

# Millennium<sup>®</sup>

## Gas Mask

### Instructions

#### **WARNING**

This manual must be read carefully by all persons who have or will have the responsibility for using or servicing the product. The Millennium Gas Mask from MSA will perform as designed only if used and serviced according to the instructions. Otherwise, the product could fail to perform as designed, and persons who rely on the product could sustain serious personal injury or death.

The warranties made by MSA with respect to the product are voided if the product is not assembled, used, and serviced according to the instructions in this manual. We encourage our customers to write or call for a demonstration of this equipment prior to use, or for any additional information relative to use or repairs.

See separate insert for NIOSH approval information.

**MSA**

Be Sure,  
Choose MSA.

MINE SAFETY APPLIANCES COMPANY  
PITTSBURGH, PENNSYLVANIA, U.S.A. 15230

## NIOSH CAUTIONS AND LIMITATIONS

- A- Not for use in atmospheres containing less than 19.5 percent oxygen.
- B- Not for use in atmospheres immediately dangerous to life or health.
- C- Do not exceed maximum use concentrations established by regulatory standards.
- I- Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by NIOSH.
- J- Failure to properly use and maintain the product could result in injury or death.
- L- Follow the manufacturer's User's Instructions when changing cartridges, canister and/or filters.
- M- All approved respirators shall be selected, fitted, used, and maintained in accordance with OSHA, and other applicable regulations.
- N- Never substitute, modify, add, or omit parts. Use only exact replacement parts as specified by the manufacturer.
- O- Refer to User's Instructions, and/or maintenance manuals for information on use and maintenance of these respirators.
- P- NIOSH does not evaluate respirators for use as surgical masks.
- S- Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.

## INSTRUCTIONS FOR USE AND CARE

### Operating Principle

This gas mask, when properly used, removes harmful gases, vapors (NIOSH approved for CN, Chloroacetophenone and CS, Chlorobenzylidene Malonitrile) and all particulate aerosols including oil based aerosols, (listed on the canister label) from the inhaled air. Inhaled air is drawn through the canister which contains chemicals and a P100 filter that remove or neutralize the contaminants. The air is then drawn through the facepiece, where it passes over the lens (keeping it free of fog) before it is taken into the lungs. Exhaled air leaves the facepiece through an exhalation valve and consequently is not rebreathed.

## WARNING

1. An adequate respiratory protection program must include knowledge of hazards, hazard assessment, selection of proper respiratory protective equipment, instruction and training in the use of equipment, inspection and maintenance of equipment, and medical surveillance.
2. This respirator will perform as designed only if used and maintained according to the manufacturer's instructions. The Program Administrator and the users must read and understand these instructions before trying to use or service this product. We encourage our customers to write or call for information on this product before using it.
3. This respirator may be used only after proper instruction and training in its use, as specified in all applicable national rules and regulations.
4. If the respirator does not perform as specified in this manual, it must not be used until it has been checked by authorized personnel.
5. Do not alter, modify, or substitute any components without the approval of the manufacturer.
6. Inspect the respirator regularly and maintain it according to the manufacturer's instructions. Repairs must only be made by properly trained personnel.
7. This respiratory protective device does not supply oxygen. Use only in adequately ventilated areas which conform to the appropriate standard.
8. This respirator must be used in conjunction with the proper chemical or particulate canisters for protection against specific contaminants. If you cannot determine that the filter canister used with this device is designed for the contaminant, or if you do not know the identity of the contaminant, do not use this device.
9. Do not use when concentrations of contaminants are unknown.
10. Do not use when appropriate exposure limit (PEL, REL, TLV, etc.) is not known, or when it is below the odor threshold or any other established warning level for the contaminant.

