

CBRN Certified

1st Responders: Into the Face of Danger

[MSA Millennium® CBRN Gas Mask]



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New protection standards apply today...



Government and industry representatives had been working on defining standards for protective equipment to safeguard individuals against airborne terrorist attacks prior to the events of September 11, 2001. Following that day's attacks, efforts were accelerated with establishment of the National Personal Protective Technology Laboratory in Pittsburgh, which took on the role of certifying new standards for CBRN respiratory protection and clothing.

The new National Institute for Occupational Safety and Health (NIOSH) CBRN standard for full-facepiece gas masks was issued on March 7, 2003. In conjunction with U.S. Army Edgewood Chemical Biological Center it tests and approves devices as "CBRN compliant" and establishes very stringent testing and certification protocols for:

- Chemical, biological, radiological and nuclear agents.
- Mask penetration and permeation.
- Carry and transportation.
- Use performance.
- Quality assurance.



The new NIOSH standards also establish:

- Performance requirements for protection against high concentrations of agents (the shortest period being 15 minutes).
- Parameters on environments and applications where masks are to be used, including warm zone environments (locations away from the highest concentrations) and crisis provisions (should terrorists deploy a secondary device as responders arrive at the scene).
- Representative degrees of agents, working on the idea that preparing for the worst potential in a family of chemicals would enable protection against the entire family of agents.
- Rules for testing service life, particulate efficiency, permeation and penetration, fit factors, field of view and interoperability.
- MSA has been an active participant and contributor to the process of determining these new standards and is considered to be a leading expert.

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This chart shows the test representative chemicals for CBRN approved and represents roughly 150 potential chemical compounds.

Canister Test Challenge and Test Breakthrough Concentrations*

Concentration (ppm)	Test	
	Test	Breakthrough*
Ammonia	2500	12.5 ppm
Cyanogen chloride	300	2 ppm
Cyclohexane	2600	10 ppm
Formaldehyde	500	1 ppm
Hydrogen cyanide	940	4.7 ppm ¹
Hydrogen sulfide	1000	5 ppm
Nitrogen dioxide	200	1 ppm NO ₂ or 25 ppm NO ²
Phosgene	250	1.25 ppm
Phosphine	300	0.3 ppm
Sulfur dioxide	1500	5 ppm

¹ Sum of HCN and C₂N₂.

² Nitrogen Dioxide breakthrough is monitored for both NO₂ and NO. The breakthrough is determined by which quantity, NO₂ or NO, reaches breakthrough first.

* Table 3 from "Statement of Standard for Chemical, Biological, Radiological, and Nuclear (CBRN) Full Facepiece Air Purifying Respirator (APR)," revision 1, March 17, 2003.



* Maximum breakthrough for greater than 15 minutes.



The MSA Millennium® Gas Mask answers the call, and then some...

With nearly a century of history and success behind it, MSA today again stands ready to protect Americans – this time against potential airborne contaminants that could be unleashed by terrorists across our homeland.



September 11, 2001 changed the face of homeland security

The MSA Millennium CBRN Gas Mask meets or exceeds all performance requirements of the new NIOSH CBRN Standard by effectively removing harmful gases, vapors and particulates so that the user can confidently breathe safely. The Millennium CBRN canister contains chemical sorbents and a P100 filter to attract, retain, and neutralize contaminants.

The Millennium CBRN design is based on a highly successful military gas mask. The wearer enjoys a wide field of view and great flexibility, making it possible to safely perform any tasks required, including firing weapons if needed. The wearer can communicate easily while wearing the Millennium CBRN Gas Mask, too.

The mask is lightweight and provides a tight seal on the face. A nose cup is also incorporated for reduced fogging of the facepiece. The material is impermeable to chemical agents such as mustard (HD), providing maximum assurance to the wearer. A butyl coated nylon hood also is available for total head protection.

Regarding interoperability, the Millennium CBRN Gas Mask is designed as a system and while the thread and gasket are designed to meet the requirements of the standard, only the manufacturer's assemblies are tested and certified. The mask also permits hydration once the wearer has moved to an uncontaminated area.



