



# Moldex Fit Test Kit User Instructions

Qualitative Fit Testing with Bitter Solutions

**MOLDEX**

# FIT TEST KIT

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## 1. Introduction

### 1. Introduction

#### 1.1 What is qualitative Fit Testing?

- ▶ A simple but effective method for checking that a tight fitting facepiece seals adequately to the wearer's face (FFP and half masks).
- ▶ Pass/fail test that relies on the test person's response to a test agent.
- ▶ If the test person can taste the test agent through the mask at any time, the test is failed.
- ▶ A Fit Test is specific to a particular make and model of mask, a change in Respiratory Protective Equipment (RPE) would require another Fit Test. If you need to wear more than one type of tight-fitting facepiece for your job, e.g. a filtering facepiece and a half mask respirator, then you should be Fit Tested for each type of facepiece.

#### 1.2 What is Bitter?

- ▶ An odourless substance which is used in Fit Testing for its strong bitter taste.
- ▶ Developed for cleaning products to prevent children from drinking them.
- ▶ Drinking water after the Fit Test will quickly remove the taste.

#### 1.3 Why Fit Test?

- ▶ To select a mask model which matches the test persons facial features and seals adequately to their face.
- ▶ To check that the wearer can put the mask on correctly.
- ▶ Required by legislation in some countries (UK).



## 1. Introduction

### 1.4 When should Fit Testing be carried out?

- ▶ Fit Testing should be carried out as part of the initial selection of the RPE or when an untested facepiece is already in use.
- ▶ Regular Fit Testing is good practice, there are some situations where repeat testing should be carried out more frequently, please see page 17 “How often should you fit test?”

### 1.5 What is a tight fitting facepiece?

Moldex make three types of tight fitting facepieces.



Filtering Facepiece (FFP)



Half Mask



Full Face Mask

**Please note full face masks cannot be Fit Tested with Qualitative Fit Test kits.**



## 2. Legislation

### 2. Legislation

Approved Code of Practice [ACoPs] supporting the Control of Substances Hazardous to Health Regulations (COSHH), the Control of Lead at Work Regulations, the Control of Asbestos Regulations, the Confined Spaces Regulations and the Ionising Radiations Regulations stipulate that tight fitting RPE should be Fit Tested as part of the selection process.

#### 2.1 Who can conduct Fit Testing?

Fit Testing should be conducted by a “competent person”. The following documents outline the knowledge/training a “competent person” should have. They also offer practical guidance to employers and those conducting Fit Tests:

- ▶ INDG479 Guidance on respiratory protective equipment (RPE) Fit Testing - by the HSE
- ▶ Fit2Fit Companion on each of the following Fit Test methods: Controlled Negative Pressure, Qualitative and Quantitative APC - by the BSIF

#### 2.2 Fit Testing Accreditation

The British Safety Industry Federation (BSIF) together with industry stakeholders and supported by the HSE has developed a Fit Tester accreditation scheme. The ‘Fit2Fit RPE Fit Test Providers Accreditation Scheme’ is intended to improve the competency of Fit Testing in the UK. Following this scheme is not compulsory and employers are free to take other action to comply with the law. Further details on the scheme can be found at [www.fit2fit.org](http://www.fit2fit.org).



### 3. Equipment

### 3 Equipment

The Moldex Fit Test Kit comes with equipment required to carry out multiple tests.



- ▶ 1x Test Hood
- ▶ 2x Nebulisers (for sensitivity and test solution)
- ▶ 1x 30 ml Bitter sensitivity solution\*
- ▶ 1x 30 ml Bitter fit test solution\*
- ▶ 4x Replacement nebuliser inserts
- ▶ 2x Nebuliser cleaning pins
- ▶ 1x User instructions USB stick

\* Replacement solutions available



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### 3.1 Additional equipment needed:

- ▶ Paper towels
- ▶ Stopwatch
- ▶ Plain drinking water
- ▶ Protective gloves





## 4. Prior to Fit Testing

### 4. Prior to Fit Testing

#### 4.1 Preparing the solutions

We suggest to wear gloves during this procedure. 



- 1 Remove the caps from the nebuliser.\*



- 2 Insert the dosing tip of the bottle into the round opening. Press the bottle to dispense the desired amount of liquid.

