

A Community-based Approach to Respiratory Protection and Keeping Workers Safe

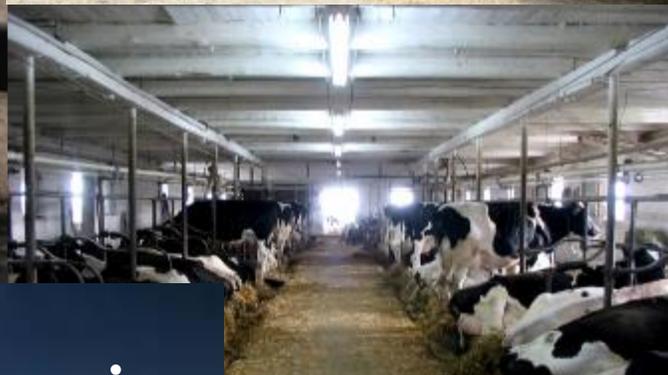
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Executive Director/Founder
Ag Health and Safety Alliance



- Respiratory Exposures in Agriculture
- Respirators
- What about COVID-19
- Worker Protection Standard Brief Overview
- Respirator Fit Testing
 - Roles and responsibilities
 - Medical questionnaire
 - Medical evaluation
 - Respirator fit testing in your community
 - Community based respirator fit testing
- Next Steps
- Resources
- Questions

Agenda





Respiratory Exposures in Agriculture

- Respiratory exposures in agriculture varies depends on the region and the type of farming.
- Understanding respiratory hazards in agriculture and appropriate respiratory protection is key to assisting the agriculture population in the use of respirators and the prevention of short and long-term lung disease.

Livestock & Poultry confinements

Industrial livestock production (CAFO)

Pesticides

Grain Handling

Anhydrous Ammonia

Welding

Using gas or diesel engine indoors

Fumigation

Silo Entry

Paint (spraying)

Woodworking



Choosing Appropriate Respiratory Protection

Understand Respiratory Hazards

Engineering controls

Avoid High Risk Exposures if Possible

Protection

- Right mask for the job
- The right fit for the mask - Fit Testing is Important
- Have masks available
- Protective Equipment Storage Box





Respiratory Protection

To determine appropriate respiratory protection:

- Known the activity
- Understand the exposure
- Determine appropriate respirator



What are your respiratory exposures?

What Air Purifying Respirator Do You Need?

2 Strap Respirator/Mask

<p>3M 9211 or 3M 8511</p> <ul style="list-style-type: none"> • Organic Dust • Livestock • Poultry • Hay • Grain • Woodworking 	<p>3M 8271 P95</p> <ul style="list-style-type: none"> • Organic Dust • Livestock • Poultry • Hay • Grain • Woodworking 	<p>3M 8233 N100</p> <ul style="list-style-type: none"> • Organic Dust • Livestock • Poultry • Hay • Grain <p>Welding 3M - 8515 N95</p> 
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Cartridge Respirators

6000 series	7000 series	Full face piece
 P100 Pink or White	 	 Organic Dust, Grain, Feed, Hogs, Poultry, Welding, Mold, Woodworking
Organic Vapor Black		Pesticides, Paints Use Pre Filter/Filter Cover
Ammonia Green		Anhydrous Ammonia, Hogs, Poultry Use Pre Filter/Filter Cover
Organic Vapor-Acid Gas Yellow		Paints, Disinfectants, Bleach Use Pre Filter/Filter Cover
Multi Gas Olive		Paint, Pesticides, Disinfectants, Bleach, Formaldehyde P100 Pre Filter Included

<p>Filters</p> 	<p>Filter Cover Based on hazards, use pre filters and filter covers when using cartridges that do not have a filter as part of the cartridge.</p> 
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Pesticides

Hazard: Organic vapors and aerosols (solid and sprayed liquids)

Respirator selection:

- Solids – filtering face piece N,R, or P series.
- Liquids – Half mask face piece with Organic Vapor cartridge and P pre-filter.
- Can also use full face piece or powered air purifying respirator.



RESTRICTED USE PESTICIDE

For Retail Sale To and Use Only by Certified Applicators or persons under their direct supervision, and only for those uses covered by Certified Applicators certification.

This label supersedes any previously issued labeling, including previously issued supplemental labeling.

This EPA registration expires December 20, 2018 unless the US EPA determines before that date that off-site incidents are not occurring at unacceptable frequencies or levels. **DO NOT** use or distribute this product after December 20, 2018, unless you visit www.EngeniaQuestions.com and can verify that the EPA has amended this expiration date.



We create chemistry

Group 4 Herbicide

Engenia®

Herbicide

ACCEPTED

10/12/2017

Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 7969-345

For weed control in Dicamba-tolerant (DT) cotton; Dicamba-tolerant (DT) soybean; asparagus; conservation reserve programs (CRP); corn; cotton; fallow cropland; farmstead turf (noncropland) and sod farms; grass grown for seed; pasture, hay, rangeland, and farmstead (noncropland); proso millet; small grain; sorghum; soybean; and sugarcane

*Only for use in states listed as US EPA approved in the Dicamba-tolerant (DT) Crops section of this label.

Active Ingredient*

Dicamba: N,N-Bis-(3-aminopropyl)methylamine salt of 3,6-dichloro-*o*-anisic acid 60.8%

Other Ingredients: 39.2%

Total: 100.0%

*Contains 48.38% dicamba (5 pounds acid equivalent per gallon or 600 grams per liter)

EPA Reg. No. 7969-345

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalles. (If you do not understand the label, find someone to explain it to you in detail.)

See inside for complete First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents:

BASF Corporation
26 Davis Drive, Research Triangle Park, NC 27709

FIRST AID

If swallowed	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• DO NOT induce vomiting unless told to do so by a poison control center or doctor.• DO NOT give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth to mouth, if possible.• Call a poison control center or doctor for further treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed or inhaled. Avoid breathing vapor or spray mist. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Personal Protective Equipment (PPE)

All mixers, loaders, applicators, and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- A NIOSH-approved dust/mist filtering respirator with any R, P, or HE filter or a NIOSH-approved number prefix TC-84A.

