

## N95 RESPIRATOR MASK.





Our premium-quality disposable **N95 masks for sale** are **NIOSH certified** (National Institute for Occupational Safety and Health). Our **NIOSH approved N95 face masks** filter at least 95% airborne particles that are non-oil based. Our **disposable N95 masks**, are lightweight in construction to promote greater worker acceptance and helps increase wear time. Our **N95 masks** are made of several layers of special non-woven polypropylene (synthetic polymer) fabric. This fabric is produced by melt blowing and forms the inner filtration layer in the N95 mask that filters out hazardous particles.

**Filter safety masks** such as the **NIOSH N95** mask are used in the following industries: Commercial Buildings, Construction, Design & Construction, Food Processing, Food Safety, General Manufacturing, Heavy Infrastructure, Mining, Oil & Gas, Transportation, Medical Facilities, Hospitals, etc.

- **N95 Face mask with filter.** Filters at least 95% of airborne particles helping prevent diseases and infections.
- **Two strap design** helps provide a secure seal.
- The straps on the respirator are completely latex-free.
- **Nose foam cushioning** with **adjustable metal nosepiece** for comfort.
- Designed with ultrasonic welding technology for maximum comfort. **Very comfortable face masks for long-term wear.**
- **Material:** High-efficiency electrostatic filter cotton & melt blown non-woven fabric.
- **Glue-free and odorless** face mask.
- **NIOSH approved** N95 masks.
- **CE Certified Masks.** Our N95 face masks have been manufactured to EEA standards, and are used by hospitals, medical facilities and health professionals. **See our N95 Certification here.**



Our **N95 mask** or **N95 respirator** is commonly used by hospitals, medical facilities & officially approved by the government in the USA. Best used when treating patients with airborne diseases. The N95 mask is the most common particular-filtering facepiece respirator.

**N95 respirators** are examples of personal protective equipment that are used to protect the wearer from airborne particles and from liquid contaminating the face.



Who is NIOSH and what do they have to do with respirators?

- The National Institute for Occupational Safety and Health (NIOSH) is the federal agency responsible for conducting research and making recommendations to prevent workplace injuries and illnesses. As part of the Centers for Disease Control and Prevention (CDC) within the Department of Health and Human Services (HHS), NIOSH helps assure safe and healthful working conditions by conducting scientific research, developing guidance and authoritative recommendations, disseminating information, and responding to requests for workplace health hazard evaluations.
- The National Personal Protective Technology Laboratory (NPPTL) is the division within NIOSH responsible for the certification and approval of respirators for use in occupational settings, including those under the jurisdiction of the Occupational Safety and Health Administration (OSHA). This authority is implemented through regulations in Part 84 of Title 42 of the Code of Federal Regulations (42 CFR 84).

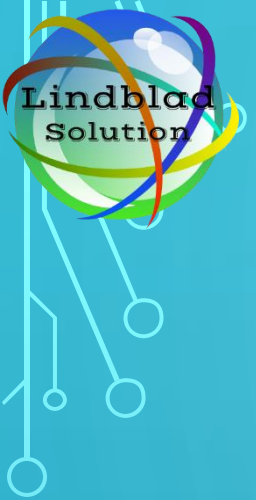




## What is a N95 mask?

- A **non-woven surgical mask** is a mask that protects the wearers respiratory tract. **Non-woven masks** filters inhaled air, minimizing the risk of spreading viruses and bacteria. The disposable surgical face mask covers a large portion of the face and protects the wearer from dust and microorganisms. These facemasks are essential for doctors and hospital staff as it protects them from viruses which may spread from patients.
- Food industry workers also use non-woven face masks to prevent human contamination and the transmission of viruses through food. **Non-woven facemasks are better than woven face masks** because they have better air permeability, lightweight, waterproof, flexible, durable and provides better filtration.
- Usage of non-woven facemasks minimizes the risk of contamination as compared to reusable products, disposable products are disposed of after usage.
- Overall, the usage of facemasks, gloves, social distancing, hand washing and other protective measures when you do not need to be in public are all effective ways to flatten the curve and prevent exposure to bacteria and viruses.