- 3 Carry out these steps for both, the sensitivity- and the test-solution.\*

\* The nebuliser for sensitivity solution is marked with a red ring.



## 4. Prior to Fit Testing

### 4.2 Checking the nebulisers



*Make sure caps are removed*



*You should see a fine mist*

- 1 Make sure both caps are removed from the nebuliser.
- 2 Check if nebulisers are working by spraying against a dark background. You should see a fine mist.
- 3 If you cannot see the mist then the nebuliser may be blocked from crystallised Bitter Solution. See maintenance section for further instructions.
- 4 Continue to check the nebulisers throughout the Fit Test.

### 4.3 Instructing the test person

- ▶ The wearer should not eat, drink [except still, unflavoured water], smoke [including E-cigarettes] or chew gum for at least 30 minutes before the test.
- ▶ Explain the reasons for Fit Testing and the Fit Test procedures to the test person.





## 4. Prior to Fit Testing

### 4.3 Prepare and pack the hood

#### To Prepare



**1** Open the velcro straps



**2** Lay the hood flat on the table



**3** Unfold hood and push the hood from the inside into a 3D shape. The hood is now ready to use

#### To Package



**1** Place the hood with viewing window facing up. Fold the upper end first and fold it towards the viewing window



**2** Then follow with the long sides and the short side. Fix the sides with the Velcro strips.



**3** Place the hood in the lid of the case and hold it with your thumbs whilst closing it.

### 4.4 Instructing the test person

- ▶ The wearer should not eat, drink (except still, unflavoured water), smoke (including E-cigarettes) or chew gum for at least 30 minutes before the test.
- ▶ Explain the reasons for Fit Testing and the Fit Test procedure in full to the test person.
- ▶ The Fit Test exercises should be explained and demonstrated (where required).
- ▶ The test person should be clean shaven.
- ▶ The test person should be medically fit to wear RPE and conduct the Fit Test exercises.

## 5. Sensitivity Test

This test is done to ensure that the test person can detect the taste of Bitter at sufficiently low levels to make the Fit Test valid.

### 5.1 Putting on the hood



**1** Instruct test person to put on the hood without a respirator.

**2** Position the hood forward so there is about 10 cm gap between the test person's face and the hood window.



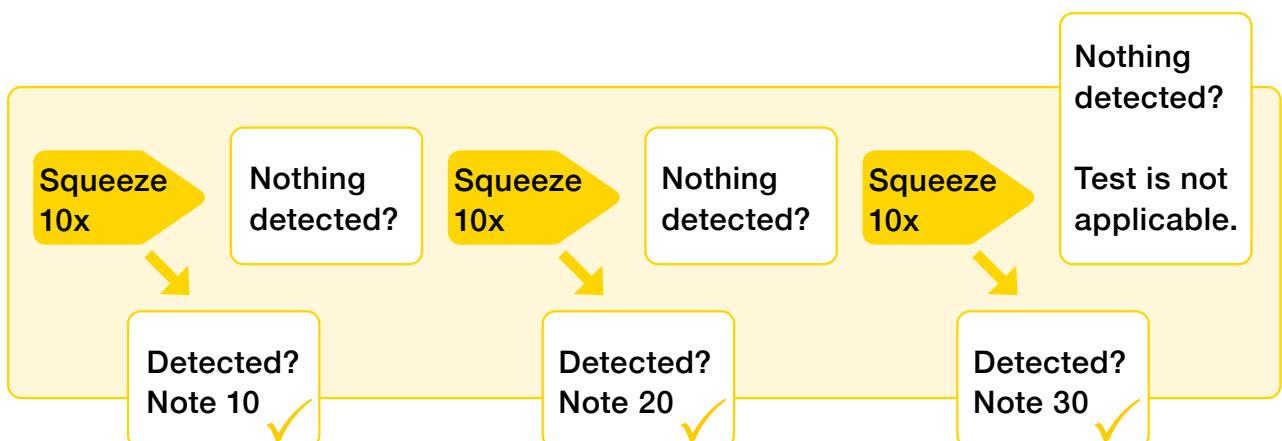
**3** The hood should sit on the shoulders.

