

## Can a Respro Mask Protect Against Coronavirus?

There is limited information on this specific virus, but it is part of a family of viruses that has been previously researched and documented. The mechanics remain consistent with other airborne viral pathogens.

Viral infection is transmitted in two major ways:

1. By airborne transmission.
2. By coming into physical contact with viral material, and self-administering the virus by hand via mouth or nose touching.

A respiratory mask that incorporates an Activated Charcoal Cloth layer, together with a submicron particle filter layer, has the ability to absorb viral matter in both the macro and nano range of sizes, by means of entrapment and adsorption. While a “P2/P3” face mask will trap particulates which may well carry viral matter (micro size), they only come in one size. This increases the chances of a misfit by the user, meaning that a percentage of unfiltered air will bypass the filter completely.

In order to consider the effectiveness of a mask, the following points must be taken into consideration:

1. How well does the product seal?
2. How effective is the filter material?

For a mask to work properly, it has to seal the nose and mouth from the external environment. Inhaled air needs to pass through the filter material in order to remove pollution by physically trapping gas or vapor molecules. The nose clip is a vital component required to assist in making an effective seal. Failure to create an effective seal will allow unfiltered air to pass around the sides of the mask and into the respiratory system. This is known as “inward leakage”. A one-size-fits-all mask will invariably offer a poor fit and an ineffective seal. That is why Respro offers three sizes.

Because the mask is made of Neoprene, it will stretch between the nose and cheekbone, and a negative cavity will exist. This gap, if not closed up, will allow polluted air to pass through this region unfiltered, consequently reducing the mask’s overall efficiency. To affect a good seal in this region, all our masks use a nose clip which can be formed to the individual facial shape of the wearer.

Finally, in order to have good breathability in a mask, it is essential that the mask allows for a free flow of breath and does not create either a pressure drop or back

pressure. Heat, carbon dioxide and water vapor--three components of exhaled breath--need to be expelled from the mask in readiness for the next breath of inhaled air. If this process of evacuation fails or is impeded, then the mask may become uncomfortable with poor airflow and may result in the wearer not using the mask. We therefore believe that exhalation valves are an essential component which allows the mask to perform well under the conditions described above. The valves in Respro® masks are designed to reduce or eradicate any of the above effects.