11. Leave the contaminated area immediately if:
    - a. Breathing becomes difficult
    - b. Dizziness or other distress occurs
    - c. You taste or smell the contaminant
    - d. You experience nose or throat irritation
  12. Use strictly according to the instructions, labels, and limitations pertaining to this device.
  13. This respirator may not provide a satisfactory seal with certain facial characteristics, such as beards or large sideburns, that prevent direct contact between the skin and the sealing surface of the facepiece. Do not use this facepiece if such conditions exist.
  14. Do not wear eyeglasses under the facepiece. The temples or sidebars on eyeglasses will prevent an air-tight seal. If you must wear glasses, install the spectacle kit.
  15. The user must perform a respirator fit test and follow all warnings and limitations specified.
  16. Wear impermeable protective clothing for exposure to gases and vapors which can poison by skin absorption.
  17. Do not use this full facepiece with self-contained breathing apparatus (SCBA).
  18. Do not use this respiratory protective device in explosive atmospheres.
- Failure to follow these precautions can result in serious personal injury or death.**

### General Description

The Millennium Gas Mask is an air-purifying respirator intended for use in atmospheres which are not immediately dangerous to life or health (non-IDLH). This respirator is intended for applications which may require the user to enter or exit a hazardous area, work within the area for a limited time. The respirator consists of the following sub-assemblies:

- full facepiece (with nosecup)
- filter canister: with NATO 40 MM thread

The Millennium full-facepiece, when combined with the appropriate filter, becomes a complete respiratory protective device. Facepieces are available in three sizes:

- P/N 10007423 SM (small)
- P/N 10007422 MD (medium)
- P/N 10007424 LG (large)

The facepiece may be equipped with the following accessories:

- a. ESP Communications System
- b. Lens Shields (tinted), in small, medium, or large
- c. Replacement Nosecups in small, medium, or large
- d. Spectacle Kit
- e. Hood

### WARNING

Select the appropriate canister for removal of the contaminant present. Use of an incorrect canister can cause contaminant penetration and result in serious personal injury or death.

### RESPIRATOR FIT TEST

A qualitative or quantitative respirator fit test must be carried out for each wearer of this respirator to determine the amount of protection it will provide. Respirator fitting tests are explained fully in the American National Standard "Practices for Respiratory Protection." ANSI Z88.2-1992, published by the American National Standards Institute, 11 West 42nd St., New York, NY 10036.

*Quantitative Test* — If a quantitative fit test is used, a fit factor that is at least 1000 shall be obtained before the respirator is assigned to an individual.

*Qualitative Test* — If a qualitative fit test is used, only validated protocols are acceptable. The individual must pass a test designed to assess a fit factor of at least 1000.

### WARNING

**The user must perform a respirator fit test and follow all warnings and limitations specified. Failure to do so can result in serious personal injury or death.**

### Preparing the Respirator

If you are left-handed, or must use a hand-held radio or field phone with your left hand, you may switch the locations of the side voice-mitter and filter canister ports.

1. Unthread the filter canister (if installed).

2. Grasp the gasket by the raised tabs and pull it gently out of the facepiece.



3. Reach into the facepiece and remove deflector and inhalation valve.



4. Set these parts aside in a clean location.
5. Insert the P/N 461828 spanner wrench into the voice-mitter retaining ring. Turn the ring counter-clockwise to unthread it.



6. Remove the voice-mitter from the port. You may have to push it from inside the facepiece.



7. Carefully remove the gasket from the port.

8. Lay the gasket in the filter port. Be sure that it is flat.

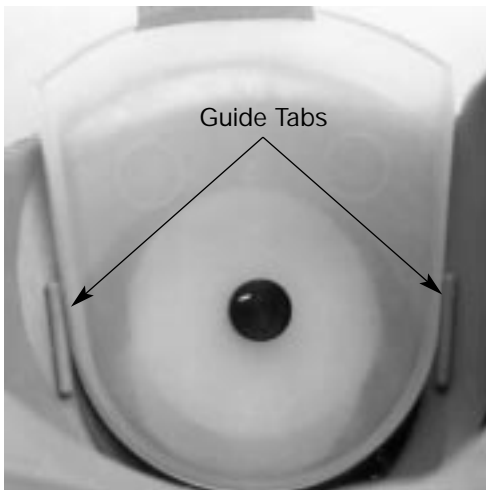


9. Place the voice-mitter into the port.

#### NOTE

The voice-mitter's crimped side faces out (up).

