

QUALITATIVE RESPIRATOR FIT TEST PROTOCOL

GENERAL BACKGROUND

The OSHA general respirator standards (29CFR 1910.134) provides for either qualitative (QLFT) or quantitative (QNFT) fit testing. Material specific standards (e.g., asbestos, benzene, formaldehyde) introduced after the general standards were established also allow for QNFT or QLFT.

The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface or if prior medical approval has not been given.

Anyone experiencing difficulty in breathing during the tests will be referred to a physician.

The test subject shall be given the opportunity to wear the successfully fitted respirator for a period of two weeks.

A Material Safety Data Sheet (MSDS) or equivalent information shall be available and reviewed for whichever fit test agent - isoamyl acetate, irritant fume, or saccharin - is used.

RESPIRATOR SELECTION FOR FIT TESTING

1. The test subject picks the most comfortable respirator from various sizes (small, medium and large if available) from different manufacturers. Usually, the plant or area will designate the respirator(s) to be used and fit tested.
2. Prior to the selection process, the test subject is shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine a comfortable fit. A mirror is available to assist the fit and positioning of the respirator.
3. The mask is donned and worn at least five minutes.
4. After the 5 minute period, comfort is assessed by reviewing the following points:
 - a. Position of the mask on the nose.
 - b. Room for eye protection.
 - c. Room to talk.
 - d. Position of mask on face and cheeks.
 - e. Chin properly placed.
 - f. Adequate strap tension, not overly tightened.

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- g. Tendency of respirator to slip.
 - h. Respirator of proper size to span distance from nose to chin.
5. Perform a negative and positive pressure check.

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RESPIRATOR FIT TEST

1. During the comfort assessment period, explain the fit test procedures and exercises.

A. IRRITANT FUME PROTOCOL

1. The test should be performed in a location with exhaust ventilation sufficient to prevent general contamination of the testing area by the test agent.
2. Allow test subject to smell irritant smoke to be familiar with the characteristic odor.
3. Break both ends of a ventilation smoke tube containing stannic oxychloride, such as the M.S.A. part #5645, or equivalent. Attach a short length of tubing to one end of the smoke tube and attach the other end to the exhaust port of a low flow air pump set at 200 ml/minute (or a hand squeeze bulb can be used at a squeeze rate of once every 5 seconds).
4. Instruct test subject to keep eyes closed while the test is performed (if testing half-mask use monogoggles and still instruct to keep eyes closed).
5. The test conductor shall direct the stream of irritant smoke from the tube towards the facepiece area of the test subject. Begin with the tube 12 inches from facepiece and gradually move to within one inch moving around the whole perimeter of the mask.

B. SACCHARIN PROTOCOL

1. PREPARATION

- a. Attach hood to collar by placing draw string between flanges on collar. Tighten draw string and tie with square knot or bow.
- b. Pour a small amount, approximately one teaspoonful, of the Sensitivity Test Solution into the nebulizer labeled "#1 Sensitivity Test Solution."
- c. Pour the same amount of Fit Test Solution into the second nebulizer labeled "#2 Fit Test Solution".

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nebulizer labeled "#2 Fit Test Solution".

2. SENSITIVITY TEST

This test is done to assure that the person being fit tested can detect the taste of the test solution at very low levels. The Sensitivity Test Solution is a very dilute version of the Fit Test Solution. The test subject should not eat, drink, or chew gum for 15 minutes before the test.

- a. Have the test subject put on the hood and collar assembly without a respirator.
- b. Position the hood assembly forward so that there is about six inches between the subject's face and the hood window.
- c. Instruct the test subject to breathe through his mouth.
- d. Using Nebulizer #1 with the Sensitivity Test Solution, inject the aerosol into the hood through the hole in the hood window. Inject ten squeezes of the bulb, fully collapsing and allowing the bulb to expand fully on each squeeze.
- e. Ask the test subject if he/she can detect the sweet taste of the solution. If tasted, note the number of squeezes and proceed to the Fit Test.
- f. If not tasted, inject an additional ten squeezes of the aerosol into the hood. Repeat with ten more squeezes if necessary. Note the number of squeezes required to produce a taste response.
- g. If 30 squeezes are inadequate, the test is ended and another type fit test must be used.
- h. Remove the test hood and give the subject a few minutes to clear the taste from his mouth.

3. FIT TEST

- a. Have the test subject put on and fit check respirator per the instructions provided with the respirator.
- b. Have the subject put on and position the test hood as before, and breathe through his/her mouth.
- c. Using Nebulizer #2 with the Fit Test Solution, inject the fit test aerosol using the same number of squeezes as required in the Sensitivity Test.
- d. To maintain an adequate concentration of aerosol during this test, one-half the number of squeezes used in Step 3C is injected every 30 seconds.

FIT TEST EXERCISES

2. The test subject shall be instructed to do the following exercises while the respirator is being challenged.
 - a. Normal breathing
 - b. Deep breathing
 - c. Turning head side to side; take a breath at each extreme

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- position.
 - d. Moving head up and down; take a breath at each extreme position.
 - e. Read the "rainbow" passage.
 - f. Normal breathing
3. Test subject shall indicate to the test conductor if the test agent is detected. If it is detected the tested respirator will be rejected and another respirator will be selected.
4. The following fit test records are maintained:
- a. Name and identification number of test subject.
 - b. Type, brand and size of respirator
 - c. Date of test
 - d. Testing agent
 - e. Pass or fail result
 - f. Test conditions (e.g. goggles, hard hat, or prescription insert)
 - g. Name of test operator
5. Respirator facepieces are cleaned after the fit test and before another person uses the respirator. Cartridges are exchanged semi-annually or whenever increased breathing resistance is encountered.

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