See **Engineering Controls** for additional requirements. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

DO NOT apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwater or rinsate. Apply this product only as directed on the label.

Do not allow runoff through soil into ground-water aquifers. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

Ground and Surface Water Protection

Point-source Contamination

To prevent point-source contamination, **DO NOT** mix or load this pesticide product within 60 feet of wells (including abandoned wells and drainage wells), sinkholes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. **DO NOT** apply pesticide product within 60 feet of wells. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas as described below.

Mixing, loading, rinsing, or washing operations performed within 60 feet of a well are allowed only when conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be on or move across the pad. The pad must be self-contained to prevent surface water flow over or from the pad. The pad capacity must be

Label Respiratory Protection

A NIOSH-approved dust/mist filtering respirator with any R, P, or HE filter or a NIOSH-approved number prefix TC-84A.

RESTRICTED USE PESTICIDE
(GROUND AND SURFACE WATER CONCERNS)

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION, AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION. THIS PRODUCT IS A RESTRICTED-USE HERBICIDE DUE TO GROUND AND SURFACE WATER CONCERNS. USERS MUST READ AND FOLLOW ALL PRECAUTIONARY STATEMENTS AND INSTRUCTIONS FOR USE IN ORDER TO MINIMIZE POTENTIAL FOR ATRAZINE TO REACH GROUND AND SURFACE WATER.

Sale, use, and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.

GROUP 5 HERBICIDE PULL HERE TO OPEN





Herbicide
For season-long weed control in corn and certain other crops

Active Ingredients:

Atrazine: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine	88.2%
Related Compounds	1.8%
<i>Other Ingredients:</i>	10.0%
<i>Total:</i>	100.0%

AAtrex Nine-O is a water-dispersible granule.

KEEP OUT OF REACH OF CHILDREN.

CAUTION
See additional precautionary statements and directions for use inside booklet.

EPA Reg. No. 100-565
EPA Est. 100-LA-001
SCP 585A-L101DD 1112
4021712



FIRST AID	
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to by a poison control center or doctor. • Do not give anything to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</p>	
HOT LINE NUMBER	
<p>For 24 Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372</p>	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed. Do not breathe the dust or spray mist. Avoid contact with eyes, skin, or clothing.

Personal Protective Equipment (PPE)
Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA Chemical-resistant Category Selection Chart.

Mixers, loaders, cleaners of equipment spills and other handlers exposed to the concentrate must wear:

- Coverall over long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, natural rubber ≥14 mils, polyethylene, polyvinyl chloride (PVC) ≥14 mils, or Viton® ≥14 mils
- Chemical-resistant footwear plus socks
- Chemical-resistant apron
- A NIOSH-approved dust/mist filtering respirator with any N, R, P, or HE filter or a NIOSH-approved dust/mist filtering respirator with approval number prefix TC-21C



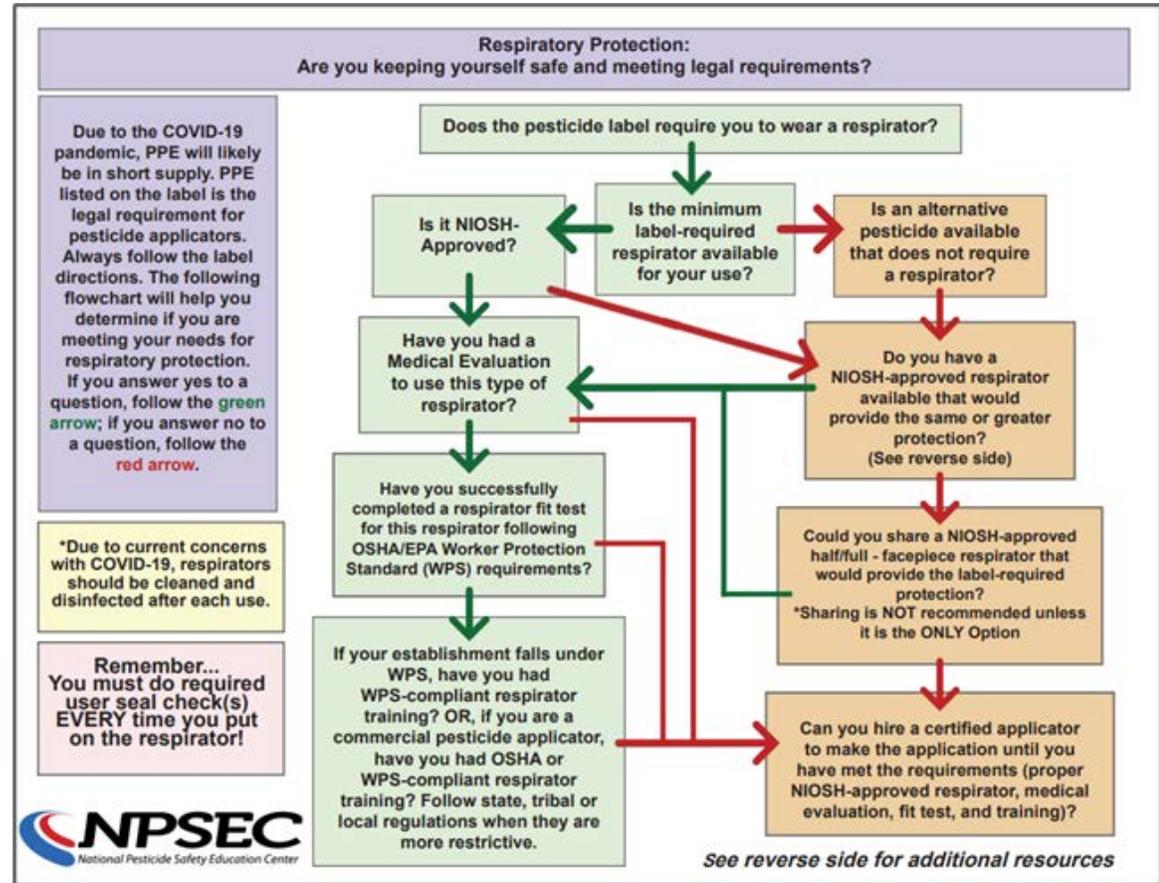
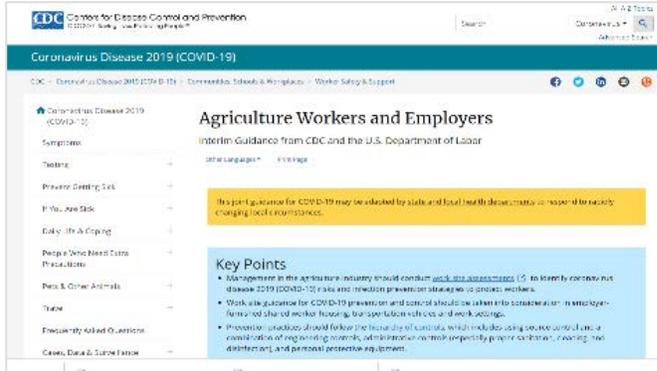
Label Respiratory Protection