## Terminology

Bioaerosols are those airborne particles that are living or originate from living organisms. They include microorganisms and fragments, toxins, and particulate waste from all varieties of living things. A respirator is a device designed to help provide the wearer with respiratory protection against inhalation of a hazardous atmosphere.<sup>1 2</sup> For bioaerosols, particulate-removing respirators are often recommended to help reduce exposure.

Particulate respirators are available as:

- A filtering half facepiece (sometimes called a disposable respirator), where the filter is virtually the entire respirator
- An elastomeric (reusable) half facepiece with a particulate filter
- An elastomeric (reusable) full facepiece with a particulate filter
- A powered air purifying respirator (PAPR) that includes a particulate filter

Particulate respirators are classified by their performance against local certification standards. In the US, testing and approval is done by the National Institute for Occupational Safety and Health (NIOSH). In Europe respirators are tested against the relevant European Standard and are approved to the PPE Directive 89/686/EEC or the replacement PPE Regulation (EU) 2016/425. 3 3M™ Product Name 3M Personal Safety Division Filtration efficiency is one of the performance parameters evaluated for certification. Table A contains some of the minimum filtration efficiency requirements according to US, Europe and China standards. There are many test variables that affect performance such as type of aerosol, particle size, flow rate, whether the aerosol has been charge-neutralized to the Boltzmann equilibrium state, etc. For a more detailed comparison of global filtering facepiece respirator regulations, see the 3M Technical Bulletin - Comparison of FFP2, KN95, and N95 and Other Filtering Facepiece Respirator Classes.

**Table A.** Filtration Efficiency Requirements Per U.S., European, and China Standards

Standard	Classification	Filter Efficiency
NIOSH 42 CFR 84 (US)	N95	≥ 95%
NIOSH 42 CFR 84 (US)	N99	≥ 99%
NIOSH 42 CFR 84 (US)	N100	≥ 99.97%
EN 149:2001	FFP1 (filtering facepiece)	≥ 80%
EN 149:2001	FFP2 (filtering facepiece)	≥ 94%
EN 149:2001	FFP3 (filtering facepiece)	≥ 99%
EN 143:2000, EN 140:1999, EN136:1998	P1 (elastomeric facepiece)	≥ 80%
EN 143:2000, EN 140:1999, EN136:1998	P2 (elastomeric facepiece)	≥ 94%
EN 143:2000, EN 140:1999, EN136:1998	P3 (elastomeric facepiece)	≥ 99.95%
GB2626-2006	KN/KP90	≥ 90%
GB2626-2006	KN/KP95	≥ 95%
GB2626-2006	KN/KP100	≥ 99.97%



## Filtration

A number of questions have been raised regarding the use of respirators against biological agents. The primary question is whether or not particulate respirators can filter small particles such as fungal spores (2 to 5  $\mu\text{m}$ ), bacteria (0.3 to 10  $\mu\text{m}$ ), or viruses (0.02 to 0.3  $\mu\text{m}$ ).<sup>17</sup> The physical size of various organisms is shown in Table B. As noted previously, biological organisms may be carried on other particles including dust, blood, saliva, etc. Droplets generated from coughing, sneezing and talking will quickly dry in the air to form droplet nuclei. Droplet nuclei generated from coughs, sneezes, and speaking have been found to range from submicron to over 20 microns.<sup>18-19</sup> Influenza viruses, and other viruses, have been collected from exhaled breath.<sup>20</sup> It is thought that droplet nuclei that contain *Mycobacterium tuberculosis* may range from less than 1  $\mu\text{m}$  to greater than 5 microns.<sup>21-22</sup> Airborne particles containing influenza viruses have been sampled from the air of hospital rooms containing influenza patients and found to be in the size range from less than 1  $\mu\text{m}$  to greater than 4  $\mu\text{m}$ .<sup>5</sup> Understanding filtration mechanisms can help answer whether or not these particles can be filtered by particulate respirators. Many particulate respirators use a non-woven fibrous filter media to capture particles. Fibers ranging in size from less than 1  $\mu\text{m}$  up to 100  $\mu\text{m}$  in size crisscross to form a web of many layers which is mostly air due to the spaces between the fibers. It is these spaces between fibers that allow for breathability. Particles are trapped, or captured, when flowing through the layers of filter media, and that capture can happen through several different mechanisms. These are gravitational settling, inertial impaction, interception, diffusion, and electrostatic attraction