10. Thread the retaining ring into the port and tighten using the spanner wrench.  
 11. Place the deflector (with the flapper valve in place on the post) into the facepiece.  
 12. Line up the deflector so that it is between the guide tabs molded into the facepiece.



13. While holding the deflector in place, press the spider gasket on to the post from outside the facepiece.

14. Insert the gasket groove into the port so that the groove captures the lip of the port completely. Run your finger around the gasket to be sure the gasket lays flat.



15. Thread the filter canister into the port.

#### Checkpoints Before Use

1. Check that all parts of the respirator are complete and undamaged.
2. Be sure that the appropriate filter canister is available for the contaminant(s).
3. Before the next use, check the respirator and if necessary, clean, disinfect, and use a new filter.

Always use only a complete and undamaged respirator. Check the following:

- Inhalation valve discs



- Exhalation valve disc



- Harness straps



- Lens (clear)

### Installing the Filter Canister

#### **⚠ WARNING**

Know the contaminant(s) in the environment before entering. Always check that the filter canister is appropriate for use in the environment. A filter canister which is not designed for the contaminant present may not provide protection. Failure to observe this precaution can result in serious personal injury or death.

1. Check that the filter canister approval matches the contaminant expected in the environment.
2. Inspect the canister to be sure that its service life is suitable, and that it is not damaged.
3. Thread the filter canister into the facepiece port and hand-tighten.

### USING THE RESPIRATOR

#### **⚠ WARNING**

If the respirator does not perform as specified, it must not be used until it has been checked by authorized personnel.

Wear impermeable protective clothing for exposure to gases and vapors which can poison by skin absorption.

Return to fresh air immediately if you experience unusual sensations (nausea, dizziness, eye irritation, unusual odor or taste, excessive fatigue, or difficulty breathing).

Failure to follow these precautions can result in serious personal injury or death.

### DONNING THE RESPIRATOR

#### **⚠ WARNING**

Do not wear eyeglasses under the facepiece. The temples or sidebars on eye glasses will prevent an air-tight seal. If you must wear glasses, install the spectacle kit. Failure to follow this precaution can cause inhalation of contaminated air, resulting in serious respiratory injury or death.

1. Loosen the harness head straps on the facepiece so the end-tabs are at the buckles.



2. Hold the facepiece by the straps and put your chin in first.



3. Then, pull the harness back over your head.
4. Tighten the lower (neck) harness straps first, by pulling them straight back, not out. Tighten the temple straps the same way. Tuck in the ends of the straps so that they lay flat across the head.



5. Push headband pad towards neck and repeat step 4. If necessary, tighten the front strap for best visibility and fit. Tuck in the ends of the straps so they lay flat across the head.

### Air-Tightness Test

The Air-Tightness Test must be performed each time the facepiece is donned. You must know the face-to-facepiece seal is good before you enter any hazardous area.

To do this:

1. Block off the filter canister opening, using the palm of your hand.
2. Breathe in and hold your breath for 10 seconds. If the seal is good, the facepiece will collapse and remain collapsed against your face.



3. If the facepiece does not remain collapsed, or you notice any leakage, readjust the straps and test again. If this does not correct the leak, do not use the facepiece.
4. Test the exhalation valve by exhaling. If the valve is stuck, you will feel a heavy rush of air around the facepiece.



You may need a sharp exhalation at first to "crack" the valve. If this does not release the valve, do not use the facepiece.

## **⚠ WARNING**

This respirator may not provide a satisfactory seal with certain facial characteristics, such as beards or large sideburns, that prevent direct contact between the skin and the sealing surface of the facepiece. Do not use this facepiece if such conditions exist.