CAUTION, Water dispersible granule, NIOSH-approved dust/mist filtering respirator with any N, R, P, or HE filter,

or NIOSH-approved dust/mist filtering respirator with approval number prefix TC-21C, (page 3).



COVID-19 Implications



National Pesticide Safety Education Center



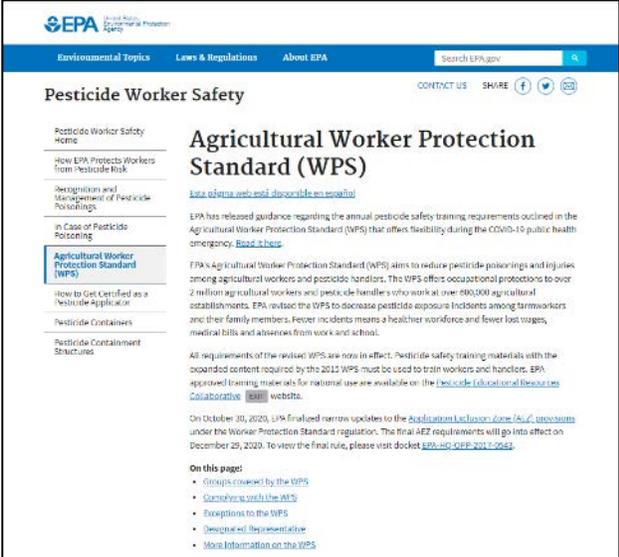
Worker Protection Standard (WPS)

- The Worker Protection Standard (WPS) is an EPA law designed to protect workers from pesticide poisoning and injury. It aims to reduce pesticide exposures for workers and their families.
- **The WPS protects workers by requiring:**
 - people stay out of treated areas during and after an application;
 - proper protective gear for applicators;
 - access to supplies for routine and emergency washing;
 - annual safety training to reduce take-home residues;
 - access to information about pesticides used onsite;
 - age limits for applicators;
 - employers to keep records of all pesticide applications; and
 - protections from retaliation and discrimination.



Agriculture Worker Protection Standard

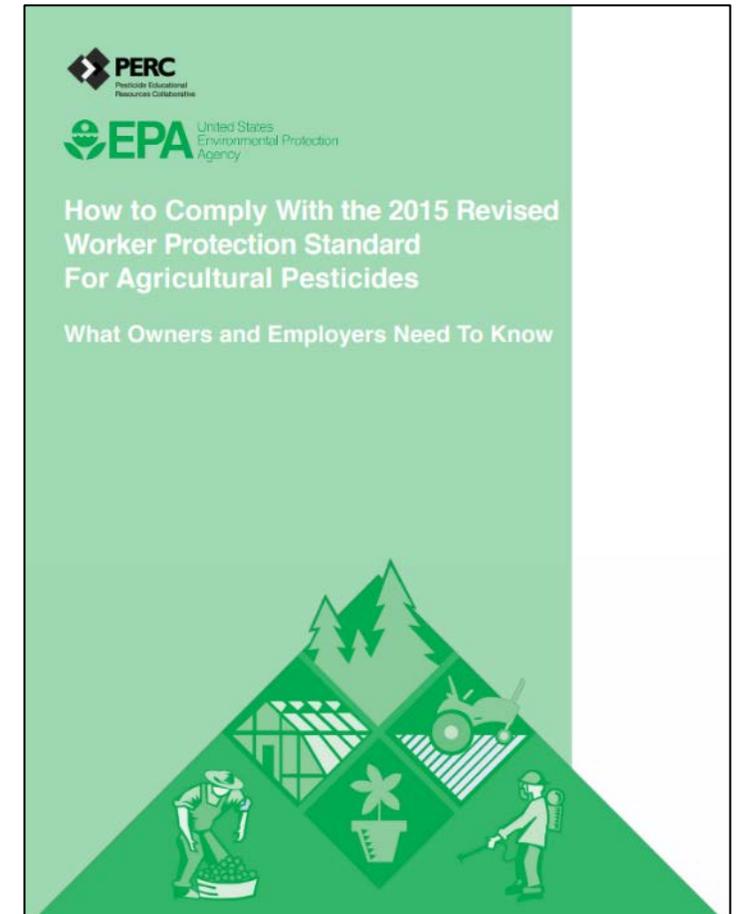
- It applies to farmworkers, and those that work in a forest, nursery, or greenhouse that produces agricultural plants.
- It began in 1995 and on November 2, 2015, EPA revised the Worker Protection Standards rule to expand requirements with the purpose to reduce the risk of pesticide exposure to **agricultural workers, handlers, and their families**.
- EPA's Agricultural Worker Protection Standard (WPS) is **aimed at reducing the risk of pesticide poisoning and injury among agricultural workers and pesticide handlers**.
- Owners of Ag establishments must do the following for themselves and/or employed handlers who are immediate family members.
 - Wear a respirator if required by the pesticide product label.
 - Provide a respirator that is clean and in good working condition.
 - **Provide a medical evaluation before wearing a respirator.**
 - **Provide fit-testing.**
 - Provide respirator training.
 - Maintain records of medical evaluation, fit-testing, and/or respirator training.
- Farm owners and their immediate families may be exempt from some requirements.



