

Enhancing Respiratory Protection in Mining

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Section 4

Respirator Inspection, Use, Maintenance, and Storage



3M™ Half Facepiece Respirator 6000 Series Training Video



<https://www.youtube.com/watch?v=yBg2B2BP9nA>

More videos: <https://ehs.utoronto.ca/respirator-wearing-guide/>

Respirator Inspection

Parts	Inspection Checklist
Face piece	<ul style="list-style-type: none"><input type="checkbox"/> No cracks, tears, or holes<input type="checkbox"/> No facemask distortion<input type="checkbox"/> No cracked or loose lenses or face shields
Head straps	<ul style="list-style-type: none"><input type="checkbox"/> No breaks or tears<input type="checkbox"/> No broken buckles
Valves	<ul style="list-style-type: none"><input type="checkbox"/> No residue or dirt, cracks, or tears in valve material
Filters and cartridges	<ul style="list-style-type: none"><input type="checkbox"/> NIOSH approved<input type="checkbox"/> Gaskets seat properly<input type="checkbox"/> No cracks or dents in housing<input type="checkbox"/> Proper cartridge for hazards
Air supply systems	<ul style="list-style-type: none"><input type="checkbox"/> Grade D breathing-quality air is used<input type="checkbox"/> Supply hoses are in good condition<input type="checkbox"/> Hoses are properly connected<input type="checkbox"/> Settings on regulators and valves are correct

