Qualitative Fit Testing Instructions for
KLEENGUARD® Particulate Respirators
OSHA requires Fit Testing for all employees who are required to wear tight-fitting facepiece respirators. To ensure that KLEENGUARD® Particulate Respirators provide the intended level of protection, every wearer should receive training. This includes demonstrations and practice time on how to properly don the respirator and determine if it fits correctly.

**Directions for Proper Donning:**
Proper donning of a respirator may feel a little awkward at first, but it will become easier with repeated applications. The following instructions should be followed when donning KLEENGUARD® Particulate Respirators.

See photos below and enclosed poster for clarification.

1. Hold the respirator in your hand with the head straps hanging forward over the front of the nose clip.
2. Place the respirator over your nose and mouth.
3. Place the bottom elastic strap over your head just below your ears.
4. Place the top head strap over your head above your ears. Untwist the straps.
5. Using both hands, carefully shape the nose clip to fit your nose and adjust the respirator to achieve a completely tight fit to your face.
6. Continue to adjust the respirator and secure the edges until you feel you have achieved a good facial fit.

**Directions for User Seal Checking:**
To ensure KLEENGUARD® Particulate Respirators are providing the intended level of protection, a User Seal Check must be conducted each and every time they are worn.

To User Seal Check a respirator, the wearer should forcefully inhale and exhale several times. The respirator should collapse slightly when inhaling and bulge out slightly upon exhaling, unless the respirator has an exhalation valve. The wearer should not feel any air leaking between his/her face and the respirator. This is the sign of a good facial fit and a successful User Seal Check.

If air is leaking out between the wearer’s face and the respirator, then this is NOT a good facial fit. The wearer should adjust the nose piece or adjust the straps back along the sides of the head until the leakage is corrected and he/she is able to successfully User Seal Check the respirator.

**Note:** User Seal Checking is NOT a substitute for Fit Testing
User Seal Checking is a simple procedure intended to help the wearer verify that he/she has properly donned the respirator. Fit Testing is designed to determine the appropriate size respirator for each wearer. Fit Testing should be conducted according to the schedule outlined in your facility’s Written Respiratory Protection Program.

**Tips for Achieving a Good Fit:**
If the wearer is having a problem successfully User Seal Checking the respirator, he/she should try the following tips:

- Use a mirror while adjusting the respirator.
- Ask someone to look for hair or earrings that might be caught in the seal.
- Make sure the headbands are positioned properly. It is especially important that the top headband is on the crown of your head, as it is designed to hold the bottom of the respirator snug against your chin.

Donning instructions for each model of KLEENGUARD® Particulate Respirators can be found on www.kc-safety.com and on each respirator package.
Qualitative Fit Testing Protocol:
The Qualitative Fit Testing protocol consists of two parts: a Threshold Check and a Fit Test. The Threshold Check determines the subject’s ability to taste a weak solution of the challenge agent. The Fit Test uses the full-strength solution to verify that the wearer can achieve an acceptable facial fit with the respirator. A medical evaluation to assess the ability to wear a respirator should be conducted prior to Fit Testing or respirator use.

The following items are not included in this Kit but should be available to assist in Fit Testing:
- Covered pitcher or container of water and drinking cups (or a nearby water fountain)
- Disposable towels/napkins or baby wipes
- Stop watch or wrist watch with a second hand
- Adequate supply of the respirators your facility will be using
- Training files or other record-keeping system your facility will be using
- Cups or containers to set nebulizers in to keep them upright
- Disposable gloves to protect hands from challenge agent solutions

Note: This Kit contains saccharin-based and BITREX Threshold Check and Fit Test solutions. Both saccharin and BITREX are OSHA-accepted challenge agents. Supplies of both saccharin and BITREX are available at a nominal charge by calling your local distributor.

Preparation:
1. Inspect each nebulizer to make sure they are clean and all 4 parts are properly assembled. Squeeze each bulb a couple of times to make sure the nozzles are not clogged. If necessary, use the wire in the repair kit to unclog the nozzle.
2. Pour the contents of Threshold Check solution (either saccharin or BITREX) into the Threshold Check nebulizer. Prepare the Fit Test nebulizer with the Fit Test solution in the same manner (using the same type of solution). To avoid leakage, be careful to not overfill the nebulizer.
3. Ensure the nebulizer is working correctly by holding the nebulizer away from the subject and squeezing the bulb. A light mist should be seen. If no mist is seen, check that there is enough solution and the nebulizer is properly closed.
4. Assemble the hood by pressing the VELCRO strips together and fitting the bouffant cap over the top, securing the seam of the cap under the tabs on the hood.
5. The Fit Test protocol should be explained to the test subject prior to testing. The test subject should not eat, chew gum, or drink anything but water for at least 15 minutes prior to the test.
6. Record the name of the test subject, type of respirator (i.e. N95), brand and size of respirator, date of the test, and name of the test administrator.