**Table B.** Size of Various Microorganisms

Microorganism (common name or disease)	Physical Size ( $\mu\text{m}$ )
Hepatitis virus (Hepatitis B)	0.042 - 0.047
Adenovirus (respiratory infections)	0.07 - 0.09
Filoviruses (Ebola)	0.08 diameter 0.79 - 0.97 length
Bunyaviridae (Hantavirus)	0.08 - 0.12
Orthomyxoviridae (Influenza A, B, & C)	0.08 - 0.12
Coronaviridae (SARS-CoV, MERS-CoV & SARS-CoV-2)	0.12
Variola Virus (Smallpox)	0.14 - 0.26 diameter 0.22 - 0.45 length
<i>Mycobacterium tuberculosis</i> (TB)	< 1 to > 5 diameter
<i>Bacillus anthracis</i> spore (Anthrax infection)	1.0 - 1.5 diameter





	CLOTH FACE COVERINGS	Surgical Masks	N95 Respirators
Testing and Approval	None	Cleared by US Food and Drug Administration (USDA)	Evaluated, tested, and approved by NIOSH as per the requirements in 42 CFR Part 84
Intended Use	Daily use to create a barrier and limit disease spread.	Provides wearer protection against fluids. Protects patient from wearer's respiratory emissions.	Reduces exposure to particles including small particle aerosols and large droplets (only non-oil aerosols).
Face Seal and Fit	Loose	Loose	Tight
Fit Testing Required	No	No	Yes
Respiratory Protection	No	No	Yes (filters 95% of particulates)
Use Limitations	May be re-used with proper care and washing.	Disposable. Must be discarded after each encounter.	Ideally should be discarded after each use. Especially if it becomes wet, dirty, or loose.

### NIOSH Particulate Filter Approval Categories

Minimum Filter Efficiency	N series Not resistant to oil	R Series Somewhat resistant to oil	P Series Strongly resistant to oil
95%	N95	R95	P95
99%	N99	R99	P99
100% (99.97%)	N100	R100	P100 (~HEPA)

Just In Time Training

PPE: Respirator Usage and Safety

## Understanding the Difference



Surgical Mask



N95 Respirator

### Testing and Approval

Cleared by the U.S. Food and Drug Administration (FDA)

Evaluated, tested, and approved by NIOSH as per the requirements in 42 CFR Part 84

### Intended Use and Purpose

Fluid resistant and provides the wearer protection against large droplets, splashes, or sprays of bodily or other hazardous fluids. Protects the patient from the wearer's respiratory emissions.

Reduces wearer's exposure to particles including small particle aerosols and large droplets (only non-oil aerosols).

### Face Seal Fit

Loose-fitting

Tight-fitting

### Fit Testing Requirement

No

Yes

### User Seal Check Requirement

No

Yes. Required each time the respirator is donned (put on)

### Filtration

Does NOT provide the wearer with a reliable level of protection from inhaling smaller airborne particles and is not considered respiratory protection

Filters out at least 95% of airborne particles including large and small particles

### Leakage

Leakage occurs around the edge of the mask when user inhales

When properly fitted and donned, minimal leakage occurs around edges of the respirator when user inhales

### Use Limitations

Disposable. Discard after each patient encounter.

Ideally should be discarded after each patient encounter and after aerosol-generating procedures. It should also be discarded when it becomes damaged or deformed; no longer forms an effective seal to the face; becomes wet or visibly dirty; breathing becomes difficult; or if it becomes contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.



Centers for Disease Control and Prevention  
National Institute for Occupational Safety and Health



# LINDBLAD SOLUTION, GLOBAL CONSULTING!

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