intended to deal with particles that could be spread from the user's mouth and nose, and is worn, for example, by medical staff to protect the operation wounds or burns of patients from becoming infected. It can also be used to protect people close by from droplet transmission from the coughs and sneezes of a patient.

Respiratory protective devices are necessary to protect the wearer against airborne transmission. They can give different degrees of protection, which makes it essential to choose the right respiratory protection for the right occasion.

Respiratory protective devices

Respirators allow the ambient air to pass through a protective filter (Filtering device). Available as both full or half masks with exchangeable filters or masks of filter material. Masks of filter material are also called filtering half masks (FF= Filtering Facepiece). Filter masks are sometimes fitted with an exhalation valve.

Filters

According to Swedish and European standards (SS-EN), the filter in a respiratory protective device must meet filter performance for both solid particles (NaCl) and fluid particles (paraffin oil). The classification of the filters depends on how well they separate particles of these types in a size range of between 0.1 and 1.0 μm . (Gas filters are not included here).

P specifies that the filter separates particles. A number specifies the degree of separation, with class 3 filters having the highest degree. **P3** separates 99.95 % and **P2** 94.0 % of both solid particles and oil mist.

P3-filter (FFP3)

Respiratory protective device with P3 filter, e.g. filter mask **FFP3**, can be used as protection against airborne virus transmission, while **FFP2** is used when the demands are not as high.

Fit

The separation capacity of the filter represents just a part of the protection factor of the facepiece. A vital factor is how tight the device seals against the face. Respiratory protective devices are tested individually and checked for leaks. Hold the filter to your face, breathe and see how it feels. Excessive beard growth may cause the device to leak.

Suppliers

Suppliers of respiratory protective devices are obliged to ensure they have special CE marking and a user's manual in Swedish. In addition, they often have useful information on the products.

Handling of contained material

Filtering half masks are disposable masks, which means that when their performance deteriorates, you replace the whole mask. Each time a respiratory protection device must be taken off you should remember that it may be contaminated. Hand hygiene is therefore very important! Wash your hands thoroughly with soap and water.

Contaminated half masks are discarded. Consequently, a contaminated mask must be treated as hazardous waste. In normal cases simply burning infected material is adequate, but burning a respiratory protection device in your apartment is not an ideal solution, even though you may have a heating stove, tiled oven or fireplace, as parts such as the exhalation valve are made of plastic. I suggest that you put all contaminated material directly into boiling water instead. A simple, workable and absolutely safe method, as viruses are killed at 70°.

Also make sure you clean all surfaces used thoroughly (see indirect contact transmission), Standard detergents work well.

Examples of transmission routes

Droplet transmission = infection transmitted via secretion/saliva, snot, e.g. from coughing, sneezing

Airborne transmission = *From/to respiratory tracts:* Droplets dry forming smaller droplet cores that are spread by air and can be inhaled causing influenza etc. ***From the skin:*** Particles are spread into the air in the room from major wound and skin infections.

Contact transmission = Direct contact transmission between infection source and receiver (individual)

Indirect contact transmission = Between people via hands, clothes, towels, handles, cutlery, furniture.

Zoonoses = Transmissions between animals and humans

Aerosols = Airborne particles

Fluid aerosols = Endotoxines = Toxins secreted by mould spores bound to particles that are spread from systems with fluid aerosols such as when recirculated water is used for humidifying. Use of recirculated water is financially lucrative, but it often leads to the water gaining a high content of organic material which is becoming an ever more frequent occurrence.