



## **SAFE.FITTESTING.2.0 FIT TESTING**

### **STATEMENT OF PURPOSE**

The purpose of this procedure is to outline the steps in performance of FIT Testing for associates who use a particulate respirator.

### **SCOPE**

For those associates designated by the Microbiology department manager, and other associates as deemed necessary by risk assessment, to be FIT tested for use of particulate matter respirators.

### **OWNERS**

Director Regulatory Affairs  
Microbiology Department – Regional

### **RELATED DOCUMENTS**

SAFE.FITTESTING.1.0	POLICY FOR RESPIRATOR SELECTION AND FIT TESTING
SAFE.FITTESTING.2.1	MEDICAL QUESTIONNAIRE
SAFE.FITTESTING.2.2	EMPLOYEE RESPIRATOR FIT TESTING RECORD
SAFE.FITTESTING.2.3	SAFETY DEPARTMENT RESPIRATOR FIT TESTING RECORD SUMMARY
SAFE.FITTESTING.2.4	RESPIRATOR TRAINING CERTIFICATION

### **MATERIALS**

3M™ Qualitative FIT Test Apparatus (Sweet)

N95 or N100 Particulate Respirator

### **PROCEDURE**

#### **A. Preparation of Equipment**

1. Attach hood to collar by placing drawstring between flanges on collar. Tighten drawstring and tie with a square knot or bow.
2. Pour a small amount (approximately one teaspoonful) of the Sensitivity Test Solution (#1) into the nebulizer labeled “#1 Sensitivity Test Solution”.
3. Pour the same amount of FIT Test Solution (#2) into the second nebulizer labeled “#2 FIT Test Solution.”
4. Immediately recap the bottles.



**B. Preparation of Test Subject**

1. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
2. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time (at least 5 minutes) to determine the comfort of the respirator:
  - 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
3. The following criteria shall be used to help determine the adequacy of the respirator fit:
  - a. Chin properly placed;
  - b. Adequate strap tension, not overly tightened;
  - c. Fit across nose bridge;
  - d. Respirator of proper size to span distance from nose to chin;
  - e. Tendency of respirator to slip;
  - f. Self-observation in mirror to evaluate fit and respirator position.
4. The test subject shall conduct a user seal check, using the process detailed by the respirator manufacturer on the respirator packaging or package insert. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another respirator type shall be selected and retested if the test subject fails the user seal check tests.
5. The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.
6. If a test subject exhibits difficulty in breathing during the tests, they shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing the assigned duties.
7. If the test subject finds the fit of the respirator unacceptable, they shall be given the opportunity to select a different respirator and to be retested.
8. Exercise regimen. Prior to the commencement of the FIT test, the test subject shall be given a description of the FIT test and their responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing.
9. The FIT test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.



## FIT TESTING

### C. Sensitivity Test (Saccharin Solution Aerosol Protocol)

This test is done to assure that the person being FIT tested can detect the sweet 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 (except water), or chew gum for 15 minutes before the test.

1. Have the test subject put on the hood and collar assembly without a respirator.
2. Position the hood assembly forward so that there is about six inches between the subject's face the hood window.
3. Instruct the test subject to breathe through the mouth with the tongue extended.
4. Instruct the test subject to report when the sweet taste of the Sensitivity Test Solution (#1) is detected.
5. Using Nebulizer #1 with the Sensitivity Test Solution (#1), 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. Both plugs on the nebulizer must be removed from the openings during use. The nebulizer must be held in an upright position to ensure aerosol generation. Direct the nozzle away from the test subject nose and mouth.
6. Ask the test subject if the sweet taste of the solution can be tasted. If tasted, note the number of squeezes as 10 and proceed to the FIT Test. (Note: the number of squeezes will be recorded as 10 regardless of the number required to taste the solution (e.g. only 8 = 10).)
7. If not tasted, inject an additional ten squeezes of the aerosol into the hood. Repeat with 10 more squeezes if necessary. Note whether 20 or 30 squeezes produced a taste response. (Note: squeezes are recorded as 20 or 30 upon detection regardless of the actual number required to taste the solution (e.g. 15 = 20, 25 = 30).)
8. If 30 squeezes are inadequate, indicating that the subject does not detect a sweet taste, the test is ended. Another type of FIT test must be used. The Safety Department will coordinate with the associate's Department Manager and Human Resources to arrange for additional FIT testing procedures as needed.
9. Remove the test hood, and give the subject a few minutes to clear the taste from his/her mouth. It may be helpful to have the subject rinse his/her mouth with water.

### C. FIT Test

1. Have the test subject don the respirator and perform a user seal check per the instructions provided by the manufacturer on the respirator package or package insert.
2. Have subject wear any applicable safety equipment that may be worn during actual respirator use that could interfere with respirator fit.
3. Have the subject put on and position the test hood as before, and breathe through the mouth with tongue extended.
4. Instruct the test subject to report when or if the sweet taste of the FIT Test Solution (#2) is detected.
5. Using Nebulizer #2 with FIT Test Solution (#2), inject the FIT test aerosol using the same number of squeezes required in the Sensitivity Test (10, 20, and 30). A minimum of ten squeezes is required, fully collapsing and allowing the bulb to expand fully on each squeeze. The nebulizer must be held in an upright position to ensure aerosol generation. Direct the nozzle away from the test subject nose and mouth.



## FIT TESTING

6. To maintain an adequate concentration of aerosol during this test, inject one-half the number of squeezes (5, 10, or 15) every 30 seconds for the duration of the FIT test procedure.
7. After the initial injection of aerosol, ask the test subject to perform the following test exercises for 60 seconds each:
  - a. Normal Breathing – In a normal standing position, without talking, the subject shall breathe normally.
  - b. Deep Breathing – In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
  - c. Turning head side to side – Standing in place, the subject shall slowly turn the head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
  - d. Moving head up and down – Standing in place, the subject shall slowly move the head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
  - e. Talking – the subject shall talk out loud slowly and loud enough as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backwards from 100, or recite a memorized poem or song.

### Rainbow Passage:

*When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.*

- f. Bending over – The test subject shall bend at the waist as if to touch their toes.
  - g. Normal Breathing – In a normal standing position, without talking, the subject shall breathe normally.
8. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If the respirator comfort has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.
9. The test is terminated at any time the sweet taste of aerosol is detected by the subject indicating an inadequate fit.
10. Repeat the FIT test after re-donning and readjusting the respirator. A second failure may indicate that a different size or model respirator is needed.
11. If the entire test is completed without the subject detecting the sweet taste of the aerosol, the test is successful and the respirator fit has been demonstrated.
12. Periodically check the nebulizer to make sure that it is not clogged. If clogging is found, clean the nebulizer and retest.

### D. Cleaning

At the end of each session or at least every four hours, discard the unused solution from the nebulizers. DO NOT pour used solution back into the bottles. Rinse the nebulizers with warm water to



## FIT TESTING

prevent clogging and shake dry. Wipe out the inside of the hood with a damp cloth or paper towel to remove any deposited Test Solution.

### REFERENCES

3M™ FT-10 Qualitative Fit Test apparatus, Sweet Product Guide, 2010

OSHA Regulations, Standard Number 1910.134 App A, Fit Testing Procedures (Mandatory), August 4, 2004

Small Entity Compliance Guide for the Respiratory Protection Standard, OSHA 3384-09 2011.