Threshold Check Procedure:
1. Have the test subject put on the hood without a respirator.
2. Instruct the subject to breathe through his/her mouth with tongue extended.
3. Instruct the subject to immediately report when the challenge agent is tasted.

(cont’d on page 4)
Threshold Check Procedure (cont'd from page 3)

4. Insert the nozzle of the Threshold Check nebulizer into the hole at the front of the hood and squeeze the bulb firmly 10 times. The nozzle should be directed away from the nose and mouth of the person. (If the person reports a taste during this process, stop squeezing. Record “10” as the number of squeezes required, regardless of when the person reported the taste.)

5. If the subject has not tasted the solution, administer another 10 squeezes. (If the person reports a taste during this process, stop squeezing. Record “20” as the number of squeezes required, regardless of when the person reported the taste.)

6. If the subject has not tasted the solution, administer another 10 squeezes and ask again if they have tasted the solution. (If the person reports a taste during this process, stop squeezing. Record “30” as the number of squeezes required, regardless of when the person reported the taste.)

7. If no taste has been detected, and if saccharin is being used, then the subject should be tested with the alternative BITREX solution using these same procedures. If the subject is unable to taste either saccharin or BITREX, then the subject cannot be tested using this protocol. Instead, Quantitative Fit Testing is suggested.

8. Remove the hood and allow the subject to rinse his/her mouth with water and wipe his/her face. The subject should not proceed to the Fit Test until the taste of the challenge agent has been allowed to clear, which usually takes several minutes.

Fit Test Procedure:

1. Have the subject put on the respirator and perform a User Seal Check. The subject should be allowed to wear the respirator for at least five minutes, adjusting it as needed.

2. Place the hood on the subject, making sure that there is sufficient room for the subject to move his/her head from side to side and up and down without the respirator touching the sides of the hood.

3. Instruct the subject to breathe through his/her mouth with tongue extended for the duration of the test and to report if the taste of the solution is detected at any time during the test.

4. Insert the nozzle of the Fit Test nebulizer into the hole at the front of the hood and spray 10, 20, or 30 squeezes into the hood, depending on which number was recorded from the Threshold Check.

5. Maintain the aerosol concentration in the hood throughout the test by squeezing one half the initial number of squeezes every 30 seconds into the hood.

6. Periodically squeeze the bulb of the nebulizer away from the subject to visually confirm it is creating a mist.

7. Instruct the subject to perform the following series of exercises for 60 seconds each:
   I. Normal Breathing
   II. Deep Breathing
   III. Turning head from side to side (pausing for a breath when head is to side)
   IV. Moving head up and down slowly (pausing for a breath while head is up)
   V. Talking (reading the enclosed “Rainbow Passage,” reciting the alphabet, etc.)
   VI. Jogging in Place
   VII. Normal Breathing

8. If the exercises are completed without the subject tasting the aerosolized solution, then an acceptable fit has been demonstrated and the subject has passed the test.

9. If the subject reported tasting the aerosolized solution during the test, then the subject has failed to achieve an acceptable fit. The test subject should be allowed to re-test with the same model respirator or with another model respirator of his/her choice. Wait at least 15 minutes before re-testing and begin by repeating the Threshold Check.
Cleaning Up:
1. Disassemble, rinse with warm water, and dry all the parts of the nebulizer to prevent clogging. If clogging is found at the end of the test, clean the nebulizer and re-test. The nebulizer should be thoroughly rinsed and refilled at least every four hours during testing.
2. Wipe out the inside of the hood with a damp cloth or paper towel to remove any solution residue. Isopropyl alcohol may be used for additional cleaning.

Questions & Answers:

Q: Is Fit Testing mandatory?
A: When respiratory protection is required and respirators are issued to employees, OSHA requires Fit Testing be conducted as part of that respiratory protection program. If a respirator is used voluntarily in a situation where respiratory protection is not mandated, then Fit Testing is not required. This includes visitors, who should be given a respirator and general instructions on its use.

Q: How often should Fit Testing be conducted?
A: OSHA requires that Fit Testing be conducted prior to initial use of the respirator and according to the schedule outlined in your facility’s Written Respiratory Protection Program, and at least annually thereafter. In addition, Fit Testing should be conducted whenever a different respirator is used and whenever the wearer undergoes changes that could alter facial structure or size, such as facial surgery or a significant change in body weight.

Q: What is the difference between Qualitative and Quantitative Fit Tests?
A: Qualitative tests, such as those using a protocol that employs saccharin or BITREX, are pass/fail tests based on the subject’s detection of a challenge agent. Quantitative tests objectively measure the number of particles leaking around a respirator, providing a numerical measurement of the facial fit expressed as a “fit factor.” For a given respirator type, a minimum fit factor must be achieved to pass the test. The minimum fit factor for N95 respirators is 100.

