

X. BITTER QUALITATIVE FIT TESTING

General

BITTER is a method to be used to perform qualitative fit testing. A Qualitative Fit Test is a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's responses to the test agent. The **BITTER** fit test can be used to test the fit of any of our respirators.

When performing the fit test you must use some type of N95 efficiency filter, as a minimum. For example, if you are testing someone who will be using the a vapor cartridge in the field, you must install either an N95, R95 or P100 on top of the vapor cartridges to perform the test. You must perform the fit test in this configuration even though the user may not be using any prefilter in the field. This is accepted practice since you are only testing the face to facepiece seal, and not the efficacy of the filtration. Filtration has already been validated through the NIOSH approval. Naturally, if the employee were going to use a filter or prefilter in the field, then you would test in the configuration actually to be used. If you are using the **BITTER** fit test to test any of our disposables, you can use the respirator that the employee will actually be using in the field.

On the following page, you will find instructions for the use of the **BITTER** Fit Test Kit. Go through the instructions and perform a few fit tests before actually performing any fit tests for our customers. **Forms for Qualitative Fit Testing can be found in Chapter XIII.**

Video instructions can be found on the Moldex website under the RESOURCES menu.

BITTER QUALITATIVE FIT TEST INSTRUCTIONS

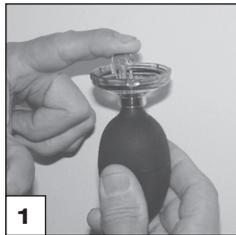
A. EQUIPMENT REQUIRED

1. Moldex BITTER Qualitative Fit Test Kit (#0102)
2. Moldex BITTER Qualitative Test Hood (#0201)
3. Nebulizer #1 (BITTER Sensitivity Solution) (#0301)
4. Nebulizer #2 (BITTER Fit Test Solution) (#0302)
5. Two sets Replacement Nebulizer Inserts
6. BITTER Fit Test Solution Applicator Tube (#0504)
7. BITTER Sensitivity Solution Applicator Tube (#0503)
8. Appropriate Moldex Respirators*†

*Use with any Moldex N, R or P class disposable respirator. This fit test kit may also be used with any Moldex half mask or full face respirator by using any N, R or P class filter.
†The maximum fit-factor allowed for qualitatively fit testing a Full Face is 10.

B. NEBULIZER PRE-INSPECTION AND PREPARATION

1. Remove the top half of the nebulizer by unthreading it from the bottom half. (Repeat for each nebulizer)
2. Using your index finger lightly push down on the Atomizer to ensure that it is pushed down all the way onto the bottom half of the nebulizer. (See Diagram 1). (Repeat for each nebulizer)
3. Inspect and ensure that the black O-ring is properly seated.
4. Replace the top half of nebulizer. (Repeat for each nebulizer)



C. BITTER APPLICATOR INSTRUCTIONS

5. **WARNING:** When crushing the applicator tubes to release the product, it is important to wear protective gloves. It is also important to "pinch" the applicator tube to break the glass ampule when releasing the liquid into the tube. **DO NOT BEND THE TUBE!** (See Diagrams 2 and 3)
6. **PREPARATION:** Remove Sensitivity Solution Applicator and/or the Fit Test Solution Applicator from its storage box. With the fill tip pointed upward, pinch along the full length of the applicator tube using your thumb and forefinger until glass ampule inside of the applicator tube is thoroughly crushed.
(Warning: It is important to keep the applicator tip pointed upward when pinching the tube. This is to prevent the solution from squirting out during the pinching process. See Diagram 4)
7. Remove the upper, circular End Cap Plug from the nebulizer. Insert the applicator tip into the opening of the nebulizer. Squeeze along the applicator tube to transfer the solution from the applicator down into the nebulizer until the applicator is completely drained of the solution.
(Warning: Do not attempt to remove the tip of the applicator. It contains a porous filter which is designed to allow the solution to pass through it while filtering out the glass ampule particles. It is also not necessary to puncture a hole or cut the tip of the applicator. The applicator tip already has the proper hole size in it to allow the solution to squirt into the nebulizer. See Diagrams 5 and 6)

8. Once the applicator solution has been drained into the nebulizer, it can safely be disposed.
9. Ensure that each nebulizer is able to produce solution mist by removing the lower, rectangular Breather Vent Plug and squeeze bulb 4-5 times. If solution mist is not visible or seems very weak, carefully (so not to spill the solution) remove the top half of the nebulizer by unthreading it from the bottom half and repeat #B-2. (See Diagram 1). (Repeat for each nebulizer)

(Note: It is recommended that the End Cap and Breather Vent plugs be replaced back on the nebulizer until the test is ready to be performed. Use the foam cushion insert in the fit test kit to hold the nebulizer(s) upright.)

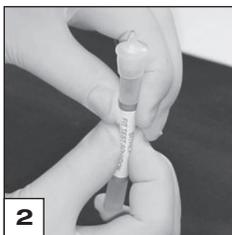
D. TASTE SENSITIVITY SCREENING

Purpose: This test is done to ensure that the person being fit tested can detect the taste of BITTER at sufficiently low levels to make the fit test valid.