5. If the respirator checks out, you are ready to enter a hazardous atmosphere. Remember, you must perform these tests every time before you enter the hazardous atmosphere. If the respirator fails to pass any of the tests, the condition(s) must be corrected before using the apparatus.
6. To use the facepiece drink tube:
  - a. Grasp the knurled surface of the tube and pull the tube out of its cover (part of the exhalation valve cover).



- b. Hold the tube with its inlet end up.
- c. Push the tube inlet into the "NATO" canteen inlet.



- d. Turn the canteen up-side down. Its contents will flow by gravity.
- e. Grasp the exhalation valve cover and press in at the top while pushing out at the bottom of the cover. This positions the drink tube outlet toward your lips.



- f. After drinking, disengage the tube from the canteen and stow it in the exhalation valve port.

### **Removing the Respirator**

1. Return to an uncontaminated area before removing the respirator. Check that the respirator and your clothing are free of contaminant before removing the respirator.
2. To remove the facepiece, insert your thumbs under each of the headband buckles and fully extend the headbands.



3. Grasp the facepiece by the speaking diaphragm (not the exhalation valve), and pull it up and away from your face.



### Filter Canister Replacement

To replace the filter canister:  
Unthread the used canister and dispose of it according to applicable local and/or national regulations.

Line up the new filter canister threads with the facepiece port. Thread clockwise until the canister is secure.

### CLEANING AND DISINFECTING

Depending on the cleaning policy adopted, either a designated person or the user should clean the respirator after each use. Non-sudsing Confidence Plus™ Cleaner (P/N 10009971) from MSA is recommended. It is a germicidal cleaner that cleans and disinfects in one operation. It retains its germicidal efficiency in hard water to inhibit the growth of bacteria. It will not deteriorate rubber, plastic, glass, or metal parts. Refer to the label for use instructions. A solution as effective as Confidence Plus Cleaning Solution and compatible with MSA respirator components may be substituted. ANSI suggests that users should be trained in the cleaning procedure.

### **! WARNING**

Be careful that you do not breath or touch the contaminant in handling the respirator or its parts. Use equipment disposal to protect you from the specific contaminant. Failure to follow this warn-

ing can result in serious personal injury or death.

1. Preparing the cleaner.
  - a. Follow the instructions with the Confidence Plus Cleaning Solution.
  - b. If the Confidence Plus Cleaning Solution is not used, prepare in accordance with the instructions provided with cleaning products.
2. Clean and disinfect the facepiece.

### **! CAUTION**

Alcohol should not be used as a germicide because it may deteriorate rubber parts.

- a. Remove the filter canister from the facepiece. Do not lose the spider gasket inside the facepiece filter port.
- b. Remove any protective cover lens. This will prevent water from becoming trapped between the primary respirator lens and the cover lens (the trapped water will obscure vision).
- c. Remove the exhalation valve cover. This will allow access to the rubber exhalation valve.
- d. Thoroughly wash the facepiece and components in the cleaning solution. A soft bristle (not wire) brush or sponge may be used to scrub the facepiece. Be sure to clean under the exhalation valve.
- e. Remove the drink tube from the exhalation valve port.
- f. Wipe the outside of the tube with a cloth dampened in Confidence Plus Cleaning Solution.
- g. To clean the tube internally, insert the inlet into a "NATO" canteen filled with clean water. Let the clean water flow through the tube.
- h. Pull the tube from the canteen. Shake the tube to remove excess water.
- i. Stow the tube in the exhalation valve port.
- j. Disinfect the facepiece and components by submerging the facepiece and components for the recommended time period.
- k. Rinse the facepiece thoroughly inside and out in plain warm water (110°F), preferably running water. Drain.