The screenshot shows the EPA website page for 'Agricultural Worker Protection Standard (WPS)'. The page header includes the EPA logo and navigation links for 'Environmental Topics', 'Laws & Regulations', and 'About EPA'. The main title is 'Pesticide Worker Safety' with a sub-section for 'Agricultural Worker Protection Standard (WPS)'. The page content includes a summary of the WPS, a link to the annual pesticide safety training requirements, and a list of requirements for the revised WPS. The page also features a search bar and social media icons.

How to Comply With the 2015 Revised WPS for Agricultural Pesticides

- This “How to Comply” manual includes:
 - Information on how to comply with the WPS requirements, including exemptions, exceptions, restrictions, options, and examples.
 - “Quick Reference Guide”- a list of the basic requirements (excluding exemptions, exceptions, etc.).
 - New or revised definitions that may affect your WPS responsibilities.



OSHA's Respiratory Protection Standard - 29 CFR 1910.134

The screenshot shows the OSHA website interface. At the top, there is a red header with the United States Department of Labor logo and a search bar. Below the header, there are navigation links for 'A to Z Index', 'En español', 'Contact Us', 'FAQs', and 'About OSHA'. The main navigation bar includes 'OSHA', 'OSHA QuickTakes', 'Newsletter', 'RSS Feeds', 'Print This Page', 'Text Size', and 'Was this page helpful?'. The 'Occupational Safety & Health Administration We Can Help' section features a menu with 'Home', 'Workers', 'Regulations', 'Enforcement', 'Data & Statistics', 'Training', 'Publications', 'Newsroom', and 'Small Business'. The 'Regulations' menu item is highlighted with a callout box labeled 'Regulations'. Below the menu, the page title is 'Regulations (Standards - 29 CFR) - Table of Contents'. The main content area lists details for Part 1910, Subpart 1, Standard 1910.134, titled 'Respiratory Protection'. A callout box labeled 'SEARCH' points to the search bar at the top right. Another callout box labeled 'A- Z INDEX' points to the 'A to Z Index' link in the top navigation bar.

UNITED STATES DEPARTMENT OF LABOR

SEARCH

A to Z Index | En español | Contact Us | FAQs | About OSHA

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Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: 1
- Subpart Title: Personal Protective Equipment
- Standard Number: 1910.134
- Title: Respiratory Protection
- Appendix: A, B-1, B-2, C, D

This section applies to General Industry (part 1910), Shipyards (part 1915), Marine Terminals (part 1917), Longshoring (part 1918), and Construction (part 1926).

[1910.134\(a\)](#)

Permissible practice.

[1910.134\(a\)\(1\)](#)

In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.

[1910.134\(a\)\(2\)](#)

A respirator shall be provided to each employee when such equipment is necessary to protect the health of such employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program, which shall include the requirements



Respiratory Protection Standard

Requires employers to establish and maintain a **respiratory protection program** to protect their respirator-wearing employees. Key elements of a respiratory protection program include:

1. Selection

2. Medical evaluation

3. Fit testing

4. Use

5. Maintenance and care

6. Breathing air quality and use

7. Training

8. Program evaluation



Two Types of Fit Testing



Qualitative



Quantitative



Respirator Fit Test Capacity Building Guide / Workbook

**look for
one more
revision**

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Creating a community-based respirator fit test model will assist in making certain that all aspects of appropriate respirator protection are available.

Community-based Respirator Fit Testing Business Case

Finding a way to make respirator fit testing accessible in communities can be challenging. Developing a respirator fit test service may include multiple organizations, individuals trained in fit testing or a single organization. Having all aspects of respirator fit testing in one organization is the easiest but not always feasible. A health care provider has the potential to have this ability by having an individual(s) trained in performing respirator fit testing within the office.

In other scenarios, someone trained in fit testing would refer to a health care provider for the medical evaluation services. In all scenarios, communication, networking and establishing a fee structure is important. The following items will most likely require some type of fee for service structure.

- Medical evaluation questionnaire review
- Medical evaluation (this may include a physical and a lung function test)
- Respirator Fit Test
- Respirator use education
- Respirator Program Administration
- Retail sales of respirator supplies

Fit testing a respirator is an important part of the entire process of appropriate respiratory protection. Other aspects of respirator fit testing include the availability of respirators and cartridges for specific respiratory hazards. Individuals or health care providers who perform respiratory fit testing and assist with the administration of a respirator program are many times also the resource for assisting the individual in finding the right respirator and purchasing decisions.

Creating a community-based respirator fit test model will assist in making certain that all aspects of appropriate respirator protection are available.



Medical Evaluation

The fit tester has no role in medical evaluation, except could require that it has been performed. Employer must have a medical determination on file to show that the person is capable of wearing a respirator.

OSHA Infosheet

- Respirators must be used in workplaces in which employees are exposed to hazardous airborne contaminants.
- When OSHA requires respiratory protection, employers must have a respirator protection program as specified in OSHA's Respiratory Protection standard (29 CFR 1910.134).
- Before wearing a respirator, workers must first be medically evaluated using the mandatory medical questionnaire or an equivalent method.
- To facilitate these medical evaluations, this INFOSHEET includes the mandatory medical questionnaire to be used for these evaluations.



Professional Licensed Health Care Provider

- Professional Licensed Health Care Provider must review the medical questionnaire.
- OSHA requires that the PLHCP (the acronym includes the physician) must be legally permitted by his or her professional license to conduct the type of medical evaluation required by the respiratory standard. The scope of their practice is determined by their state license, registration, or certification.

Supplemental Medical evaluation information

- This portion of the Respiratory Protection standard requires you (the employer) to provide the **Professional Licensed Health Care Provider (PLHCP)** with specific information to be used to make the determination about an employee's ability to use a respirator. This information includes:
 - The type and weight of the respirator to be worn by the worker.
 - The duration and frequency of respirator use (including use for rescue and escape).
 - The level of physical effort that the employee would be expending while wearing a respirator.
 - Additional personal protective clothing and equipment that the employee would wear.
 - The temperature and humidity extremes that may be encountered in the work environment where respirator use is required.