**4** The test person holds the hood in position.

### 5.2 Performing the Sensitivity Test



- 1 The test person breathes through the mouth, with tongue slightly forward.
- 2 Ask the test person to indicate as soon as they taste the Bitter.
- 3 Inject up to 10 full squeezes until the person being tested indicates they can taste the Bitter Sensitivity Solution.
- 4 If nothing is detected, repeat the procedure up to a further 2 times.
- 5 If nothing is detected after 30 squeezes, the test person cannot be tested with this test method. Please contact Moldex for information on alternative methods.
- 6 Note the number of squeezes required. This will determine the amount of Bitter Test Solution used during the Fit Test.



### 5.3 After Sensitivity Test



- 1 Remove the hood.
- 2 Ask test person to wipe mouth and wash hands.
- 3 Drinking water helps to remove the taste of Bitter solution.
- 4 Wait a few minutes before proceeding to Fit Test.



## 6. Fit Test

### 6.1 Putting on the mask

If facepieces are issued on an individual basis it is recommended that the test person is Fit Tested using their issued facepiece. Where this is not practical, a facepiece that exactly matches the test persons should be used.

- 1 Ask test person to put on and adjust the mask.
- 2 Inspect the fit of the mask and ask the test person to perform a fit check.
- 3 If necessary, correct the fit. Make sure the chin properly moves into the mask and that the mask sits correctly on the nose.
- 4 Any assistance given should be recorded on the test report and to the employer as additional training might be required.
- 5 If testing a half mask, then particulate filters or a combined filter that incorporates a particulate filter must be used.

The test person should wear the mask for 5 minutes prior to the Fit Test.



## 6. Fit Test

### 6.2 Performing the Fit Test

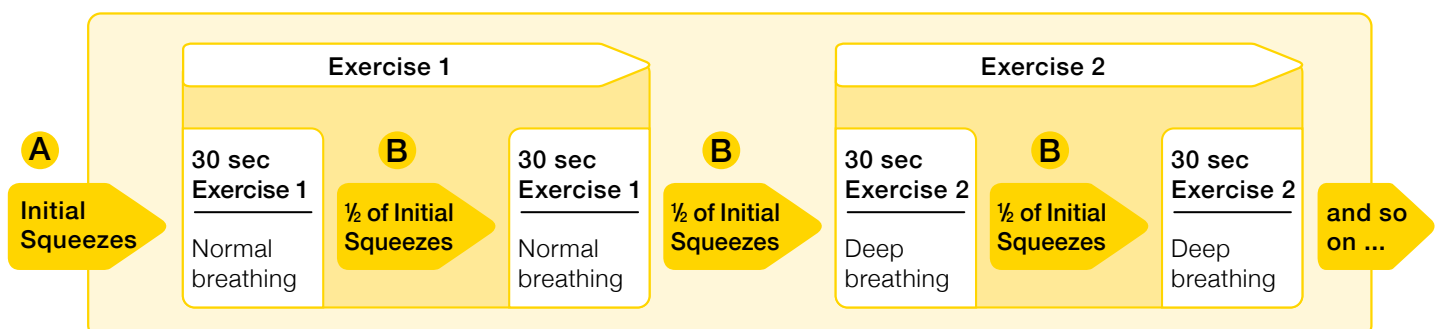


- 1 Instruct the test person to put on the test hood.
- 2 The results of the Sensitivity Test dictate the amount of Bitter test solution to be used during the Fit Test.

Number of squeezes administered in Sensitivity Test	A	B
	Number of initial squeezes of test solution	Number of squeezes of test solution to be administered every 30 seconds
1–10	10	5
11–20	20	10
21–30	30	15

**Example:** If the test person detected the Bitter Sensitivity Solution after 12 squeezes, administer the following: 20 squeezes of test solution at the beginning of the test/first exercise, followed by half the initial amount (10 squeezes) every 30 seconds.

- 3 Use the Bitter test solution nebuliser to inject the initial amount of squeezes into the hood. **A**
- 4 Now 7 exercises need to be performed (See following page). Every 30 seconds top up the test solution inside the hood by administering half the initial amount of squeezes. **B**



### 6.3 Test Exercises

- ▶ Instruct the test person to breathe through the mouth, with tongue slightly forward.
- ▶ Ask the test person to indicate if Bitter is being tasted at any time during the test.
- ▶ The test person should perform the following exercises for 60 seconds each.
- ▶ Observe the test person throughout the test to ensure the correct exercises are conducted.
- ▶ Continue to check the nebulisers throughout the test.

