

SoftSeal® Masks Frequently Asked Questions (FAQs)

DDME is bringing to market two types of vastly improved filtering facemask designs for the **N95 Respirator** and **Filter Mask** markets. DDME's new mask designs are for the construction, industrial, homeowner projects and the growing consumer market as part of a personal protection strategy.

What is a Filtering Facemask

A filtering facemask is a disposable device that creates a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment. Facemasks are a cheaper, lighter, and possibly more comfortable alternative to cartridge or powered respirators, but may not provide as much protection, and may be more susceptible to misuse or poor fit. Facemasks are made in different thicknesses and with different abilities to protect you from contact with particles. These properties may also affect how easily a person can breathe through the facemask and how well the facemask provides protection. There are primarily two types of facemasks that offer two different levels of protection. One is called a Filter Mask and the other, with a higher level of protection, is called an N95 Mask.

What are the differences between a Filter Mask and an N95 Mask

By just looking at a filter mask or an N95 mask, it would be difficult to tell the difference between them. However there are real differences between how they protect your airways. What makes filter masks so effective is that there is no direct path through the fibers that make up the filtration material. Therefore the airflow and the particles it carries must turn and weave their way through the tortuous path of the filter media. Large particle greater than around 0.6 um in diameter are usually captured when the particle can't make the turn around a fiber due to its inertia and it impacts on a fiber. The random movement of very small particles (around 0.1 microns in diameter), because they are too small to be carried away in the airflow, cause them to accidentally come into contact with fibers and get trapped. Therefore it is not the largest or the smallest particles that are the hardest to trap but the particles that are greater than 0.1 micron and less than 0.6 micron. Particles of 0.3 microns are therefore considered to be the most difficult particles to trap. The N95 mask is certified by the National Institute for Occupational Safety and Health (NIOSH), an agency in the US government, to assure that the mask has been tested and manufactured to a standard that makes it capable of filtering particles that do not contain oil, including specifically around 0.3 micron in size. The period at the end of the last sentence is approximately 615 micron so you can appreciate that these particles cannot be seen with the naked eye. Filter masks, which offer less protection, typically filter down to 1 micron, and then down around 0.1 microns. Filtration efficiencies at those two ranges are at least 99% or better. So it's important to know what type of particle you may be exposed to and select the right mask for the right job.

Even N95 masks cannot guarantee that no particles will be inhaled, and even a properly fitted N95 mask does not completely eliminate the risk of illness or death. The N95 designation means that the mask will block at least 95% of particles around the 0.3 microns. Approximately 5% of particles that size will pass through the mask. Both types of masks will reduce the number of particles you breathe into your lungs but to a different degree. However, neither mask will protect your lungs if the mask doesn't seal to your face from particles that enter your breathing zone from around the edges.

Importance of the facial seal

The facial seal of facemasks is THE most important factor in protecting your lungs. Most filter masks are not designed to seal well to the face while N95 masks are required by design to seal to the faces of at least half of the people who use them. N95 masks are typically "fit" to each person and a wide selection from different manufacturers is usually required to find the right N95 mask for each individual when that level of filtering is critical. However, even a non-perfect fit of an N95 mask will increase your protection.

The reason that you find particles in your nose after using most very inexpensive filter masks and even unfitted N95 masks is that there is no seal around the edges to the face. Particles get drawn into the mask from the edges and into your breathing zone. You might as well not be wearing any mask when you consider how poorly they seal.

That's why some people chose N95 masks even when working with large particles. Because rarely do filter masks seal well enough to provide anything close to the protection you need.

Facial hair and jewelry can also affect the seal of both types of facemasks. If a good seal is important, facial hair should be shaved at the edges where the mask contacts the skin and any jewelry that interferes with the seal should be removed. It is important to follow the directions in the mask insert to assure a good seal and fit. **With SoftSeal masks, it is important that once the mask is placed in position over the nose and mouth, that the mask is pulled away from the face and reseated direct towards the face.**

To test the seal:

- Completely cover the outside of the mask with both hands.
- Do not press the mask against your face.
- With both hands on the surface of the mask, breathe in quickly. The mask should slightly collapse.
- When the mask is a good fit, you will not feel any air leaking in between the face and the seal.

What makes the SoftSeal® facemasks different

Other competitors like 3M, MSA, Survivair, and Moldex have some N95 Masks and Filter Masks similar to the SoftSeal facemasks, but they can never match their unique features. Recognizing the importance of a good fit and facial seal to make any facemask actually functional, both the SoftSeal N95 facemask and the SoftSeal Filter Masks have all of these features.

- ❖ Medical grade silicone seal that moves with your face and mouth to maintain the seal even when you are speaking
- ❖ The thin feathered edge of the silicone seals tighter to your face as you breathe in
- ❖ Extreme comfort with no itchy material against the skin
- ❖ You can read and see what you are working on without fogging up your glasses
- ❖ Internal skeleton or vertical structures prevent mask collapse while you breathe and gives it significantly improved durability
- ❖ A really unique head strap design for the best protection and comfort
 - Dual straps above and below the ears or ear loops to provide sealing forces in two directions
 - Almost half-inch wide head straps provide durable and comfortable support
 - Head straps are molded into the silicone face seal so there are no staples inside the mask or the potential for pinhole leaks
 - Tensioning clip in each head strap enables manual adjustment of the sealing force
- ❖ Molded-in adjustable nose clip that easily forms to your nose and can't peel off.