Supplemental Respirator Medical Evaluation Information	
Supplemental information to be provided by the Employer for RESPIRATOR MEDICAL EVALUATION	
From the OSHA Small Entity Compliance Guide for the Respiratory Protection Standard at https://www.osha.gov/Publications/3384small-entity-for-respiratory-protection-standard-rev.pdf	
29 CFR 1910.134 Respiratory Protection Standard (e) (5) Supplemental information for the Physician or Licensed Health Care Professional (PLHCP)	
This portion of the Respiratory Protection standard requires you (the employer) to provide the PLHCP with specific information to be used to make the determination about an employee's ability to use a respirator. This information includes: <ul style="list-style-type: none">• The type and weight of the respirator to be worn by the worker.• The duration and frequency of respirator use (including use for rescue and escape).• The level of physical effort that the employee would be expending while wearing a respirator.• Additional personal protective clothing and equipment that the employee would wear.• The temperature and humidity extremes that may be encountered in the work environment where respirator use is required.	
The following information sheet was adapted from the Oregon OSHA Medical Evaluation publication provided by the Pesticide Educational Resources Collaborative (PERC). It is a sample to give guidance on how to provide the information for the Physician and Licensed Health Care Professional.	



Medical Certification

Components of medical evaluation

A physician or other licensed health care professional must perform the medical evaluation using OSHA's respirator medical evaluation questionnaire or an initial medical exam that obtains the same information as the OSHA questionnaire.

- OSHA's respirator medical evaluation questionnaire is mandatory and must be performed prior to fit testing.

- OSHA Respirator Medical Evaluation Questionnaire (Mandatory)
- Physical exam-at physician's discretion.
- Chest X-ray, pulmonary function tests, EKG at physician's discretion.

m DEPARTMENT OF HEALTH | HOME | TOPICS | ABOUT US

RPP Program Components

- Program Components
- Home
- Risk Assessment
- Selection of Respirators
- Standard Operating Procedures
- Medical Screening
- Provide Training
- Fit Testing
- Maintenance Program
- Evaluating the Program

Respiratory Protection Program

- Respiratory Protection
- Home
- Frequently Asked Questions
- Public Health Template
- Clinic Template
- OSHA Revised Standards
- Voluntary Respirator Use
- Related Topics
- Emergency Preparedness & Response

Medical Screening

"Employer shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace."

On this page:

- Components of medical evaluation
- Physician's role in respirator use
- Essential occupational uses of respirator use
- When to medically certify
- How often should recertification be performed?
- Medical recommendations to employers

Components of medical evaluation

A physician or other licensed health care professional must perform the medical evaluation using OSHA's respirator medical evaluation questionnaire or an initial medical exam that obtains the same information as the OSHA questionnaire.

- OSHA's respirator medical evaluation questionnaire is mandatory and must be performed prior to fit testing.
- OSHA Respirator Medical Evaluation Questionnaire (Mandatory) Appendix C to Respiratory Protection Standard; respirator medical evaluation questionnaire. *Access:* Non MCH-links
- Physical exam-at physician's discretion.
- Chest X-ray, pulmonary function tests, EKG at physician's discretion.

Information Needed by Physician

Information needed by physician (before or at evaluation):

Medical Evaluation for Respirator Use

Jaime Szelnuk, MD,¹ William S. Beckett, MD, MPH,² Nancy Clark, MD, MS,¹ and Wajdy L. Hallow, MD, MS, MPH¹

The purpose of a respirator is to prevent the inhalation of harmful airborne substances or to provide a source of respirable air when breathing in oxygen-deficient atmospheres. For a physician to recommend the use of a respirator, general background information on respiratory protective devices is required. The first part of this clinical practice review describes the general aspects of industrial hygiene, respirators and a respirator certification program. The second part addresses matters related to medical certification for respirator use.

Medical certification for respirators is an important part of the activities of the occupational physician. To determine whether a worker is able to tolerate the added strain of a respiratory protective device is a complex process in which factors such as fitness for work, health of the individual, characteristics of the work itself, and the properties, type, and requirements of the respiratory protective device, have to be considered. Medical certification is of utmost importance for respirator use, and it should be viewed as an element in a comprehensive respiratory protection program. A comprehensive program is the key element in affording the workers' effective respiratory protection once the initial steps of the hierarchy of methods of hazard control have proved insufficient or infeasible. As a result, the need for the industrial hygienist/occupational physician, the employer and the medical professional to work as a team is much more than in any other field of occupational medicine—a necessary requirement for making the right choice. Am. J. Ind. Med. 37:142–157, 2000. © 2000 Wiley-Liss, Inc.

KEY WORDS: respirators; occupational; medicine; clinical practice review; prevention; public health

OVERVIEW

The purpose of a respirator is to prevent the inhalation of harmful airborne substances or to provide a source of respirable air when breathing in oxygen-deficient atmospheres. Functionally, a respirator is designed as an enclosure which covers the nose and mouth or the entire face or head.

In order for a physician to recommend the use of a respirator, background information on respiratory-protective devices is required. For most people who are fit to do the job, there is usually a respirator model which will fit their needs. The first part of this clinical practice review will cover general aspects of industrial hygiene, respirators, and a respirator-certification program. The second part will address matters related to medical certification for respirator use.

The decision to use respirators to protect workers from workplace exposures should be based on a thorough understanding of the hierarchy of methods for hazard control. Once inhalation hazards have been identified and

SECTION 2: MEDICAL EVALUATIONS

Handler employers must provide a medical evaluation to each handler who will be required by a pesticide product label to use a respirator.

How do I find a PLHCP to do the respirator medical evaluations?

Look up "Occupational Physicians/Clinic" OR search online for "occupational physician" or "occupational health clinic" plus your city or area. Medical evaluations can be conducted by any health care professional whose licensing permits this activity. However, not all health care professionals receive training in occupational medicine and may not be familiar with work requirements.

Each handler must be medically evaluated — by a Physician or other Licensed Health-Care Professional (PLHCP) — to make sure they can use a respirator without putting their health at risk. The medical evaluation must be done before the handler uses the respirator and before the fit test is conducted. Any employee requiring a medical evaluation must not be permitted to work with pesticide products that require respirators. The medical examination must be done at no cost to the employee.

Who should be re-evaluated?