#### 1 Normal breathing

The test person should breathe normally with no head movements or talking.

#### 2 Deep breathing

The test person should breathe slowly and deeply, taking care not to hyperventilate.

#### 3 Turning head side to side

The test person should slowly turn their head from side to side (approximately 15–20 times per minute). The head should be held at each extreme momentarily, so the wearer can inhale at each side.

#### 4 Moving head up and down

The test person should slowly move their head up and down while inhaling in the up position (approximately 15–20 times per minute).

#### 5 Talking

The test person should talk out loud and slowly. The wearer should read from a standard reading passage or count down from 100.

#### 6 Bending over

The test person should stand and bend at the waist as if to touch their toes, and then return to an upright position. Repeat 10-15 times.

#### 7 Normal breathing

The test person should breathe normally with no head movements or talking.



## 7. Test results

### 7. Test results

- ▶ If the entire test is completed without the test person detecting the bitter taste of Bitter, the test is passed.
- ▶ If the test person detects the bitter taste at any point the test is failed and should be stopped. The test can be repeated.
- ▶ At the end of the test ask the wearer to break the seal of the mask and breathe in, if the test has been conducted correctly they should experience the bitter taste of the Test Solution. This is a good way to show the user how well the mask has been fitting. If the wearer does not experience a strong taste it could indicate a problem and the validity of the test results should be questioned.

#### 7.1 Repeating the test

- ▶ Before re-testing a minimum 30 minute waiting period must be observed to allow the taste of the test agent to be removed completely. Offer the test person a drink of water. **Both the Sensitivity Test and Fit Test should be repeated.**
- ▶ Ideally, the test is performed on the next day. For some people it takes two hours or longer until they lose the Bitter taste.
- ▶ If the second test fails, repeat with another size and/or model of Moldex mask.
- ▶ Before restarting the test it is important to review the fit of the mask for any obvious failures.

#### 7.2 Reasons for a failed Fit Test

One of the most common reasons for failing a Fit Test is incorrect fitting of the face mask. Educating employees to put masks on correctly will reduce the number of failures. Here are some simple pointers to consider when observing donning of the mask:

- ▶ Are the straps positioned and adjusted evenly?
- ▶ Are the straps tightened sufficiently, but not over-tightened?
- ▶ Is there any hair caught between the facepiece and the wearer's face?

**If a poor fit is due to inadequate training then the employee should be referred for further training.**





## 5. Test results

### 7.2 Reasons for a failed Fit Test continued

Other factors that could affect mask fit:

- ▶ Facial hair [e.g. beard, stubble etc.]
- ▶ Excessive facial movement during the talking section
- ▶ Sweating
- ▶ Make-up or face creams
- ▶ Jewellery such as nose studs
- ▶ Unusual facial features
- ▶ In general Moldex masks pass in Fit Test procedures but it is quite normal that every now and then someone will fail. This doesn't show that there is a problem with Moldex masks in general, it is proof that the Fit Test procedure is working and shows how important it is to do Fit Testing.
- ▶ There are people that have problematic face shapes relating to respiratory protection and that is why Moldex has different masks and sizes to choose from. Test again with another other type of FFP. The Air Plus or the 7000 Series almost always fit.

### 7.3 How often should you Fit Test?

- ▶ We recommend annual Fit Testing.

There are some situations where repeat testing should be carried out more frequently, for example:

**Where the employer's health and safety policy requires it.**

**Or if the wearer:**

- ▶ Loses or gains weight
- ▶ Undergoes any substantial dental work
- ▶ Develops any facial changes (scars, moles, etc) around the face sealing area
- ▶ Facial piercings
- ▶ Introduction or change in other head-worn personal protective equipment (PPE)

### 8. Maintenance

- ▶ Immediately after completing the test, pour away any unused solution in the nebulisers and ampoules.
- ▶ Rinse both nebulisers with warm water and dry with paper towel.
- ▶ The hood can be cleaned with a damp cloth and mild soapy water.
- ▶ Do not fold the hood across the window panel.

#### 8.1 Unblocking nebulisers



- ▶ If you cannot see a fine mist when using the nebuliser then it may be blocked.
- ▶ Use the pins provided to unblock the nozzles.
- ▶ If necessary, replace the nebuliser insert.





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