

## Gas Mask Materials

A [gas mask](#) is a mask put on over the face to protect the wearer from inhaling "airborne pollutants" and toxic gases. The mask forms a sealed cover over the nose and mouth, but may also cover the eyes and other vulnerable soft tissues of the face. Some gas masks are also respirators, though the word gas mask is often used to refer to military equipment (e.g. Field Protective Mask, etc.) (The user of the gas mask is not protected from gas that the skin can absorb.)

Gas masks are used to keep people alive and healthy every day. They are used personally, industrially and militarily to keep dangerous fumes, gases or particles out of our airways and lungs, and utilize different materials to provide the best protection.

### The Mask

1. Gas masks are made up of face coverings and elastic bands to create an airtight seal. Some have exhaust or drinking valves. The masks are fabricated from plastics and rubbers, and the bands are made of silicone. The masks contain a space for a filtration cartridge and may cover the full face or just the nose and mouth.

### The Cartridge

2. The cartridge is the "active ingredient" in any [gas mask](#), leaving the user with safe air to breathe. A simple cartridge is made of plastic containing a particle filter, used to capture particles such as dust or bacteria. Activated charcoal can be added between layers of particle filters to render chemicals and toxic gas inert.

### Eyepieces

3. Eyepieces must be treated to ensure clear vision for the user in hazardous environments. They must be resistant to chemicals and may also be shatterproof and light- and fog-resistant. They are typically made of polycarbonate plastic.

Gas masks have a limited useful lifespan that is related to the absorbent capacity of the filter. Once the filter has been saturated with hazardous chemicals, it ceases to provide protection and the user may be injured. Most gas masks use sealing caps over the air intake to prevent the filter from degrading before use, but the protective abilities also degrade as the filter ages or if it is exposed to moisture and heat. Very old unused [gas mask](#) filters from World War II may not be effective at all in protecting the user, and can potentially cause harm to the user due to long-term changes in the filter chemical composition.

World War II gas masks contained blue asbestos in their filters, and this material continued to be used until at least 1956. Breathing blue asbestos in the factories resulted in death from mesothelioma of 10% of workers, and between 2.5 and 3.2 times the normal incidence of lung or respiratory cancers.[1] Some of the gas masks known to contain asbestos are the British MK4 and MK5 respirators which were issued to the majority of the British army during World War II. Current advice is never to wear any gas mask of uncertain military origin.

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