

Worker Protection Standard: Respirators¹

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Background

In 1992, the US Environmental Protection Agency (EPA) issued a comprehensive regulation called the Worker Protection Standard for Agricultural Pesticides (WPS). This regulation is primarily intended to reduce the risks of illness or injury to workers and handlers resulting from occupational exposures to pesticides used in the production of agricultural plants on agricultural establishments (i.e., farms, forests, nurseries, and enclosed space production facilities, such as greenhouses). The WPS requires agricultural employers to take steps to reduce pesticide-related risks when agricultural workers and pesticide handlers are exposed to these pesticides. The EPA has made several changes to the WPS since it was fully implemented in 1995. On November 2, 2015, the EPA revised the WPS, making significant changes to the rule's requirements. Most of the revised provisions became effective January 2, 2017; there are four provisions that are delayed until January 2, 2018. In late 2016, the EPA released the revised "How to Comply Manual" to provide an updated resource. The entire document is posted on their website at https://www.epa.gov/sites/production/files/2016-09/documents/htcmanual_final.pdf. This document will address respirator use under the revised WPS.

Requirements and Recordkeeping

The WPS adopted certain Occupational Safety and Health Administration (OSHA) provisions that require handler employers to provide medical evaluations, fit testing, and training to handlers when using pesticide products that

require use of a respirator. This includes particulate filtering facepiece respirators (formerly known as dust/mist respirators). These requirements ensure that handlers who are using pesticides that require use of a respirator are provided with a comparable level of protection to OSHA's respiratory protection requirements.

Whenever a respirator is required to be worn by the pesticide product labeling, the correct respirator specified by the label must be used. Prior to using a respirator, the handler employer must provide the handler with the following:

- Medical evaluation,
- Annual fit testing, and
- Annual respirator training.

The handler employer must keep records of the medical determinations (proof of medical evaluations), fit testing, and respirator training for 2 years from the date conducted.

- The goals of the respirator requirements are to ensure that the handler is physically capable of wearing a respirator,
- receives the intended protection by having the respirator fit properly, and
- knows how to use the respirator correctly.

Medical Evaluation

Using a respirator may place a physiological burden on handlers that could cause injury if the wearer has certain health problems or medical conditions. This burden varies with the type of respirator worn, the job and conditions in

1. This document is PI272, one of a series of the Agronomy Department, UF/IFAS Extension. Original publication date April 2017. Reviewed April 2020. Visit the EDIS website at <https://edis.ifas.ufl.edu>.

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which the respirator is used, and the medical status of the handler.

A medical evaluation must be conducted to determine whether the handler is physically able to use a respirator before the handler is fit tested or required to use the respirator. The requirement for a medical evaluation applies to all respirators, regardless of the type, level of protection, or whether it is tight-fitting or loose-fitting.

The handler employer must identify a physician or other licensed health-care professional (PLHCP) to perform the confidential medical evaluation using a medical questionnaire or exam. The medical evaluation must be done at no cost to the employee. The questionnaire may be provided by the PLHCP and must be based on OSHA's requirements. The questionnaire is also available in Spanish. Both versions may be seen on the OSHA website at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9783.

Prior to providing the questionnaire to the handler, the handler employer must complete the following information for the PLHCP:

- the type and weight of respirator that the handler will use;
- how long and how frequently the handler will use the respirator;
- how much physical work the handler will do while using the respirator;
- other PPE the handler will use; and
- the temperature and humidity extremes of the working environment.

Handlers must complete a confidential medical questionnaire during normal working hours or at a time and place convenient to the handler. The handler must understand the questions on the medical questionnaire. The handler employer must provide a telephone number for the PLHCP to the employee in case they have questions. The handler's responses to the medical questionnaire must not be reviewed by the handler employer and must be provided directly to the PLHCP. The handler is to either deliver the questionnaire directly to the PLHCP or seal it in an envelope and mail it directly to the PLHCP.

The PLHCP's final medical determination must be based on information covered by the questionnaire. This information can be obtained by evaluating written responses or by conducting a medical examination that covers all the areas included in the questionnaire. The handler must be

given an opportunity to discuss the questionnaire and/or examination results with the PLHCP.

The handler employer is responsible for any costs associated with these additional medical assessments. However, the employer has the option of not allowing the handler to undergo further evaluation. If that is the case, the employer cannot allow that handler to participate in any handler activities that require the use of a respirator.

There are online services that conduct respirator medical evaluations. Be sure to select one that is qualified to operate in Florida.

A medical evaluation is required one time unless another medical evaluation is required for any of the following reasons:

- The medical determination (medical release) is only good for a specified length of time (often 1, 2, or 3 years).
- The employee reports medical signs or symptoms related to respirator use.
- The PLHCP, a supervisor, or the program administrator recommends a re-evaluation.
- Fit-test or other program information indicates a need for re-evaluation.
- When changes in the workplace increase respiratory stress on an employee.
- The initial medical examination demonstrates the need for a follow-up medical examination.

The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

Documentation. The PLHCP will send the handler employer and the handler a written medical determination (medical release) of the medical evaluation results. A handler cannot use a respirator until this written medical determination is received allowing such use. The determination will include the following information:

- whether the employee is medically able to use a respirator;
- any restrictions on the employee's use of the respirator;
- the need for follow-up medical evaluations; and
- verification that the PLHCP has given the employee a copy of the written medical determination.

Recordkeeping. Maintain a copy of the written medical determination (medical release) for at least 2 years, or until a subsequent medical evaluation is conducted.

Annual Fit Testing

The purpose of a fit test is to ensure that the respirator forms an adequate seal with a handler's face so that the respirator provides the intended inhalation exposure protection.

