



FAQs – Elastomeric Half Face Respirators (EHFRs) and P100s

What is an elastomeric half face respirator (EHFR)?

An EHFR is a form of personal protective equipment (PPE) that is made out of hard plastics and silicone and designed to be reused by a single individual over a long period of time. EHFRs are tested and validated by the National Institute for Occupational Safety and Health (NIOSH) in accordance with 42 CFR Part 84 prior to being sold by a manufacturer.



What is a “P100”?

“P100” refers to a level of filtration efficiency associated with a respirator, such as an EHFR but there are also P100 respirators on the market that look very similar to an N95. The letter “P” and number “100” indicate two specific ratings: The “P” designation means oil-proof (as these are commonly used in industrial and non-healthcare settings) while “100” indicates a 99.97% filtration efficiency of particles sized 0.3 microns in diameter or larger.

How does an EHFR compare with an N95?

According to the Occupational Safety and Health Administration (OSHA), EHFRs and N95s are both rated with an assigned protection factor (APF) of 10. The APF is derived from protection factor studies that measure the ratio of concentration of contaminants outside the respirator to those inside the respirator. In this respect, the two forms of respirators are equivalent in their protection of the wearer, but one is designed for short-term use (N95) while the other is designed for repeated long-term use (EHFR).

How does P100 filtration compare with an N95?

Both remove at least 95% of particles 0.3 microns or more in diameter. In the case of a “_100” filter, efficiency increases to 99.97% which is just short of a 5% increase in filtration efficiency.

Aren’t viruses like COVID-19 smaller than 0.3 microns, so how does any of this help me?

Infectious droplets having diameters of 5 microns or larger are believed to be the primary means of transmission at the time of this update. In addition to following proper hand hygiene and disinfecting protocols, wearing a respirator such as an N95 or EHFR with P100 should significantly reduce the risk of infection through inhalation in situations that require it (e.g., aerosol-generating procedures).

Why are we using these?

EHFRs are an additional option that can supplement an organization’s comprehensive respiratory protection program. Elastomeric respirators are also identified as a specific recommendation by both OSHA and the CDC in providing additional PPE options to mitigate potential supply shortages of N95s. Implementing EHFRs in select areas with high utilization of respirator consumables diversifies our options that should reduce reliance on N95s and PAPR consumables should those supplies run low.

Do I need to be medically cleared prior to wearing an EHFR with P100 filters? What about a fit test?

Yes. The requirements are the same as the N95 process.

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Do I need to shave my facial hair?

Similar to requirements for an N95 and all tight-fitting respirators, users of an EHFR must be clean shaven wherever the facepiece seals. This typically limits facial hair to a moustache but otherwise must be kept clean-shaven. The reason is that facial hair grows and changes over time that invalidates the fit test and assurance that the respirator is protecting the user.

What if I can't pass an EHFR fit test?

Adjusting the fit or trying a different sized EHFR respirator may be necessary. Most individuals will eventually pass a fit test for an EHFR with some additional trial and error. (Having a mirror available and input from trained super-users can also be helpful.) The fit testing and training process is specifically meant to work through potential issues with proper respirator fit and provides an opportunity to become familiar with donning/doffing PPE. If after multiple attempts and sizes an individual still cannot pass a fit test the options are (in order): 1) additional respirators may need to be recommended by Environmental Health and Safety (EHS), 2) the individual may need to use a PAPR (if supplies are available), or 3) staff who are respirator fit tested and approved may need to perform certain duties until a resolution for the employee is found (see #1).

How do I perform a user seal check?

For the 3M 7500 and North 7700 series with P100 filters, the “positive pressure user seal check” is the easiest option. To perform this check, place the palm over the single exhalation valve on the front of the respirator. (This is located directly below the “3M” logo on 7500 series respirators.) When covering this valve opening, breathe out gently and the respirator facepiece should inflate slightly on the face. If exhaled breath is felt escaping anywhere around the seal, try adjusting the strap tension and repeat. Doffing (removing) and donning (applying) the respirator may also be required. A user seal check is required each time a respirator is donned or adjusted. Always practice proper hand hygiene to prevent touching potentially-contaminated outer surfaces. A “negative user seal check” is achieved by covering (North 7700) or squeezing (3M 7500) the cartridge filters.

