

## Materials Used for Gas Masks

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 typically regarded as pieces of military equipment, although they are used by civilians in certain circumstances. The development and mass production of gas masks first occurred during World War I when gas was used extensively as a weapon on European battlefields. Gas masks are designed to stop the ingestion of chemical irritants but are not usually effective in keeping out smoke, which is why fire-fighters use complex breathing apparatus and not simple gas masks. All of the component materials used in the manufacturing of gas masks must be resistant to the chemicals they are expected to keep out while being light enough to wear for extended periods.

### Activated Charcoal

A [gas mask](#) uses a filter canister with material that extracts harmful chemicals from air. The filter can consist of material such as large-pore polyurethane foam that is impregnated with activated charcoal particles. Activated charcoal has been treated with oxygen to open up pores in the charcoal, providing a larger surface area. Charcoal will adsorb (meaning that it will attract and hold impurities by means of chemical attraction) chemical contaminant particles such as chlorine. Nitrate-based chemicals are not adsorbed by carbon.

### Silicone Rubber

Silicone rubber is used in the manufacturing of a gas mask face piece, the part that fits snugly when the mask is worn. Silicone rubber is non-porous and will not allow contaminants to pass through to the skin. It's also soft, light and heat resistant.

### Polycarbonate

Gas mask lenses need to be light and non-porous. Polycarbonate is a translucent material, one sixth the weight of glass, and is resistant to ballistic and impact attack. It's commonly used in the manufacturing of bullet-proof windows and screens.