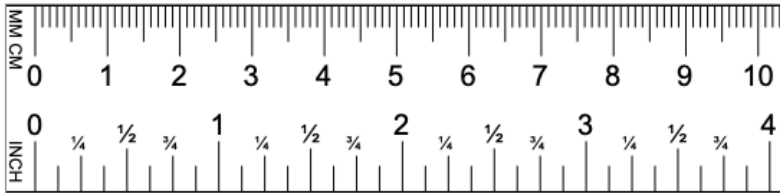


## How big is a micron and what can pass through a face mask?

The Corona virus has a diameter of between 0.06  $\mu\text{m}$  (micron or micrometer), and 0.14  $\mu\text{m}$ . How big is that?

A **millimeter** (mm) is one thousandths of a meter and a **micron** ( $\mu\text{m}$ ) is a one millionth of a meter.

Let's try to picture that.



1. On the ruler picture above, circle the size of one millimeter.

1	=	0.001
Micrometer ( $\mu\text{m}$ )		Millimeter (mm)

2. How many microns do you calculate could fit into the space of one millimeter?
3. So, the coronavirus is approximately what part of a micron?

A nanometer (nm) is 1 billionth of a meter.

4. How many nanometers are in one micron?
5. How big is the coronavirus in nanometers?

The masks that people are now wearing are mostly surgical masks or homemade cloth masks in contrast to the N-95 masks that first responders and health care workers are wearing.



Home-made masks

High-quality, high-thread count cotton fabric tested in the range of 70 to 79 percent filtration of particles as small as 0.3 microns when doubled.



Surgical Masks

Surgical masks tested at 60 to 80 percent filtration of particles as small as 0.3 microns.

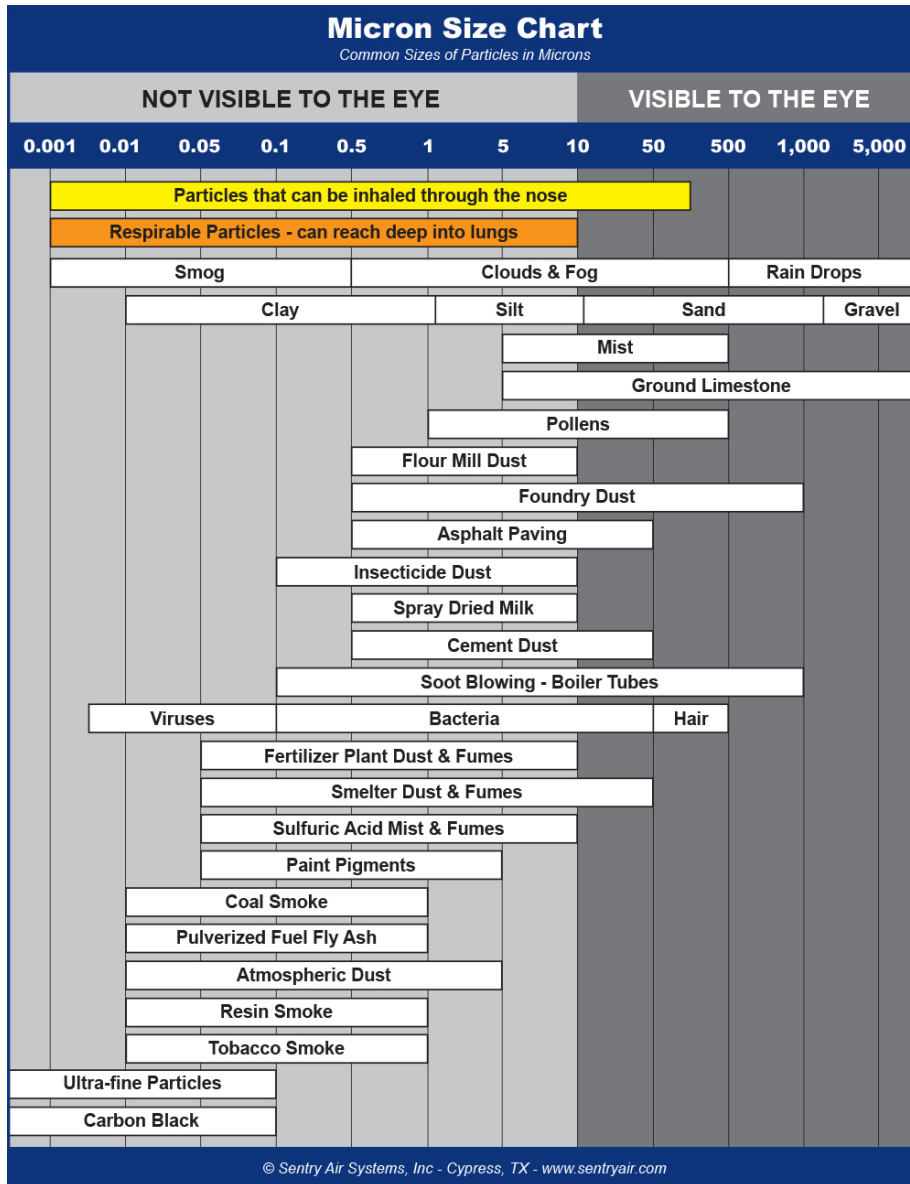


N-95 masks

N-95 masks filtered out at least 95 percent of particles as small as 0.3 microns.

6. All of the masks shown here filter out particles, to some extent, as small as 0.3 microns. Is that a small enough filtration ability to filter out the coronavirus?
  
7. What have you heard is the reason for each of us wearing a mask when we are out in public places?

We found this interesting size chart that lets you visualize how large various particles are.



8. Make 3 observations that this chart helps you understand what and how well masks protect you and others.

Sources: <https://www.sentryair.com/micron-size-chart.htm>  
<https://smartairfilters.com/en/blog/best-materials-make-diy-face-mask-virus/>  
<https://www.nytimes.com/article/coronavirus-homemade-mask-material-DIY-face-mask-ppe.html>