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Six-point head harness means easy donning, adjustment and removal with no hair pulling

Flexible, one-piece polyurethane lens eliminates uncomfortable pressure points

Canister inlet ports on left or right side enables weapon sighting from either side

Super-soft black Hycar rubber exceeds CBRN permeation requirements



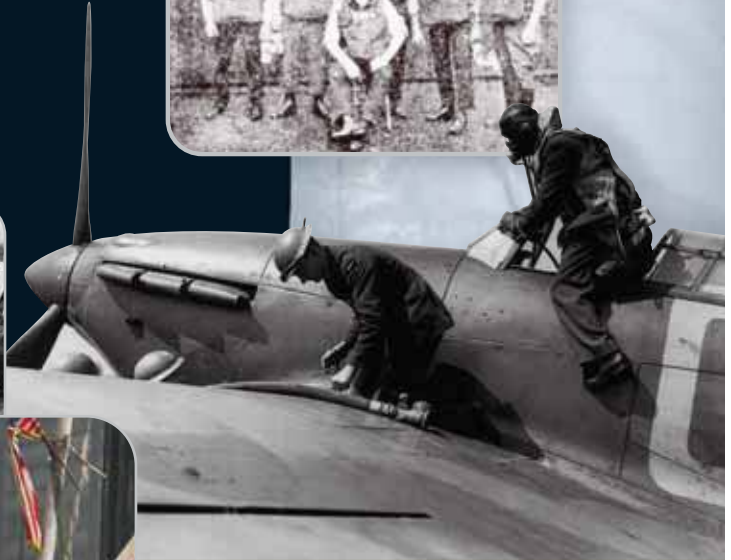
MSA has been there all along...

Since 1914, MSA has pioneered solutions to protect individuals from hazards at work and at war.

From World War I to World War II, from Desert Storm to September 11, 2001, MSA has always helped America's military and its first responders before, during and after emergencies.

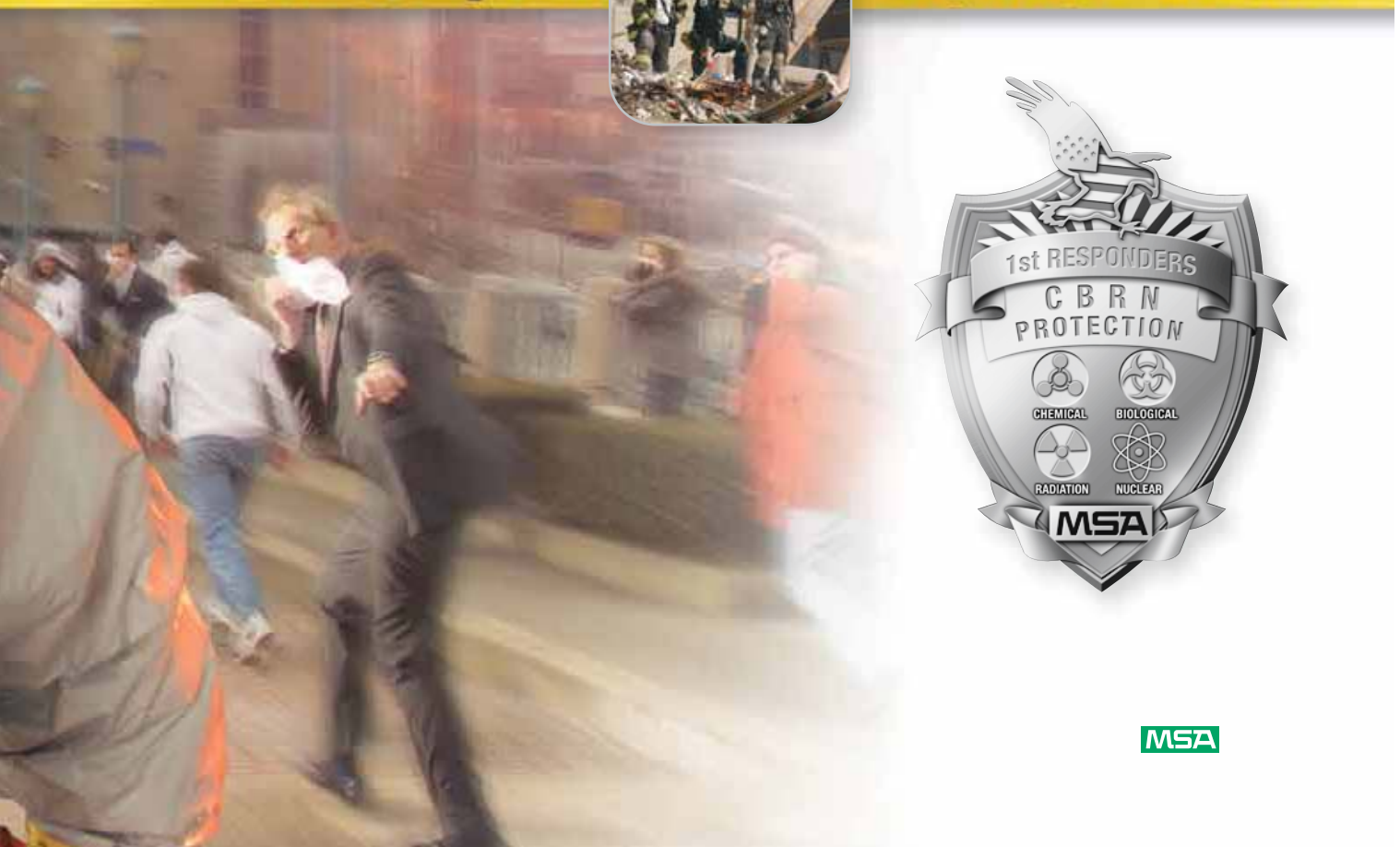
From the earliest days of the company – when two mining engineers developed and improved safety, rescue and protective gear for those working underground – to the homeland security issues of responding and recovering from terrorist attacks today, MSA has the experience, talent and resources to continue its record of producing the finest protective equipment on the market.

