

Smoke Mask

Smoke inhalation injury from the noxious products of fire combustion accounts for as much as 80 percent of fire-related deaths in the United States. Many of these deaths are preventable. Smoke Mask, Inc. (SMI), of Myrtle Beach, South Carolina, is working to decrease these casualties with its line of life safety devices.

The SMI personal escape hood and the Guardian Filtration System provide respiratory protection that enables people to escape from hazardous and unsafe conditions. The breathing filter technology utilized in the products is specifically designed to supply breathable air for 20 minutes. In emergencies, 20 minutes can mean the difference between life and death.

A patent license, acquired from NASA, allowed SMI to utilize a low-temperature oxidation catalyst in its protective breathing filter. The catalyst, developed at

NASA's Langley Research Center, converts carbon monoxide to nontoxic carbon dioxide at room temperature, as well as oxidizes formaldehyde fumes, carbon dioxide, and water. Langley's innovation was initially developed for research involving carbon dioxide lasers. In addition to benefiting SMI's escape hood and other air filtration devices, the catalyst promises to have applications in the automobile and aircraft industries and several other areas.

SMI products are designed for emergency use at home, work, and school, as well as for professional firefighting and rescue efforts. The personal escape hood integrates the company's filter with a customized flame-retardant material, and features a clear front to enable vision, an exhalation valve to prevent carbon dioxide build-up, and a drawstring to ensure a tight fit. The hood can be put on in less than 10 seconds, and does not impair hearing or communication. The product comes in both disposable and extended-use models, the latter of which utilizes replacement filters for longer periods of protection.

The Guardian Filtration System is a device designed to fit a wide variety of self-contained breathing apparatuses. While these breathing apparatuses supply the primary air source for firefighters entering smoke-filled or contaminated areas, mechanical failures, air leaks, or "out of air" situations can occur. In these emergencies, the Guardian unit can be quickly attached to the existing face shield. Requiring no additional parts, the unit is easy to apply and uses the same filter technology as the escape hood to provide breathable air for the firefighter.

Prior to the terrorist attacks of September 11, 2001, SMI focused its efforts on devices that would protect users from smoke and carbon monoxide, which have traditionally been the lethal elements in a situation where fire is the primary concern. However, with new threats facing the Nation, SMI is examining how its products can address the concerns of biological, chemical, and nuclear attacks. The company is beginning to add new capabilities to its products, seeking to produce the "ultimate personal escape hood."

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