

Reusable **Elastomeric Respirators**

A Highly Protective and Cost-Effective Option
for Emergency Response Preparedness



Healthcare workers have faced a severe shortage of disposable N95 respirators during the COVID-19 pandemic, forcing them to take extraordinary steps to stretch supplies. At the same time, there are respiratory protection products designed for reuse that offer filter efficiency equal to or higher than disposable N95s.

Reusable elastomeric respirators are certified by the National Institute for Occupational Safety and Health (NIOSH) and recommended by the Centers for Disease Control and Prevention (CDC) for use against COVID-19 in healthcare settings. One elastomeric can do the work of hundreds, if not thousands, of disposable N95 masks. Because they can be cleaned and reused, they occupy a fraction of the storage space, are economical, and address a vital need for emergency preparedness.

When determining options for emergency response preparedness and potential surges in demand requirements, it's important to consider supplementing your respiratory protection plan with reusable elastomeric respirators. These are a good option for a variety of emergency situations that cuts down on storage space and costs while offering protection that is at least comparable to N95 respirators.

What are reusable elastomeric respirators?

Reusable elastomeric respirators are tight-fitting respirators made of synthetic or rubber material. Because they are designed for reuse, they can be repeatedly disinfected, cleaned, and placed back into service. Elastomeric half-face respirators can also be paired with interchangeable cartridges that provide protection against a wide array of hazards.

Who can use reusable elastomeric respirators?

As a result of the shortage of disposable N95s in the COVID-19 pandemic, the Food and Drug Administration (FDA) temporarily authorized the use of elastomeric respirators in healthcare settings.¹ In addition, the Occupational Safety and Health Administration (OSHA) has recommended reusable elastomeric respirators as alternatives for most healthcare applications.²

Many healthcare professionals who work directly with patients are using these respirators to help avoid being exposed to pathogenic biological airborne particulates from patients with confirmed or suspected COVID-19.³

In addition to healthcare personnel, emergency responders of all types – first responders, law enforcement, firefighters, EMS providers, industrial workers engaged in utilities and critical infrastructure work, and government at all levels – can benefit from using reusable elastomeric respirators.⁵

Beyond COVID-19, elastomeric respirators offer further flexibility for use in other national emergencies ranging from natural disasters to national security threats or other novel public health emergencies. Filter cartridges are interchangeable, so you can fit the same respirator with filters appropriate to a wide array of hazards. This is beneficial for any emergency response preparedness plan that may be activated in the case of a future declared emergency.



What are the advantages of reusable elastomeric respirators?

When all costs are considered, reusable elastomeric respirators are an economical solution for regular and surge use.⁴ Reusable elastomeric respirators occupy a fraction of the storage space needed for stockpiling disposable N95 respirators. Authors of a comparative cost analysis⁴ found reusable elastomeric half-face respirators to be less costly to stockpile than disposable masks. The study concluded stockpiling an adequate amount of N95 respirators alone to distribute to all first responders is prohibitive in terms of both cost and volume, but stockpiling both disposable N95 respirators and reusable half-face respirators may be the best option.⁴

The benefits of reusable elastomeric respirators extend beyond cost savings and include the availability of higher efficiency replaceable filters, including P100.⁵



In response to the supply demands on and increased costs of N95 masks during the COVID-19 crisis, the Allegheny Health Network ("AHN")⁶ developed a program to lessen its dependence on N95 masks by acquiring industrial elastomeric half-mask respirators with disposable P100 filters. The large academic hospital network found that, within one month, it was able to decrease the number of N95 masks it needed by 95%. As a result of the Elastomeric Mask Program, AHN and corresponding author Dr. Sricharan Chalikonda concluded that: "establishing an elastomeric mask program is feasible and less expensive than programs focused on reusing and disinfecting disposable N95 masks"; "a well thought out elastomeric distribution and disinfection program does not pose greater operational challenges than an N95 reuse and resterilization program"; and "elastomeric masks can be stored for future surges and should be considered an essential part of all healthcare facilities' supply of personal protective equipment."⁶

How can you care for your reusable elastomeric respirator?

Elastomeric respirators are designed to be cleaned, reused, and decontaminated. When cleaning your own device, follow recommended cleaning instructions for your respirator and the cleaning product itself including guidance on contact time and recommendations to wipe or rinse off product residue.⁷ Look for Environmental Protection Agency registered cleaning solutions as recommended by CDC, which may include cleaning products from your respirator's manufacturer. Always inspect your equipment after cleaning it. The CDC also offers guidance for disinfecting and reusing filter cartridges on an emergency basis during contingency and crisis emergency use.⁸

Are testing and training difficult and time consuming?

Per OSHA, both fit testing and training are essential, but you can easily integrate fit testing for elastomeric respirators with current N95 fit test programs at healthcare facilities and incorporate virtual user training programs with existing training programs.⁵

¹ United States Food and Drug Administration. <https://www.fda.gov/media/135763/download>

² Occupational Safety and Health Administration. "Guidance on Preparing Workplaces for an Influenza Pandemic." <https://www.osha.gov/Publications/OSHA3327pandemic.pdf>

³ Hamby, C. "They Evoke Darth Vader, but These Masks May Save Your Doctor's Life." *The New York Times*. <https://www.nytimes.com/2020/05/27/us/coronavirus-masks-elastomeric-respirators.html>

⁴ Baracco, G., Eisert, S., Eagan, A., & Radonovich, L. 2015. Comparative Cost of Stockpiling Various Types of Respiratory Protective Devices to Protect the Health Care Workforce During an Influenza Pandemic. *Disaster Medicine and Public Health Preparedness*, 9(3), 313-318. doi:10.1017/dmp.2015.12

⁵ National Academies of Sciences, Engineering, and Medicine. 2019. "Reusable Elastomeric Respirators in Health Care: Considerations for Routine and Surge Use." Washington, DC: The National Academies Press. <https://doi.org/10.17226/25275>

⁶ Chalikonda S, Waltenbaugh H, Angelilli S, Dumont T, Kvasager C, Sauber T, Servello N, Singh A, Diaz-Garcia R. "Implementation of an Elastomeric Mask Program as a Strategy to Eliminate Disposable N95 Mask Use and Resterilization: Results from a Large Academic Medical Center." *Journal of the American College of Surgeons* (2020). doi: [https://www.journalacs.org/article/S1072-7515\(20\)30471-3/pdf](https://www.journalacs.org/article/S1072-7515(20)30471-3/pdf)

⁷ MSA Safety. "Product Cleaning Guidance: Respiratory Protection Equipment." <https://s7d9.scene7.com/is/content/minesafety/appliances/1000-91-MC%20Respiratory%20Cleaning%20Guidance%20Brief>

⁸ United States Centers for Disease Control and Prevention. "Elastomeric Respirators: Strategies During Conventional and Surge Demand Situations." <https://www.cdc.gov/coronavirus/2019-ncov/hcp/elastomeric-respirators-strategy/index.html>

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice.

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