What type of filters/cartridges do I use?

Cartridge filters for 3M 7500 series EHFRs are model number 7093 P100 filters (gray cartridge w/ purple label). These have a smooth, plastic outer surface that can be wiped down after use (i.e., end of shift or when doffing the respirator) with a hospital-approved disinfectant (e.g., Oxivir Tb wipe). Cartridge filters for North 7700 EHFRs are N7580-P100 in purple that may be wiped down in a similar manner. Ensure that respirator cartridge filters are never submerged in water or cleaning solutions as this can damage them and compromise their effectiveness.

How long do cartridges/filters last?

The P100 filters (3M model 7093 or North N7580-P100) that are being deployed for use with EHFRs indicate the following time use limitations: “If filters become damaged, soiled or breathing becomes difficult, leave the contaminated area immediately and replace the filters.” Heavy use in oily environments such as manufacturing/industry indicate that these filters should be changed every 30 days. However, healthcare environments do not encounter similar heavy use and should reasonably extend these filters to as long as 90 days (and likely longer). Please avoid preemptively discarding of

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cartridges/filters before 90 days unless breathing becomes difficult (i.e., drawing in breath through clogged filters makes even normal breathing difficult).

Can I share my respirator with a co-worker?

Respirators such as EHFRs are personal protective equipment (PPE), and as the name implies PPE should only be used by one person and sharing should be avoided at all costs. If respirators are ever needing to be shared (e.g., extremely limited supply), a full disassembly and cleaning of all respirator parts must be performed between users. This cleaning is much more involved and time consuming than daily cleaning performed by a single wearer.

Why can't I just bring in my own respirator?

Respirators must be reviewed and approved by EHS prior to use. The reasons for this are to prevent an employee wearing a device that is not rated for protection against the hazard and is not guaranteed to fit the user. Without proper evaluation and fit testing and training, individuals may have a false sense of security regarding their protection against hazards. Individuals who have already purchased a respirator and are hoping to use it to help with PPE supply chain constraints may be asked to provide information to EHS in order to determine if the device can be safely worn and fit tested.

What if I already bought an EHFR on my own?

Please refrain from using a self-procured EHFR until it can be reviewed by EHS for safety and health reasons. Given the current heightened stress and concern over PPE in light of COVID-19, it is understandable why some individuals may have felt compelled to purchase items on their own. However, it is very important that this PPE is actually rated against the hazard of concern *and* fit properly to the user. Otherwise, individuals could be working with a false sense of security regarding their level of protection.

Why am I being provided an EHFR and not my co-worker?

Fit testing and training on EHFRs is being prioritized for individuals who have failed fit testing for an N95 respirator or may be currently only trained on use of a powered air-purifying respirator (PAPR). As additional supplies are available and procured over time, additional employees are likely to be added to this group of trained users. Due to anticipated supply chain constraints on items including PPE, implementing an additional reusable item should help reduce the strain on limited supplies.

Can I use my EHFR in a sterile field environment?

An N95 is the preferred respirator option for sterile field environments. If an EHFR is the only option, it must be worn with a face covering over the exhalation valve as exhaled breath is not filtered in any way. Generally speaking, unless it is an emergent response event an EHFR should be doffed and replaced with a procedure mask face covering when respiratory protection is no longer required.

Where can I learn more about cleaning my EHFR?

Please refer to the Healthcare Policy Database MCN resource titled "Elastomeric Half Face Respirator (EHFR) and P100 Cleaning Procedure". For additional questions contact Environmental Health and Safety (EHS) at ehs@ohsu.edu.

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