**⚠ CAUTION**

**If not rinsed thoroughly, cleaning agent residue may irritate the wearer's skin.**

- l. The facepiece and components should be air-dried or hand-dried with a clean lint-free cloth.
- m. If the lens appears cloudy, do the following before the respirator is used:
  - Gently rub the lens with a clean, soft cloth saturated in isopropyl alcohol (70 percent by volume).
  - Re-wipe using a second saturated soft, clean cloth.
  - Quickly wipe the lens dry with a soft, clean cloth to remove any residue.
  - Repeat as needed.

**⚠ CAUTION**

**Do not force-dry the parts by placing them in a heater or in direct sunlight. The rubber will deteriorate. When the facepiece is thoroughly dry, store the facepiece in the plastic bag that it was shipped in.**

- n. After the facepiece is dry reinstall the exhalation valve cover. Inspect the facepiece thoroughly for missing or damaged parts. Install the nosecup (if used) and new cover lens (if used). The facepiece may be stored in a clean storage bag to protect from contamination until the next use.

**⚠ WARNING**

**Must follow the Preparing the Respirator Check Air Tightness Test before use.**

**REPLACING THE CANISTER**

Use the canister immediately upon opening the bag. Discard canister after each use. Do not exceed maximum concentration and service life specified by governing protocol. The length of time the chemicals in the canister will give protection depends on the concentration of the contaminant(s) and the rate of breathing. When the mask is adjusted properly, the wearer should not taste or smell the contaminant, or experience eye, nose, or throat irritation. The wearer's

inhalation resistance should be as experienced during training.

Return to fresh air immediately and attach a new canister if you taste or smell the contaminant, experience eye, nose, or throat irritation, or excessive inhalation resistance. Do not use the canister after the expiration date on the label.

**MAINTENANCE****Inspection (After Each Use)**

1. Look for breaks or tears in the facepiece headstrap material.
2. Make sure all straps, fasteners, and adjusters are in place and not damaged.
3. Check the facepiece for dirt, cracks, tears, or holes. Squeeze the lens. It should collapse easily between your fingers.
4. Check the lens for cuts, scratches, or damage which would impair vision. Check that the lens is secured to the facepiece material all the way around the lens.
5. Look at the shape of the facepiece for possible distortion that may occur if the respirator is not protected during storage.
6. Inspect the front voice-mitter (large port in the center of the facepiece below the lens) for signs of damage which would let contaminant enter the facepiece.
7. Inspect the side voice-mitter (smaller port on the side of the facepiece) for signs of damage which would let contaminant enter the facepiece.

8. Remove the rubber cover from the exhalation valve. Lift the valve and inspect the seat and valve for cracks, tears, dirt, and distortion. The valve must be soft and flexible.



9. Reinstall the rubber cover. Be sure that the cover lip surrounds the valve completely, and that the tab is inserted through the cover.



10. Check the drink tube for cuts, abrasion or signs of damage. Grasp the knurled surface and pull the tube out of the cover to check it for signs of damage. Be sure the tube is reinstalled in its port completely.
11. Unthread the filter canister (if installed), and check that the spider gasket, inhalation valve, and deflector are installed. Grasp the gasket by the raised tabs and pull it gently out of the facepiece.

### Spare Parts

Outsert assembly, clear:

P/N 10008906 medium and large  
P/N 10008907 small

To install an Outsert over the facepiece lens:

1. Line up the Outsert tabs and centerline mark with the facepiece lens.



2. Slide the Outsert tabs down over the top of the facepiece lens.
3. Stretch the band down and under the facepiece voice-mitter.



### Storage

Only undamaged respirators must be stored for further use. When not in use, store the respirator in cool, dry, and clean ambient air. Keep new filters in their packing.

### Shelf Life

Follow the shelf life indicated on the filters. It applies only to factory-sealed filters.

