



November 2007

## **Disposable Respirator Q&A – Use of Disposable Respirators for Cleanup Activities Following a Wildfire: Information for Professionals**

### **What is the difference between a NIOSH-approved filtering facepiece respirator (sometimes called disposable respirators) and a non-approved mask?**

By outward appearance there may not seem to be much difference between a filtering face piece particulate respirator and an unapproved mask, but the similarities stop there. Unlike a non-approved mask, respirators are certified by the US government to ensure that they meet specified minimum filtration requirements as well as specific manufacturing quality levels. Filtering facepiece respirators are often referred to as “N95s” because this is the most common approval from the US Government. The National Institute for Occupational Safety and Health (NIOSH) is the agency that tests and approves respirators. A respirator that has NIOSH approval will say so on the packaging.

Many masks, which are not approved as respirators, are not designed to seal tightly to the face allowing airborne hazards to enter the breathing zone. Even those masks that appear to seal tightly to the face have not been designed to protect the wearer from airborne hazards. Therefore, they should not be considered an equivalent substitute for government-approved respirators.

Sometimes when documents say to use a “mask” or a “dust mask” what they really mean is a filtering facepiece respirator. If you are trying to reduce the number of particles that reach your lungs, you should use a NIOSH approved respirator. If the product is not approved by NIOSH, you should not use it to help protect your lungs from dust or other particles.

If employers are providing respiratory protection to reduce their employees exposures to concentrations of contaminants above the exposure limit, OSHA’s Respiratory Protection Standard, 29 CFR 1910.134, and state OSHA plans, require that NIOSH certified respirators are provided and used according to regulatory requirements.

### **Can N95 respirators filter particles that are really small like smoke, soot and ash?**

Yes. N95 particulate filters employ multiple mechanisms that are effective at filtering a range of particles that include those so small you cannot see them. In fact, as part of their certification process, NIOSH tests particulate respirators against submicron particles in the size ranges of smoke, soot and ash.

### **What should I do to become familiar with a respirator and how to use it?**

One of the requirements of OSHA’s Respiratory Protection Standard, 29 CFR 1910.134, is that employers provide training to their employees including limitations and capabilities of the respirator, procedures for donning and removing the respirator, checking the fit, and properly using the respirator in addition to other requirements. You should also follow the User Instructions that come with the respirator.

### **Who should not wear respirators?**

A medical evaluation of the prospective respirator wearer by a licensed medical provider, prior to use of a respirator, is a requirement of OSHA's Respiratory Protection Standard, 29 CFR 1910.134. If, even after clearing a medical evaluation, you experience dizziness, irritation or other distress while wearing a respirator, leave the contaminated area immediately and contact your supervisor.

People with facial hair in the area where the respirator touches the face must not wear N95 or other tight-fitting facepiece respirators unless they shave those areas of their face. People with facial hair that cannot wear tight-fitting respirators may be able to use powered air purifying respirators and should speak to their supervisor.

### **What is a type N95 respirator?**

N95 is one of nine classifications for National Institute for Occupational Safety and Health (NIOSH) certified particulate respirators. N95 rated filters have a filtration efficiency of at least 95% against solid and liquid particles that do not contain oil.

### **How much protection will I receive from a NIOSH-approved half-facepiece respirator?**

Respirators are designed to help reduce, not eliminate, exposures to airborne hazards. N95 rated respirators have a filtration efficiency of at least 95% against solid and liquid particles that do not contain oil when tested using the NIOSH criteria. However, the efficiency of the filter material alone does not determine the overall reduction in airborne hazards provided by a respirator. The other determinant in reducing exposure is fit. If a respirator does not seal properly to the face, airborne hazards can penetrate or enter underneath the face piece seal and into the breathing zone.

