

Respiratory Equipment

FACT SHEET

Don't let your working environment take your breath away. Protect yourself by reviewing these helpful tips for selecting the right Respiratory Personal Protective Equipment (PPE) for your farm.

What should I look for when purchasing a mask or filter?

- Use certified masks and filters only
- Certified masks and filters will display the NIOSH emblem
- Do not use surgical or dust masks that do not display the NIOSH emblem or have an efficiency rating of less than N95

What do the letters N, R and P mean?

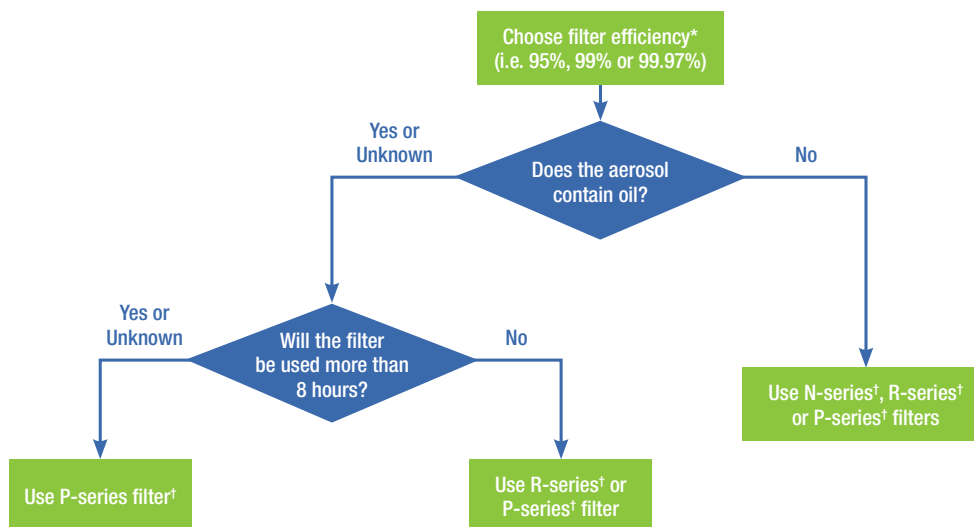
- N Series = Not resistant to oil
- R Series = Resistant to oil
- P Series = Oil proof

What does the N95 mean?

- A mask with an N95 rating is not resistant to oil and has a 95% filter efficiency rating
- There are three levels of filter efficiency: 95%, 99%, and 99.97%
- Filter efficiency means the percentage of particulates removed by the filter
- The higher the efficiency, the lower the leakage
- Examples include: – N95, R95, P95, N99
 - HEPA (High Efficiency Particulate Air) Filter
 - N100, R100 and P100 (highest efficiency 99.97%)
 - P100 is designed to remove the most penetrating particle size (magenta colour coded)

When should I use a N, P or R filter?

The following flow chart will help you choose the right filter for your needs:



* The higher the filter efficiency, the lower the filter leakage

† Limited by considerations of hygiene, damage and breathing resistance

Source: <http://www.cdc.gov/niOSH/appndxc.html>

Respiratory Equipment

There are two types of respirators:

- Air Purifying Respirators
- Supplied Air Respirators

What are Air Purifying Respirators?

There are three types of air purifying respirators: Quarter Mask, Half Mask and Full Face Piece.

1. Quarter Mask—Filtering Face Piece

- Removes particles only
- Also known as a disposable respirator, dust mask and single-use respirator
- Should be discarded after one use
- There are many different types and sizes. **Find one that is comfortable for you!**
- Types available include N95, P95, R95, N99, P100
- Price range: N series – \$1 to \$4 each, R and P series – \$2 to \$10 each



2. Half Mask

- Removes vapour and gas only, unless a particle prefilter (N, R, P) is also used
- There are many different sizes and types. **Find one that best fits you!**
- Price range: \$14 to \$60 each

3. Full Face Piece

- Protects the eyes, removes vapour and gas only, unless a particle prefilter (N, R, P) is also used
- There are many different types and sizes available. **Find one that best fits you!**
- Price range: \$120 to \$250 each



What are Supplied Air Respirators?