Handlers must be fit tested for each type of respirator specified by the pesticide product labeling which they will be using before using the respirator and every 12 months after that. The fit test must be conducted using the exact make, model, style, and size of respirator that the handler uses. If any of that changes, the handler must be fit tested with the new respirator. Particulate filtering facepiece respirators are required to be fit tested. Particulate filtering facepiece respirators must be equipped with a sealable surface to enable the respirator to be fit tested.

Fit testing must follow OSHA protocols. With respirators, one size does not fit all. Two fit-test methods are available to determine the correct fit for most tight-fitting facepieces:

1. **Qualitative fit test.** This inexpensive, easy-to-perform test relies on the respirator user's response to a test agent such as banana oil, saccharin, or irritant smoke. If the user detects the agent while wearing the respirator, the facepiece-to-face seal is not successful and the test fails. A user who cannot successfully complete the test must be tested with another face piece, make, size, or brand. This method does not require specialized equipment or a trained person to conduct the test; however, the person administering this test must be able to prepare test solutions, calibrate equipment, perform tests properly, recognize invalid tests, and ensure test equipment is in proper working order.
2. **Quantitative fit test.** An instrument samples the concentration of a test agent in the ambient atmosphere and inside the user's facepiece. With this information a quantitative fit factor can be calculated that indicates how well the facepiece fits the user; the higher the number the better the fit. This method is more accurate than a qualitative test but also more expensive. This test requires special equipment, and a trained person must conduct the test.

Fit testing must be conducted annually; whenever there is a change in the respirator facepiece make, model, style,

or size; or if the handler has a physiological change that affects the seal between the respirator's facepiece and the user's face. In some situations, a handler may be required to undergo more than one fit test. For example, if a handler uses a particulate filtering facepiece respirator when using one pesticide and a half-face respirator with organic vapor cartridges when using a different pesticide, the handler must be fit tested for both respirators.

A handler employer is allowed to conduct the fit test for their handlers or they may also use an outside party that may have the different respirator makes, models, styles, and sizes needed to ensure the handlers can be properly fit. OSHA's protocols to ensure fit tests are done properly are to be followed. These protocols may be found at https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9780.

Recordkeeping. A written record of the fit test must be maintained for 2 years and contain

- name of handler tested;
- type of fit test performed;
- make, model, and size of the respirator tested;
- date of the fit test; and
- results of the fit test:
 - pass/fail for qualitative fit test and
 - fit factor and strip chart recording or other record of the test results for a quantitative fit test.

Respirator Seal Check

Anyone using a tight-fitting respirator must perform a respirator seal check before using it to ensure an adequate seal is achieved each time the respirator is put on. There are different ways to check respirator seals including a positive pressure check, a negative pressure check, or following the manufacturer's recommended check method. A seal check is not a fit test!

Positive-pressure check:

1. Block the exhalation valve cover with the palm of your hand.
2. Exhale gently into the facepiece, creating a slight positive pressure.
3. If you can feel air leaking under the facepiece, reposition the facepiece and repeat steps 1 and 2 until you have an effective seal.

Negative-pressure check:

1. Cover the inlet openings of the cartridges or canisters with the palms of your hands and inhale gently so that the facepiece collapses.
2. Hold your breath for about 10 seconds. The seal is effective if the facepiece stays collapsed.
3. If the facepiece expands or you can feel air leaking under the facepiece, reposition it and repeat steps 1 and 2.

Annual Respirator Training

The requirement for respirator training applies to all respirators, regardless of the type, level of protection, or whether it is tight-fitting or loose-fitting. Handlers must be provided with training in the use of the respirator specified on the pesticide product labeling and demonstrate knowledge of the following:

- why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- what the limitations and capabilities of the respirator are;
- how to select cartridges and canisters and know the schedule for changing; how to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- how to inspect, put on and remove, use, and check the seals of the respirator;
- respirator maintenance and storage procedures; and
- how to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.

Retraining. Respirator retraining is required annually and when workplace conditions change,

- a new type of respirator is used, or
- inadequacies in the employee's knowledge or use indicate the need to retrain.

Recordkeeping. A written record of the respirator training must be maintained for 2 years and should contain

- name and signature of handler trained,
- date of training,
- trainer's name, and
- training topics.

Respirator Change-Out Schedules

When particulate filtering respirators are used, the filters or the filtering facepiece itself must be replaced before further respirator use when one of the following conditions is met:

- when breathing resistance becomes excessive;
- when the filter element has physical damage or tears;
- according to manufacturer's recommendations or pesticide product labeling, whichever is more frequent; or
- in the absence of any other instructions or indications of service life, at the end of eight hours of cumulative use.

When gas or vapor removing respirators are used, the gas or vapor removing canisters or cartridges are to be replaced before further respirator use when one of the following conditions is met if there is no end-of-service-life indicator on the cartridge or canister:

- at the first indication of odor, taste, or irritation;
- when breathing resistance becomes excessive;
- when required according to manufacturer's recommendations or pesticide product labeling instructions, whichever is more frequent;
- when the maximum use time is reached as determined by the handler employer's respiratory protection program; or
- in the absence of any other instructions or indications of service life, at the end of eight hours of cumulative use.

Additional Information

Fishel, Frederick M. 2017. *Quick Reference Guide to the Worker Protection Standard (WPS) as Revised in 2015*. PI270. Gainesville: University of Florida Institute of Food and Agricultural Sciences. <https://edis.ifas.ufl.edu/pi270>

US EPA. 2016. *How to Comply with the 2015 Revised Worker Protection Standard for Agricultural Pesticides: What Owners and Employers Need to Know*. EPA 735-B-16-001. United States Environmental Protection Agency. https://www.epa.gov/sites/production/files/2016-09/documents/htcmanual_final.pdf