The term that incorporates the overall expected reduction in exposure is called an "assigned protection factor" (APF). OSHA defines APF as the "the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by 29 CFR 1910.134.." The APF tells you the factor by which the respirator will reduce your exposure. The APF takes into account all expected sources of facepiece leakage, such as leakage around the edges, valve leakage, and filter penetration. The APF of a NIOSH-certified half facepiece such as a disposable respirator is 10. This means that a properly used NIOSH-certified half facepiece respirator (one that covers your nose and mouth only, such as an N95 particulate respirator) will reduce your exposure to airborne contaminants by a factor of 10. Note, the APF is not intended to take into account factors that may reduce respirator performance such as poor maintenance, failure to follow manufacturer's instructions, and failure to wear the respirator during the entire exposure period. It is important that the respirator is correctly worn and used as part of a comprehensive respirator program as specified in the Occupational Safety and Health Administration (OSHA) Respiratory Protection Standard 29 CFR 1910.134 or your state OSHA program.

Proper use of tight-fitting respirators includes following the instructions on how to put on the respirator, doing the user seal check, making sure you are clean shaven and that no clothing or jewelry gets between the respirator and your skin and being fit tested. There are other factors that may reduce respirator performance such as poor maintenance, failure to follow manufacturer's instructions, and failure to wear the respirator during the entire exposure period. It is important to remember putting the respirator on correctly means more of the air you breathe goes through the respirator filter.

**Will N95 respirators get rid of the odors from wildfires?**

N95 respirators are particulate removing respirators and will filter out particles such as dust, soot and ash. Some N95 disposable respirators are available with a charcoal layer that will provide relief against low levels of odors (referred to as “nuisance” odors) from soot, ash or mold and mildew.

For higher concentration levels of gases and vapors or for areas with low oxygen different types of respirators must be selected by your employer.

**What type of respirator should I use if I am cleaning up an area with asbestos, lead, a large area of mold, or another hazardous material?**

Aside from fit and comfort, selection of a respirator depends on the contaminant and its concentration level. Your employer is required to identify the hazards you may be exposed to while working. Employers must follow the federal or state Occupational Safety and Health Administration’s (OSHA’s) regulations regarding hazardous substances and may choose to consult a respirator manufacturer for assistance. The Environmental Protection Agency has information and procedures for mold remediation.

**How important is the fit of the respirator?**

Fit is very important. Workers in the US are required to pass a fit test before wearing the respirator in a contaminated area. If a tight-fitting respirator does not seal properly to your face, airborne hazards can penetrate or enter underneath the facepiece seal and into the breathing zone. It is very important to always follow the donning instructions and do a user seal-check, each time you wear the respirator, before entering the contaminated environment. Remember, the better the fit means more of the air you breathe goes through the filter.

A good fit can only be obtained if the face is clean-shaven in the area where the respirator seals against the face. Beards, long mustaches, and stubble, or clothing or jewelry that gets between the respirator and your skin may cause leaks into the respirator.

**How do I put on the respirator and check for proper fit?**

One of the requirements of OSHA’s Respiratory Protection Standard, 29 CFR 1910.134, is that employers provide training to their employees including procedures for donning and removing the respirator and checking the fit. Employers must ensure that workers pass a fit test before wearing a tight-fitting respirator for the first time.

The User Instructions for a 3M respirator contain the proper procedures for putting on the respirator and checking for fit and seal. It is very important to read and follow the donning instructions very carefully and to conduct a user seal check every time the respirator is put on. The User Instructions are provided with the original packaging of the respirator. 3M also has fitting instructions for half-facepiece respirators available on their website [www.mmm.com/occsafety](http://www.mmm.com/occsafety).

**What if the respirator does not fit me?**

Workers in the US need to pass a fit test before wearing a tight-fitting respirator for the first time. If you do not pass a fit test on the first try, you should remove the respirator. Reread the instructions and put it on again. Conduct a user seal check. If you do not feel any air leakage around the respirator edges, then you should try the fit test again.

If you fail the fit test on the second try, do not enter the contaminated area and contact your supervisor. You should obtain a different size, make or model of respirator.

If you have passed a fit test but, during a user seal check, you notice air leakage around the edges of the respirator you should readjust the respirator. And conduct another user seal check. If you cannot pass the user seal check, do not enter the contaminated area and contact your supervisor.

**Can disposable respirators be shared between people?**

Disposable respirators should never be shared.