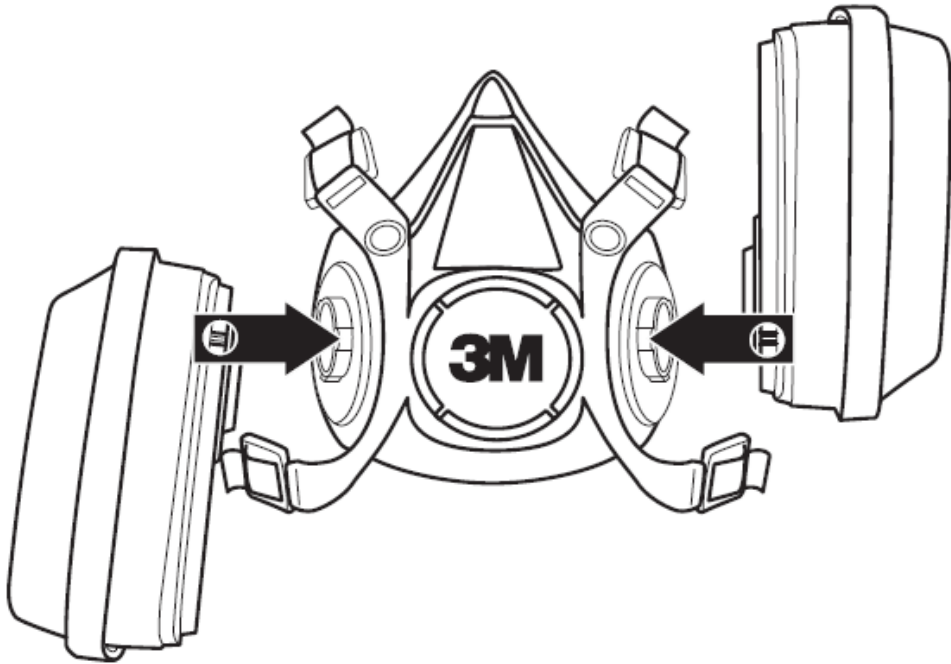


Photo courtesy of Honeywell

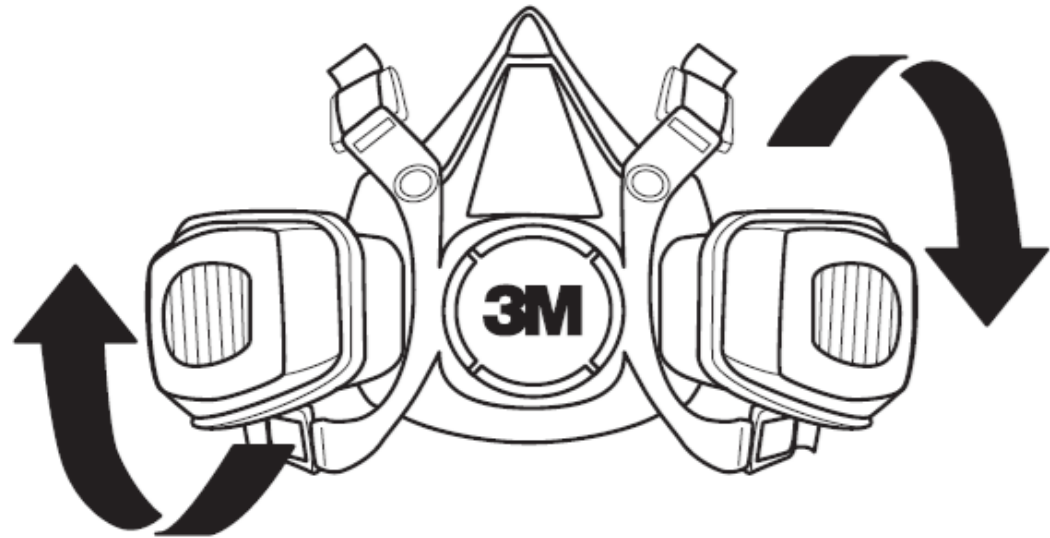
Inspection Frequency

- Routine-use respirators shall be inspected before each use and during cleaning.
- Emergency or rescue use respirators (e.g., SCBAs) shall be inspected monthly and checked for proper functioning before and after each use.
- Emergency “escape-only” respirators are inspected before being carried into the workplace for use.

Follow Manufacturer's Instructions to Assemble Filters and Cartridges



Align cartridge notch with facepiece mark and push together.



Turn cartridge clockwise one quarter turn until it is firmly seated and cannot be further turned.

Follow Manufacturer's Instructions to Don Respirators



A User Seal Check Assures Proper Seating and Good Working Order



Positive Pressure: Place the palm of your hand over the exhalation valve so it is completely sealed and exhale gently. If you have a good seal, the facepiece will be pushed away from your face very slightly.



Negative Pressure: Place the palm of each hand over the two cartridges or filters so they are completely sealed and inhale. Hold your breath for 5 seconds. If you have a good seal, the facepiece will be pulled inward toward your face.

Follow manufacturer's user seal check instructions

Improper Use of a Respirator

- A respirator can become a hazard if used improperly or not kept clean.
- Do not wear a respirator that fits improperly.
- Do not wear a respirator in atmospheres containing contaminants that the respirator is not designed for.
 - Example: particulate filters do not protect against gases or vapors.



Photo created by ChatGPT

NEVER Decorate or Mark up a Respirator



- Do not draw, paint or decorate your respirator.
- The ink and paints may damage the fibers and prevent the respirator from capturing hazardous particles.
- If you must write your name, write on the straps only.

Respirator Replacement

- Follow the change schedule established by the mine operator.
- Replace particulate filter when it's soiled, damaged, or breathing becomes difficult.
- Replace chemical cartridge according to established change schedule or earlier if odor, taste, or irritation is detected.



Factors that Reduce Gas and Vapor Cartridge Service Life

- High contaminant concentration.
- High breathing rate (exertion).
- High temperature/humidity.
- Multiple contaminants.
- Cartridge design/capacity.
- Improper storage.



It is imperative to replace cartridges before “breakthrough” occurs!

Do N95 Respirators Expire?

- N95 respirators DO have a shelf life of 5 years (typically) if:
 - Sealed in original package
 - Kept in specific climate conditions
 - Humidity: <80%
 - Storage temperatures: <86°F
- Refer to manufacturer's recommendations



When to Clean Respirators?

- Clean as often as necessary when issued for the exclusive use of one miner.
- Clean and disinfect before being worn by different miners.
- Clean and disinfect emergency or rescue use respirators after each use.
- Clean after each fit testing and training.

Follow Manufacturer's Instructions for Cleaning

- Remove filters, cartridges, canisters, diaphragms, valves, etc.
- Wash respirator in warm cleaner and/or sanitizer. A soft brush may be used.
- Rinse in clean, warm water.
- Dry parts and replace defective parts.
- Reassemble.
- Visually inspect and test for proper function.



Remove filters (discard if blocked)



Clean mask body with soapy water



Replace filters (new pair if required)

Respirator Storage

- Individual storage bins preferred.
- Protect from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.
- Store in airtight bags away from contaminated environments.
- Prevent deformation of the facepiece and exhalation valve.
- Hanging for a long time may distort the facepieces and cause straps to lose elasticity.
- Dry thoroughly if stored in a plastic sealable bag.