Choosing the right mask for the right job

Using the wrong mask for a job can present a significant and possibly deadly danger as many filter masks with widely varied levels of protection may look similar, and even masks that do not protect against dust at all, such as paint masks and surgical masks may look similar to filter masks. The SoftSeal N95 Mask can offer good protection against germs as well as airborne viruses including those that cause colds and the flu. It is the best protection for Swine Flu, Pig Flu, H1N1, Bird Flu and TB. It is also the mask of choice when working with fine particles, around 0.3 microns in diameter (see Appendix 1. Particle Table to determine what level of protection you need). So it is really important to use an N95

masks when working in those environments. However, N95 masks have a higher work of breathing due to the greater resistance to airflow, a result of their higher filtration capabilities. The higher work of breathing may cause fatigue and may present a risk to people with chronic or acute lung diseases such as COPD or asthma and should be used with caution unless the exposure environment is critical.

When particles are larger than around 1 micron, the SoftSeal Filter Mask may be a good choice of mask to use. It offers the same sealing protection of the SoftSeal N95 Mask while having a lower work of breathing and lower cost.

In addition, the SoftSeal masks have been tested by Nelson Laboratories in Utah, one of the most prestigious testing laboratories for barrier technology, and found to pass the same flammability resistance and fluid penetration tests that are required by the FDA for surgical masks to protect surgeons in the OR from blood spraying at their faces. So if you are working in environments where you want to protect yourself from even liquid spray or sparks, the SoftSeal Masks are your mask of choice.

Markets and Applications

The markets and applications for the SoftSeal Masks include the construction, homeowner projects, industry and personal health protection.

Market	Application	Mask Selection	
Construction	Sanding	Filter Mask	
	Grinding	Filter Mask	
	Demolition	Filter Mask	
	Installing Wallboard	Filter Mask	
	Working with Cement	Filter Mask	
	Fiberglass Insulation	Filter Mask	
	Mold Removal	Filter Mask	
		Fine Particles (<2.5 micron)	N95
		Smoke	N95
	Ash	N95	
	Soot	N95	
	Welding	N95	
	Ultra-Fine Metal Particles	Cartridge Respirator	
	Toxic Fumes	Cartridge Respirator	
	Oil	Cartridge Respirator	
	Vapors	Cartridge Respirator	
	Asbestos	Cartridge Respirator	
	Lead	Cartridge Respirator	
	Chemical Fumes	Cartridge Respirator	
Homeowner Projects	Sweeping	Filter Mask	
	Yard Work	Filter Mask	
	Woodwork	Filter Mask	
	Bagging	Filter Mask	
	Pesticides	N95	
Industrial	Laboratory Work	Filter Mask or N95	

	Manufacturing Cleanrooms	Filter Mask
Personal Health Protection	Swine Flu, H1N1	N95
	Protection for TB exposure control	N95
	Protecting others from your infection	N95
	Air travel*	N95

- ❖ An additional benefit of using the SoftSeal N95 Mask when traveling by air is its ability to capture the water vapor in your exhaled breath and release it again when you breathe in. This reduces the water loss from your airways and helps keep your breathing air moist when breathing the dry airplane cabin air.

Appendix 1. Particle Size Table

Particle	Particle Size (microns)
Glass Wool	1000
Spanish Moss Pollen	150 - 750
Beach Sand	100 - 10000
Mist	70 - 350
Fertilizer	10 - 1000
Pollens	10 - 1000
Cayenne Pepper	15 - 1000
Textile Fibers	10 - 1000
Fiberglass Insulation	1 - 1000
Grain Dusts	5 - 1000
Human Hair	40 - 300
Human Hair	60 - 600
Dust Mites	100 - 300
Saw Dust	30 - 600
Ground Limestone	10 - 1000
Tea Dust	8 - 300
Coffee	5 - 400
Bone Dust	3 - 300
Hair	5 - 200
Cement Dust	3 - 100
Ginger	25 - 40
Mold Spores	10-30
Starches	3 - 100
Red Blood Cells	5-10
Mold	3-12
Mustard	6-10
Antiperspirant	6-10
Textile Dust	6-20

Gelatin	5-90
Spider web	2-3
Spores	3-40
Combustion-related - motor vehicles, wood burning, open burning, industrial processes	up to 2.5
Fly Ash	1 - 1000
Milled Flour, Milled Corn	1 - 100
Coal Dust	1 - 100
Iron Dust	4-20
Smoke from Synthetic Materials	1-50
Lead Dust	2
Face Powder	0.1 - 30
Talcum Dust	0.5 - 50
Asbestos	0.7 - 90
Calcium Zinc Dust	0.7 - 20
Paint Pigments	0.1 - 5
Auto and Car Emission	1 - 150
Metallurgical Dust	0.1 - 1000
Metallurgical Fumes	0.1 - 1000
Clay	0.1 - 50
Humidifier	0.9 - 3
Copier Toner	0.5 - 15
Liquid Droplets	0.5 - 5
Insecticide Dusts	0.5 - 10
Anthrax	1-5
Yeast Cells	1-50
Carbon Black Dust	0.2 - 10
Atmospheric Dust	0.001 - 40
Smoldering or Flaming Cooking Oil	0.03 - 0.9
Corn Starch	0.1 - 0.8
Sea Salt	0.035 - 0.5
Bacteria	0.3 - 60
Bromine	0.1 - 0.7
Lead	0.1 - 0.7
Radioactive Fallout	0.1 - 10
Rosin Smoke	0.01 - 1
Combustion	0.01 - 0.1
Smoke from Natural Materials	0.01 - 0.1
Burning Wood	0.2 - 3
Coal Flue Gas	0.08 - 0.2
Oil Smoke	0.03 - 1
Tobacco Smoke	0.01 - 4

Viruses	0.005 - 0.3
Typical Atmospheric Dust	0.001 to 30
Sugars	0.0008 - 0.005
Pesticides & Herbicides	0.001

Source: www.engineeringtoolbox.com