Supplied air respirators provide air from a source, not from the surrounding environment. The types of agricultural situations that would require supplied air respirators include livestock methane, silo entry and fumigation. There are two types of supplied air respirators:

1. Self-Contained Breathing Apparatus (SCBA)

- Air or oxygen is carried in a tank on the worker's back
- Price range: \$1300 to \$1800 each

2. Supplied Air Respirator (Airline)

- Air is supplied through a stationary tank through a high-pressure hose connected to the respirator
- Price range: \$1200 to \$1800 each



What type of cartridge should I use?

The type of cartridge used in your respirator will depend on the type of contaminant you are handling. **Cartridges are colour coded to indicate the type of contaminant protection.**



Non-Prefiltered Cartridges:

- Acid Gases (i.e. sulfuric acid) – White
- Organic Vapours (i.e. solvents) – Black
- Ammonia Gas – Green
- Acid Gases (AG) & Organic Vapours (OV) – Yellow
- Acid Gases, Ammonia & Organic Vapours – Brown
- “Other” Vapours and Gases or Multiple Protection – Olive Green
- Prefilters must be used in combination with these cartridges when dust, fumes, mists, pesticides and paints are present
- Price range: \$3.50 to \$12.00 per two-pack

Prefiltered Cartridges:

- Dust, Fumes, Mists, Asbestos, Radionuclides and Highly Toxic Particles – Magenta (P100 filter)
- Organic Vapours and P100 Combination – Black/Magenta
- Acid Gas and P100 Combination – White/Magenta
- Organic Vapour/Acid Gas and P100 Combination – Yellow/Magenta
- Ammonia/Methyl Amine and P100 Combination – Green/Magenta
- Organic Vapour/Formaldehyde and P100 Combination – Olive Green/Magenta
- Price range: \$3.50 to \$12.00 per two-pack



What is the difference between a filter and a cartridge?

- Filters remove particles only
- Cartridges/canisters remove vapour and gas only

Should I use both filters and cartridges at the same time?

- In a situation where particles, vapour and gas are present, both filters and cartridges are required
- A Half Mask or Full Face Piece Mask is required with the appropriate cartridges and filters for the job you are doing

Proper Fit

To ensure a proper fit, a Negative Fit Test should be performed:

1. Place the mask over your mouth and nose (adjust straps so that the mask fits snugly)
2. Place your hands over cartridge so that no air can enter
3. Breathe in and hold your breath
4. The mask should suck in against your face and stay there for 10 seconds after you have stopped breathing in
5. If the mask does not collapse against your face or immediately releases, re-adjust the straps and repeat steps 1–4

If you cannot maintain a tight seal as described, try a different size, make or model of respirator until you find one that does seal. A respirator may not fit properly if you:

- Wear dentures
- Have facial scarring
- Are not clean shaven (i.e. five o'clock shadow)
- Have had a broken facial bone or facial surgery

Lifespan

- Disposable masks are designed for single use only and should be discarded at the end of every day
- Polymer respirators, such as a Half Mask and Full Face Piece should be cleaned after each use and the filters discarded and replaced at the end of the day
- Some cartridges have End-of-Service-Life Indicators (ESLI) allowing you to easily monitor the condition of the cartridge

Storage

- Respirators must be stored in a clean dry place in a tight container or a sealed plastic bag when not in use
- Respirators should be kept in a convenient location close to where they are to be used
- Respirators must be protected from dust, sunlight, extreme heat and cold, moisture, chemicals and physical damage
- Do not store respirators unprotected in your work area

Images courtesy of Draeger Safety Canada



For more information, please contact the Canadian Agricultural Safety Association at (204) 452-2272 or email: info@casa-acsa.ca



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