Re-evaluation is required one time per medical evaluation is any of the following reasons:

- The PLHCP requires another evaluation within a specified period of time.
- The employee reports signs such as difficulty breathing, chest wheezing related to respirator use.
- The employer, a supervisor, or the employee notices a problem or if a medical examination indicates a need for re-evaluation.
- The employee reports signs such as difficulty breathing, chest wheezing related to respirator use.

It is very important that the questions and answers questionnaire make you understand the terms. If the employee should go to the employer, such as a trusted friend, family member, or medical staff.

WPS Respirator Protection Guide

Journal of Biological Engineering

REVIEW | Open Access

Respirator masks protect health but impact performance: a review

Arthur J. Johnson

Abstract

Respiratory protective masks are used whenever it is too costly or impractical to remove airborne contamination from the atmosphere. Respirators are used in a wide range of occupations, from the military to medicine. Respirators have been found to interfere with many physiological and psychological aspects of task performance at both short-term and long-term duration. Many of these findings have been assigned in order to determine quantitatively how much performance decrement can be expected from different levels of respirator protection. The entire system, including respirator and wearer interactions, must be considered when evaluating wearer performance. This information can help respirator designers to determine trade-offs of designers to ultimately compensate for reduced productivity of wearers.

Keywords: Exercise; Respiration; Heat Stress; Communication; Anxiety; Heart

Background

Respiratory protective masks (usually called respirators) are used whenever airborne contaminants are present and cannot be adequately controlled by engineering means or administrative controls. Respirators come in many forms, including popular filtering facepiece respirators (FFRs), one-quarter, one-half, and full facepiece masks, and filtering non-powered respirators (NPRs), self-supplied respirators, blow-by powered air-purifying respirators (PAPRs), and self-contained breathing apparatus (SCBAs). They are used by personnel in business, industry, agriculture, mines, emergency first responders, medicine, and the military whenever airborne contamination is a possible threat [1]. The threat may be from gases, vapors, dusts, and particulates of various sizes including aerosols [2].

Although the protective mechanisms of respirators are largely physical and sometimes chemical, wearing respirators cause some with a host of physiological and psychological hazards [3]. These can interfere with task performance and reduce work efficiency. These hazards can occur for severe enough to cause life-threatening conditions if not understood. Quantitative assessments of these hazards have been made on the respirator design

trade-offs, wearer designs, and regulations can accommodate the needs of the worker [1, 16, 35].

Understanding possible physiological and psychological effects of respirator wear requires a thorough understanding of the wearer and possible respirator effects [35]. Respirators may appear to be rather simple, but they can interfere with [36, 35]:

1. respiration
2. thermal equilibrium
3. vision
4. communication
5. feeling of well-being
6. personal protection such as sitting and standing
7. other equipment

There are two basic principles relevant to respirator use:

1. Work cannot usually be performed as long or as hard while wearing a respirator as compared to when respirators are not worn. Wearing protective equipment reduces respiratory reserve. Quantitative assessments of these effects must be allowed for a particular job or more workers must be assigned to the same task.

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Sample forms

Respirator Medical Evaluation Questionnaire

Section 1:

Name	M / F	Date	ID#
Employer if applicable:		Supervisor if applicable:	
B/P	RA	LA	Age
		Height	Weight

- Your job title: _____
- A phone number where you can be reached by the health care professional who reviews this questionnaire (include the area code). (_____)_____-_____
- The best time to phone you at this number: _____
- Has your employer told you how to contact the health care professional who will review this questionnaire? (circle one): Yes or No
- Check the type of respirator you will use (you can check more than one category):
 - _____, N, R, or P disposable respirator (filter mask, non-cartridge, type only).
 - _____, Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
- Have you worn a respirator? (circle one): Yes or No
if yes, what type(s): _____

Section 2: Questions 1 – 13 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

- Do you currently smoke tobacco, or have you smoked tobacco in the last month: Yes or No
if "yes", how much? _____
- Have you ever had any of the following conditions?
 - Seizures (fits): Yes or No
 - Diabetes (sugar disease): Yes or No
 - Allergic reactions that interfere with your breathing: Yes or No
 - Claustrophobia (fear of closed-in places): Yes or No
 - Trouble smelling odors: Yes or No
- Have you ever had any of the following pulmonary or lung problems?
 - Asbestosis: Yes or No
 - Asthma: Yes or No
 - Chronic bronchitis: Yes or No
 - Emphysema: Yes or No
 - Pneumonia: Yes or No

Medical Evaluation Questionnaire

Respirator Use Recommendations

Name _____ ID# _____
Company if applicable: _____

Type of respirator to be used (circle all that apply):
 a. N, R, or P disposable filtering facepiece
 b. Half-facepiece air-purifying respirator
 c. Full facepiece air-purifying respirator
 d. Powered air purifying respirator
 e. Supplied air respirator
 f. Self-contained breathing apparatus

Recommendations:
 a. No restrictions on respirator use
 b. Some specific restrictions on respirator use (listed below)
 c. No respirator use permitted

Restrictions/Comments: _____

Follow-up medical evaluation recommended: Yes or No

If yes, recommendations: _____

A copy of the Respirator Use Recommendations is provided to the above individual: Yes or No

Examiner Signature _____ Date _____

Respirator Use Recommendation

Fit Test Record

Date: _____

Employee name: _____

Job/Classification: _____

Firm/Company: _____

Fit test method (check one):
 Qualitative saccharin Qualitative bitrex
(For either of these, the respirator must have particulate filters)
 Qualitative IAA
(respirator must have organic vapor cartridges)

Taste Threshold Results (circle one)
 10 squeezes 20 squeezes 30 squeezes

1/2 to be administered every 30 seconds during Fit Test Exercises (circle one)
 5 squeezes 10 squeezes 15 squeezes

Type of respirator	Make/model/size (Must include all three)	Fit factor/results (Circle one)
		Pass Fail

Person conducting the fit test: _____

Problems the employee encountered with respirator: _____

Fit Test Record

Respirator Inspection Checklist

Category	Inspection Item	Pass/Fail
Facepiece	<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	<input type="checkbox"/> No breaks or tears	
	<input type="checkbox"/> No broken buckles	
Valves	<input type="checkbox"/> No residue or dirt, cracks, or tears in valve material	
Filters and cartridges	<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	<input type="checkbox"/> 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	

*This checklist represents a general overview of respirator inspection requirements. Always refer to the manufacturer's user manual for more detailed information.

