

Filtered Reusable Masks as Expedient PPE

The current COVID-19 pandemic has caused a shortage of medical Personal Protective Equipment (PPE) i.e., masks. While PPE is unavailable, we want to provide you with the best and most effective protection while you care for our residents. By utilizing these substitutes, we alleviate the stress on demand and allow providers caring for cohorts of COVID-19 patients the masks they need. These mask substitutes are common, readily available and when donned appropriately very effective.

1. INTRODUCTION

When WHO declared the current COVID-19 outbreak a global pandemic, PPE was assessed to play an important part in working to fight the spread of outbreak. However, healthcare professionals are without adequate supplies of CDC recommended surgical masks. Therefore, it became imperative to find an effective solution to protect patients and frontline staff while we wait for supply to catch up to current demand.

2. SOLUTION

Science has found that conical coffee filters can be used to slow the spread of infection. In addition, research from aeronautical engineers have found that simple household items, such as cotton, have an efficacy rate of up to 70%.

Using the combination of an internal filter, along with a tight-knit cotton blend, these masks give our care staff the maximum protection available, during such times as these. This will also allow ICU units in hospitals more

available supply to care for those of our population that are most harshly affected by this virus.

3. PROPER WEAR

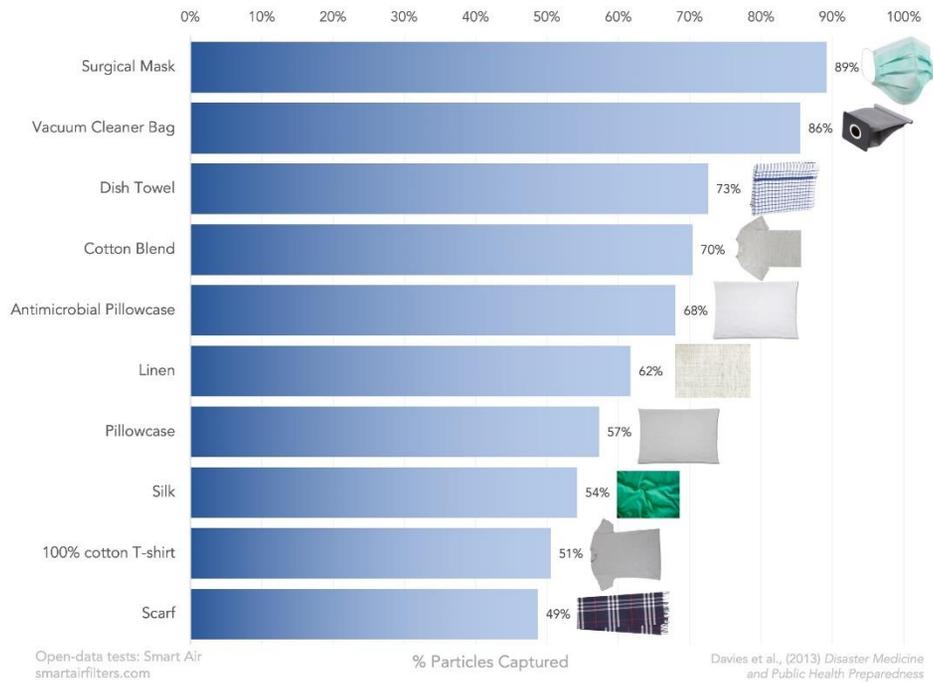
After much research, a two-strap solution has proven to be most effective. The top and bottom straps extend laterally around the head and upper neck.

Wearers insert the coffee filter from the side, leaving the inside pocket of the mask without exposure and sterile.

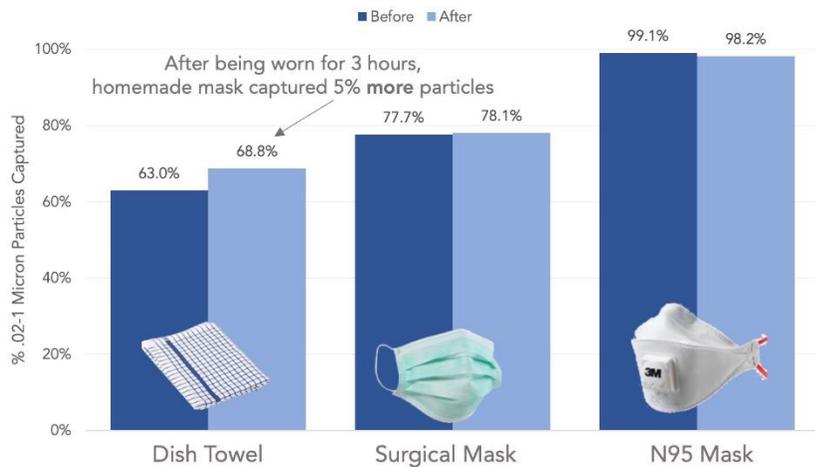
Don the mask by placing the filter into the mask PRIOR to wear and adjust straps a necessary.

Note* - the mask is most effective if worn tightly around the mouth and nose to eliminate maximum droplet particles.

Household Materials' Effectiveness Against 0.02-Micron Particles



Mask Effectiveness Before and After 3 Hours



van der Sande et al., 2008. *PLoS One*.

Open-data tests: Smart Air smartairfilters.com