Q: What is the difference between a Fit Test and a User Seal Check (or a Fit Check)?
A: User Seal Checking is a simple procedure intended to help the wearer verify that he/she has properly donned the respirator. Fit Testing is designed to determine the appropriate size respirator for each wearer. Fit Testing should be conducted according to the schedule outlined in your facility’s Written Respiratory Protection Program.

Q: What protocols can be used to fit test particulate respirators?
A: Particulate respirators are most often fit tested by following the Qualitative Fit Test protocol outlined in this manual and employing saccharin or BITREX as the challenge agent. Protocols which utilize banana oil or irritant smoke are not recommended for use with particulate respirators.

Q: Can people with beards be fit tested?
A: OSHA does not permit the use of respirators with tight-fitting facepieces to be worn by individuals with facial hair. Facial hair between the skin and sealing surface of the respirator will interfere with the seal of the respirator. Individuals with mustaches and short goatees that do not interfere with the seal of the respirator can be fit tested and wear a respirator.

Q: Can a person wear glasses while wearing a respirator?
A: Yes, but if an employee wears glasses or protective eyewear they must be worn in a manner that does not interfere with the seal of the facepiece to their face.

Q: Is a medical exam required for respirator wearers?
A: A medical evaluation by a physician or other licensed health care professional is required to determine whether any health conditions exist that could affect the employee’s ability to wear a respirator.
Questions & Answers: (cont’d)

Q: What if the user has asthma?
A: A medical opinion is required to ensure that the health and breathing capability of the user is sufficient to overcome the differential pressure of breathing with a respirator.

Q: Must those people conducting Fit Tests be certified?
A: No. Although no certification is required, program administrators should have knowledge of the latest OSHA regulations regarding their situation.

Q: Why are the respirators worn for 5 minutes before Fit Testing?
A: The Fit Testing procedure in OSHA’s standard 29CFR 1910.134 (Appendix A) requires “the respirator to be tested shall be worn for at least 5 minutes before the start of the Fit Test to assess comfort.”

Q: What is the difference between a respirator and a standard face mask?
A: NIOSH certified respirators are designed for higher filtration efficiency and better facial fit than standard face masks. Respirators must be approved by NIOSH and all NIOSH-approved respirators must be marked as such. Look for the NIOSH approval label on product dispensers and the NIOSH assigned approval code on each respirator if you are unsure if a product is a respirator or a standard face mask.

Q: When should a respirator be worn?
A: According to 29 CFR 1910.134(a)(1), respiratory protection must be used “in the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fumes, fogs, gases, smokes, sprays, mists, or vapors.” When effective engineering controls such as enclosures or ventilation are not feasible, or while such controls are being implemented, appropriate respirators must be used to reduce worker’s occupational exposure to airborne contaminants.

Q: How long can a particulate respirator be worn?
A: In non-oily environments, there is no recommended time limitation for certified N-series disposable respirators (according to the EPA). The exact amount of time for which a respirator is used is not limited since the filtration efficiency is not degraded by use in normal room air. However, if a respirator becomes damaged, clogged, or otherwise compromised, it should be replaced.

When oily particulates are present, an R- or P-series respirator should be used. R-Series respirators can be used for up to 8 hours of continuous or intermittent use when oil is present. Use and reuse of P-Series respirators are subject to the manufacturer’s recommendations since repeated exposures may degrade the respirator’s filtration capacity below its rated efficiency. However, donning and removing the respirator several times creates the potential for damage.

The user should inspect the respirator for damage and check the fit each time it is donned. Replacement respirators should be readily available for employees who determine or suspect that their respirators are damaged or contaminated.

<table>
<thead>
<tr>
<th>Filter Type</th>
<th>Environment Used In</th>
<th>Maximum Duration of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Not resistant to oil (Non-oil aerosols: solid and waterbased particles)</td>
<td>No recommended time limitation</td>
</tr>
<tr>
<td>R</td>
<td>Resistant to oil (oil or non-oil aerosols)</td>
<td>8 hours of continuous or intermittent use</td>
</tr>
<tr>
<td>P</td>
<td>Oil Proof (oil or non-oil aerosols)</td>
<td>Use &amp; reuse subject only to considerations of hygiene, damage and increased breathing assistance.</td>
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NOTE: All respirators should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance.
Additional Resources:

National Institute for Occupational Safety and Health (NIOSH)
http://www.cdc.gov/niOSH

U.S. Department of Labor: Occupational Safety and Health Administration (OSHA)
http://www.osha.gov

Centers for Disease Control and Prevention (CDC)
http://www.cdc.gov

American National Standards Institute (ANSI)
http://www.ansi.org

American Industrial Hygiene Association (AIHA)
http://www.aiha.org

Mine Safety and Health Administration (MSHA)
http://www.msha.gov

National Safety Council (NSC)
http://www.nsc.org
Our Guarantee
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