The Millennium CBRN Gas Mask is the most current example of that commitment.



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When the line must be crossed...

1st Responders are the first to cross the line into danger.

They must do their work quickly or a disaster can become even more tragic.

Their respiratory equipment must be ready and reliable to protect them against potentially lethal airborne threats. They can't stop to question whether their equipment will do the job.

The MSA Millennium CBRN Gas Mask was made for this very purpose.



Defining the CBRN threat...

CBRN encompasses Chemical, Biological, Radiological and Nuclear agents – airborne hazards which could be used as weapons in a terrorist attack.



Chemical agents include cyanide, mustard gas, ricin, sarin and VX, each of which represents multiple sources of physical distress, some leading even to death. Certain chemical agents attack the central nervous system, disabling the body's ability to control its functions and permitting muscles and organs to work themselves to death. Others attack the skin and mucous membranes on contact, causing severe blistering.



Biological agents include anthrax, botulism and smallpox. These agents are bacteria or viruses endangering the life and health of organisms, specifically human beings. Some multiply within the body to release toxins into the blood, others paralyze muscles, still others are severe and contagious viral infections.



Radiological and Nuclear threats include "dirty bombs," or radiological dispersal devices combining conventional explosives like dynamite with radioactive materials in the form of powder or pellets. Classic nuclear hazards are those associated with the aftermath of detonation of a nuclear device. Radiation cannot be seen, smelled, felt or tasted by humans.





Ordering Information:

Part No.	Description
CBRN Millennium®	
10051286	Small Millennium Facepiece less Canister
10051287	Medium Millennium Facepiece less Canister
10051288	Large Millennium Facepiece less Canister
10046570	MSA CBRN Canister

Accessories:

10026265	ESPII Communications system
305022	Butyl Coated Nylon Hood
10034184	Gas Mask Pouch, Police Style
816137	Spectacle Kit
Lens outserts for Millennium Facepiece	
10008907	Small, Clear
10008906	Medium/Large, Clear
10008909	Small, Tinted
10008908	Medium/Large, Tinted



ESPII® Communications system



Butyl Coated Nylon Hood



Gas Mask Pouch



Spectacle Kit



Lens Outserts

Note: This Bulletin references various elements of the NIOSH CBRN Standards. However, it is not intended to serve as a substitute for the NIOSH documents themselves, which are available online at www.cdc.gov/niosh/npptl/

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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