



## Activated Carbon Explained

When choosing a mask, it's essential to select the best filtration system possible that will protect you from any dust, allergens, smoke, viruses, bacteria, gases, or foul odors. That is why Cambridge Masks uses a unique activated Carbon filter in our PRO mask series to provide our clients with optimal protection.

### WHAT IS ACTIVATED CARBON IN FACE MASKS?

Activated carbon is famous for its high adsorption rate and is often used in water filters, medicines, and air purifiers. **Activated carbon is carbon that has been treated to make it microporous, which increases the surface area and absorbency, making it even more effective as a filtration system.** Though it's typically used in powder and granular form, the British Ministry of Defense created an activated carbon cloth that uses this technology to protect against chemical attacks and toxic gases

Cambridge Masks utilizes this same military-grade activated carbon cloth to create the most powerful and efficient mask filter possible. To make our 100 percent pure activated carbon cloth, thousands of activated carbon microfilaments are spun into yarn which is then turned into cloth. These filaments are only 2,000 nanometres in diameter—far smaller than normal, granular carbon, meaning they have much more surface area. Because of the increased surface area, our microfilament technology adsorbs pollutants, gas, viruses and bacteria faster and more effectively than traditional granular carbon. Additionally, viruses and bacteria are drawn to these microfilaments, meaning they stay in the mask—not in your airways.

Activated carbon has the highest adsorption rate of any material on earth. Because of its porous structure, it generates Van der Waals forces, which is the attraction that exists between molecules. The carbon molecules attract incoming particles, viruses, and bacteria which are then trapped within the porous filaments.

You might be wondering what happens once the viruses and bacteria are trapped. Does an activated carbon filter kill viruses and bacteria?



**Our activated carbon cloth traps viruses and bacteria** and draws out their internal cytoplasm, killing them before they reach your airways. As an added layer of protection, our PRO masks are treated with anti-bacterial silver, which kills any bacteria or viruses you may encounter. So, in addition to providing clean, fresh air, Cambridge masks can also protect wearers from harmful pathogens and bacteria.

It's important to note that the activated Carbon layer is just one part of the PRO masks impressive three-layer protection system.

The primary filter layer filters out larger particles such as dust and PM10. In addition to acting as the first line of defense, this layer also comes in a variety of colors, sizes, and styles, ensuring your Cambridge mask will fit any occasion. Through our sublimation printing process, this layer is dyed on a molecular level, meaning it won't fade in water and can be washed.

The second layer is a three-ply micro particulate layer that can stop smaller particles between PM2.5–PM0.3. This three-ply technology is created from non-woven melt-blown polypropylene—a type of thermoplastic polymer. This polymer is created through a process called “blow-molding,” where a plastic polymer is melted down to a liquid state, then blasted with high-velocity air. This creates a random, fibrous web that acts as a mesh to stop pollution and particles.

The final layer is the military-grade active carbon filter which provides failsafe protection. This layer stops any remaining particles up to 2.5PM and traps harmful gases, bacteria, viruses, and pollution. This one-of-a-kind activated Carbon layer is unique to Cambridge Masks and is the result of years of research and trials.



Overall, our PRO masks filter out nearly 100 percent of pollution and gases, [99.6 percent of viruses, and 99.77 percent of bacteria](#), leaving the wearer with clean, purified air. It is also designed to be breathable, comfortable, and adjustable in order to provide a pleasant wearing experience.

This mask is the perfect investment for travelers, cyclists, urban residents, people with respiratory diseases, and anyone who wants to protect against smoke, pathogens, and air pollution. Our PRO mask is washable and approved for about 340 hours of use—roughly six months of daily use. Additionally, our PRO masks are adjustable and come in five sizes, meaning there is one for the whole family.



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