Source: Oregon OSHA, found at Pesticide Educational Resources Collaborative.

Respirator Inspection Checklist

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Toolbox and Resource Search Page

Resources

MCN's Resource Database helps you provide high quality primary care. This comprehensive online database includes downloadable resources as well as links to a wide variety of primary care issues. Explore this resource for links to other organizations, patient and clinical education, MCN program materials, research guidelines, and much more.

There are **1966** available Resources.

View all resources

Clinical Systems Toolbox

MCN's Clinical Systems Toolbox is your online connection to resources for best clinical documentation practices in migrant and community health centers. MCN's collection of forms, policies, tools, and protocols from health centers across the United States have been reviewed and selected for you to use and adapt to your own clinic needs.

There are **610** available Tool Box Items.

View the toolbox

respirator fit testing

To find specific tools or resources you may browse the catalogs above, the Top rated Recommendations items below, or you may search by key words. You are free to download any resources and adapt them to your needs.



What is Your Role in Respirator Fit Testing

Roles and responsibilities related to Respirator Fit Testing and medical evaluation directly relates to your scope of practice when you are a professional such as a nurse or physician.

There are aspects of Respirator Fit testing that can be done by someone who is not a health care provider.

The individual performing the **fit** test procedure **requires no special certification**. However, the individual must be able to prepare the test solutions, calibrate the equipment and perform the tests properly, recognize invalid tests, and ensure test equipment **is** in proper working order.

Who is missing from the list?

Profession	Administer Medical Questionnaire	Review Medical Questionnaire	Medical Evaluation	Fit Test
Farmer	X			X
Safety Officer	X			X
Manager	X			X
Pharmacy Tech	X			X
First Responder EMT	X			X
Respiratory Therapist	X			X
Industrial Hygienist	X			X
Community Health Worker	X			X
Pharmacist	X	X		X
LPN	X	X		X
RN	X	X		X
Physician Assistant	X	X		X
Nurse Practitioner	X	X	X	X
Chiropractor	X	X	X	X
Physician	X	X	X	X



Roles and Responsibilities

- We are all currently doing something that we are good at
- We all learn new skills
- COVID-19 has created a new culture of adaptability
- We create teams in our current jobs or in our community
 - Think of examples in your community
- Look at the tasks that need to be done
- Identify who could help with each task based on skills and scope of practice

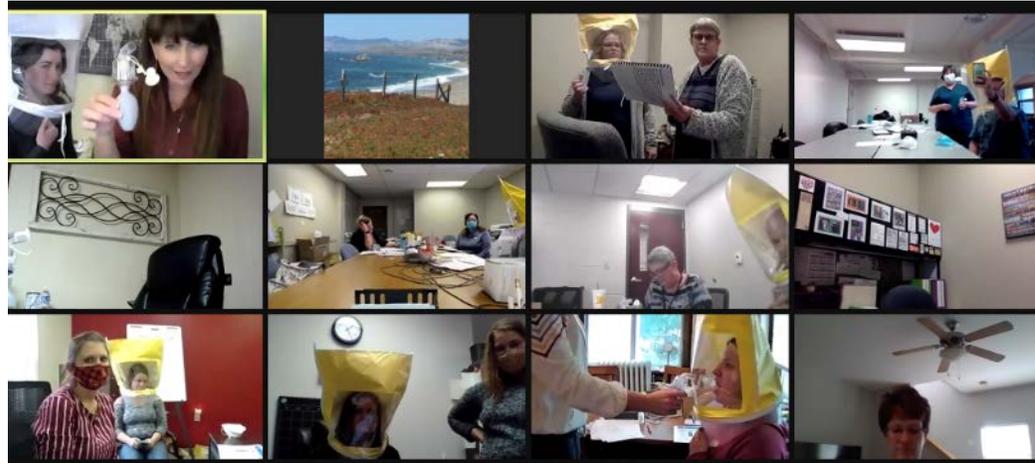


My Team at Spencer Hospital

- Deb Abel – Administrative Assistant
 - Administer medical questionnaire
 - Perform respirator fit test
 - PPE and respirator inventory
 - PPE and respirator sales
 - Consult with Carolyn Sheridan for PPE and respirator recommendations
- Carolyn Sheridan RN, BSN (Licensed Health Care Provider)
 - Administer and review medical questionnaire
 - Respirator fit testing
 - Respirator recommendation and sales
- Dr. Hilsabeck (or another physician or Nurse Practitioner)
 - Review medical questionnaire
 - Medical evaluation
 - Determine if can wear respirator



Who are these people?



- Pharmacists
- Pharmacy tech
- Student
- Extension
- Administrator
- Respiratory Therapist
- Social Worker
- Fireman
- EMT
- First Responder
- Emergency response coordinator
- CNA
- Nursing Director

Community Examples



Respirator Fit Testing in Your Community:

Respirator fit testing is a growing need in many agricultural communities due to changes in the Worker Protection Standard requirements for producers who apply pesticides. Respirator fit testing is also important for other types of exposures but many communities do not have someone who is trained to perform fit testing.

One individual may have the capacity to perform all aspects of the respirator fit test including administering the questionnaire, review of the medical questionnaire, medical evaluation and perform the fit test but this is not common. In most cases people will need to rely on more than one individual to accomplish having a respirator fit test that complies with OSHA standards. This will require building a network consisting of individuals and organizations to ensure individuals can easily receive a respirator fit test. The chart on the previous page provides appropriate roles and responsibilities for a variety of individuals and professionals that may be responsible for respirator fit testing. Two different examples of how these individuals can work together would be as follows:

Example # 1 ABC Manufacturing Company

- ABC Manufacturing Company determines their employees need a respirator fit test and implements a Respiratory Fit Test Program
- The Safety Officer at ABC Manufacturing Company administers the medical questionnaire
- Registered Nurse (Licensed Health Care Professional) reviews the medical questionnaire to determine if a medical evaluation is required
- Physician does the medical evaluation for the employee(s)
- Safety Officer at ABC Manufacturing Company is qualified to perform respirator fit testing
- Safety Officer at ABC Manufacturing Company performs fit testing
- Safety Officer does all work related to the Respiratory Program per OSHA requirements including respirator cleaning, storage and cartridge changing schedule