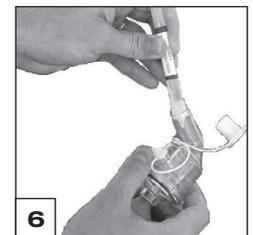
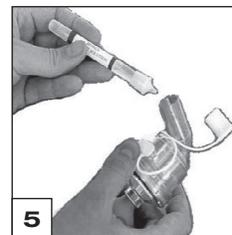
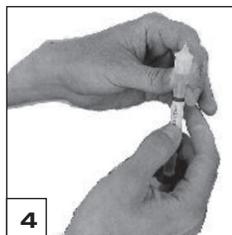
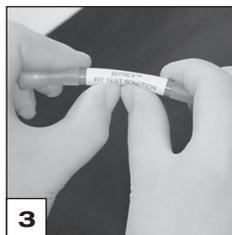
- Ensure that the test subject does not eat, drink (except plain water), smoke or chew gum for 15 minutes before the test.
2. Explain the screening and fit testing procedures to the subject.
 3. When the subject is ready and has been instructed on the testing procedure begin by removing both the End Cap and the Breather Vent Plugs of the test nebulizer that contains the Sensitivity Solution.
 4. Instruct subject to put on the hood without a respirator.
 5. Position the hood forward so there is about six inches between the subject's face and the window. This is especially important for the fit test. It allows free movement of the head when the subject is wearing a respirator and helps ensure even dispersion of the aerosol around the face seal area.
 6. Instruct the test subject to breathe with their mouth slightly open and tongue extended.
 7. Using the nebulizer labeled BITREX Sensitivity Solution, inject the aerosol into the hood through the hole in front of the enclosure. Inject ten (10) squeezes of the bulb, fully collapsing and fully expanding the bulb on each squeeze.
 8. Ask the subject if he can detect the bitter taste of BITREX.
 9. If the subject does not detect bitter taste, inject an additional ten squeezes into the hood.
 10. If the subject still does not detect bitter taste, inject an additional ten squeezes, for a total of 30 squeezes.
 11. If 30 squeezes were inadequate to elicit a response from the subject, this subject cannot be fit tested with the BITREX test. Another fit test method must be used.
 12. If the subject could detect bitter taste, the number of squeezes required to produce a taste response should be noted, i.e., 10, 20 or 30 squeezes, even if subject tasted the BITREX on a number of squeezes other than multiples of ten.
 13. Remove the hood. Wait a few minutes, to give the subject time to clear the taste from his mouth, before proceeding to the fit test. A drink of water during this time will aid in removing the bitter taste. Use a paper towel to wipe the subject's mouth of any residue (also wipe mustaches).

MOLDEx
Ideas that wear well.

Correct



Incorrect



BITREX[®] QUALITATIVE FIT TEST INSTRUCTIONS

E. FIT TEST

1. Use any Moldex disposable N, R or P series class disposable respirator or any Moldex half mask or full face respirator with any N, R or P series filter. Have the test subject put on and adjust the respirator per the instructions provided with the respirator. Have the subject select the size respirator that provides the best fit. The subject may find a mirror useful in the adjustment process. The subject should wear the respirator at least five (5) minutes before starting the test. **If the subject wears prescription glasses or personal protective equipment, such as goggles or earmuffs, while performing their job, they must, when feasible, wear these items during the fit test.**
2. When the subject is ready and has been instructed on the testing procedure begin by removing both the End Cap and the Breather Vent Plugs of the test nebulizer that contains the BITREX Fit Test Solution.
3. Instruct the subject to put on and position the hood as before and breathe with their mouth slightly open and tongue extended.
4. Using the nebulizer labeled BITREX Fit Test Solution, inject the fit test aerosol into the hood. The same number of squeezes is required as was necessary to elicit a response in the threshold sensitivity screening test, i.e., 10, 20 or 30 squeezes.
5. To maintain an adequate concentration of aerosol during the test, one half of the initial number of squeezes should be injected again every 30 seconds (i.e., 5, 10, or 15) through out the test.
6. After injecting the aerosol initially, ask the test subject to perform the following exercises for 60 seconds each:
 - (a) Normal breathing.
 - (b) Deep breathing.
 - (c) Turning head from side to side, stopping at each end of travel for one or two breaths.
 - (d) Moving head up and down, stopping at each end of travel for one or two breaths.
 - (e) Talking, reciting the alphabet, or reading a prepared text (the Rainbow Passage is recommended, see below).
 - (f) Jogging in place.
 - (g) Normal breathing.
7. Instruct the subject to indicate if they detect the bitter taste at any time during the test.
8. If the entire test is completed without the subject detecting the bitter taste of the aerosol, the test is passed and the respirator's fit on that individual is judged adequate.
9. At any time during the test, if the subject detects the bitter taste of the aerosol the test is stopped at this point. When this occurs, the fit of the respirator on the subject is judged inadequate.
10. If the test is failed, before retesting the subject, a 15-minute waiting period must be observed and the taste sensitivity screening test must be performed again. Test again with same Moldex model.
11. If the second test fails, repeat tests with another size and/or model Moldex respirator.
12. Document results of fit tests for each employee.
13. 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.

OSHA

This fit test meets the performance criteria for fit testing respirators under current OSHA Standards.

OSHA regulation 1910.134 (f) requires that the user be fit tested before being assigned a respirator.

CLEANING

Immediately after completing the test, discard any unused solutions. Rinse the nebulizers with warm water to prevent clogging. Wipe inside of the hood with a damp cloth or paper towel to remove any deposited Test Solution.

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 our reach, his friends say he is looking for the pot of gold at the end of the rainbow.

LIMITED WARRANTY IMPORTANT NOTICE TO PURCHASER

This limited warranty is made in lieu of the warranties of merchantability, fitness for particular purposes and all other warranties, express or implied. There are no other warranties which extend beyond the description on the face hereof. The physical standards and specifications of Moldex will be met by products sold. **Exclusive Remedies:** damages for the breach of this limited warranty are limited to the replacement of such quantity of Moldex, products proved to be defectively manufactured. Except as provided above, Moldex shall not be liable or responsible for any loss, damage, or liability, direct, indirect, incidental, special, or consequential, arising out of sale, use, or misuse, or the inability to use products by the user.

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