### OTHER GAS MASK USES (not evaluated or approved by NIOSH)

This gas mask when used with canister P/N 818263 (Millennium version), P/N 10012164 (OptiFilter version), or 817589 (Phalanx version with 96547 adapter) is also effective against the following chemical warfare (CW) agents, GA, GB (Sarin), GD, VX, Mustard and Lewisite and all biological agents. Although not evaluated or approved by NIOSH for this application, the gas mask and canisters have been tested by MSA and have met the requirements for effectiveness against CW agents using the test protocol recommended by the Chemical Agent Safety and Health Policy Action Committee (CASHPAC). It also has been tested by MSA and found to be effective against OC (Oleoresin Capsicum) Riot Control Agent and HCN (Hydrogen Cyanide). NIOSH has not evaluated or approved this for OC or HCN.

### RESPIRATOR USE LIMITATIONS IN CBA (CHEMICAL-BIOLOGICAL WARFARE AGENT) ATMOSPHERES:

The recommended work environments for this respirator include operations where exposure to vapor or liquid Chemical Agents or Biological Agents (CBA) is possible but not expected, for escape from possible CBA contamination and controlled low level CBA atmospheres, which do not exceed the maximum use concentration as determined by the governing authority.

In the event a maximum use concentration has not been established by the governing authority, MSA **recommends** that the use of the respirator should be limited to atmospheres 100 times (or less) the defined permissible Airborne Exposure Limit (AEL) or Time Weighted Average (TWA) of the contaminate (except for Mustard and Lewisite, for these agents the recommended use concentration is to be limited to the AEL or TWA).

## WARNING

For uses in atmospheres containing chemical or biological warfare agents, as with all hazardous atmospheres, it is recommended that a complete respiratory and body protection program be developed and full protective ensemble be utilized. This program should as a minimum include the following items:

### Before entering a CBA Contaminated Area

1. All users should be trained (on a regular basis) in the use of the protective equipment, the hazard, the effects and physical signs of agent overexposure, governing protocols or regulations concerning the hazard, user medical needs emergency and first aid procedures in case of overexposure, decontamination, and handling and disposal of contaminated equipment.
2. Each user should be quantitatively fit tested in the facepiece they will be using and have a tested fit factor of 1000 or greater.
3. It is recommended that each user should be outfitted with a facepiece with CBA canister, a hood, and full chemical protective suit including gloves and shoe coverings.
4. The user would determine or check with the safety office to verify that the protective equipment to be used is sufficient for exposure to their particular hazard and contamination level. Mis-use of the protective equipment can result in serious personal injury or death.

### During the Stay in the CBA Contaminated Area

1. It is recommended that the area be real time monitored (with alarm) for exposure levels of the contaminate. If the monitored contaminate level is above the allowable exposure limit or maximum use concentration (as determined by the governing protocol), the user should leave the area immediately.

2. The user should not remove any of the CBA protective clothing while in the contaminated area. This action could result in a serious injury or death.
3. If symptoms of CBA overexposure are present, seek medical treatment and attention immediately.
3. Once the user and the protective equipment have been decontaminated, proper disposal of affected equipment is to be performed. Disposal is to be performed as required by federal, state and/or local laws that apply to CBA contaminated materials.

**After Exposure to a CBA Contaminated Area**

1. A decontamination procedure for the user and the protective equipment should be developed and implemented.
2. Once the user leaves the contaminated area, they should enter the decontamination area and follow the set decon procedure. Failure to follow an acceptable decon procedure could lead to serious injury or death.

Failure to follow accepted safety and protection procedures when exposed to hazardous atmospheres, can result in serious personal injury or death.

# Millennium® Facepiece

## Facepiece Assemblies



\*sold in packages of 6, P/N 817591  
 \*\*sold in packages of 6, P/N 818264  
 \*\*\*sold in packages of 6, P/N 10011890

- 10008907 Lens Outsert, small, clear
- 10008906 Lens Outsert, medium/large, clear
- 10008909 Lens Outsert, small, tinted
- 10008908 Lens Outsert, medium/large, tinted
- 816137 Spectacle Kit
- 305022 Butyl-Coated Nylon Hood

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