Example #2 Farmer Swanson Applies Pesticides

- Farmer Swanson determines he and his family members need a respirator fit test based on the pesticide label.
- Farmer Swanson contacts his health care provider (HCP Office) to find out how to get a respiratory fit test.
- The HCP Office discusses the need for a medical questionnaire to be completed with Farmer Swanson. She/he directs Farmer Swanson to come to the office to pick up the medical questionnaire or sends it by email to Farmer Swanson.
- Farmer Swanson and family members complete the medical questionnaire and return it to the HCP Office.
- A Registered Nurse (Licensed Health Care Professional) at the HCP Office reviews the medical questionnaire to determine if a medical evaluation is needed.
- Physician or Nurse Practitioner does the medical evaluation for Farmer Swanson but not the rest of his family members, as they do not need an evaluation based on their answers to the questions.
- Registered Nurse at HCP Office who is qualified to do fit testing does the respirator fit testing for Farmer Swanson and all family members.
- Registered Nurse at HCP Office provides Farmer Swanson and his family members with a Fit Test Record for his records.

6



Challenges - Solutions

- Required to fit test the respirator they will wear
 - Communicate clearly prior to fit testing
- Individual shows up with a respirator that you are unable to fit test
 - Have demonstration/sample respirators that are available locally
- People want additional information about exposures
 - Take additional training
 - Partner with someone who is an expert
- Difficult to find respirators
 - Shop locally – know what is available – research what is available from other sources
- Hard to find someone to review medical questionnaire
 - Online services
- Difficult to find a health care provider who will do the medical evaluation
 - Develop relationship with local provider
 - Provide resources



What Can You Do in Your Community?

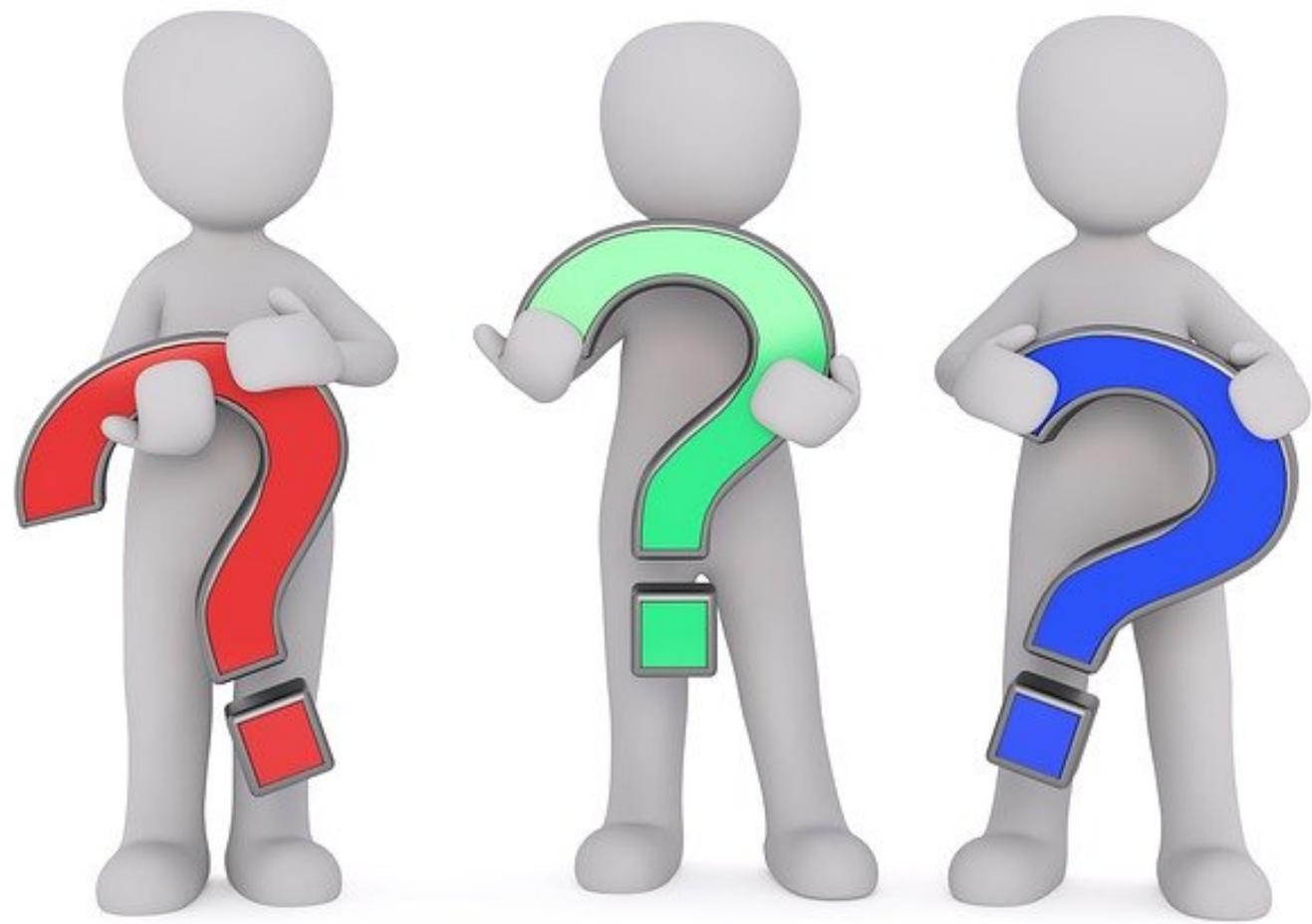
Next Steps



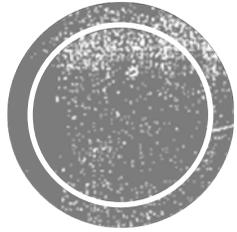
Additional Resources

- [MCN](#)
 - [National Pesticide Safety Education Center](#)
 - [Farm Worker Justice](#)
 - [National Pesticide Information Center](#)
-
- ADD to Chat Box





Contact Information



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