Respiratory Protection Newsletter - June 2020

Featured Courses: **Respirator Overview & Fit Testing Workshop**:
October 20, and Oct 21-22, 2020

In the June Issue:

OSHA Releases List of Guidance Documents during COVID-19

On May 28, 2020 OSHA released a comprehensive list of guidance documents, statements, and actions they've taken to help protect workers during the coronavirus pandemic. The list is categorized into the following primary topic areas. They are:

- Respirator Guidance
- Protecting Workers in High-Risk Industries
- Enforcing Safety in the Workplace
- Offering Clear Direction for Employers

The OSHA list is a great way to see if you've missed anything.

To view the list visit: bit.ly/3dgwu3p
Or, type in the following URL:
https://www.osha.gov/news/newsreleases/national/05282020

COVID-19 Use Only PAPR

Created jointly by Whirlpool, Dow, & Reynolds, and manufactured and sold through WIN Health Labs (www.winhealthlabs.com) is a temporary Use PAPR for use during respirator shortages during the COVID-19 outbreak. This particular PAPR features a visor and **replaceable** polyethylene barrier to reduce the amount of necessary decontamination after use. The following information was taken from their website and modified for this newsletter.

This is a Public Health Emergency (PHE) Particulate Filtering Respirator, which NIOSH authorized as a Limited Public Health Emergency Powered Air Purifying Respirator (PAPR) on a **temporary basis**. The U.S. Food and Drug Administration (FDA) authorized the emergency use of this PAPR only in healthcare settings by healthcare personnel when used in accordance with the U.S. Centers for Disease Control and Prevention (CDC) recommendations to help prevent wearer exposure to pathogenic biological airborne particulates during respirator shortages resulting from the Coronavirus Disease (COVID-19) outbreak.

The FDA Emergency Use Authorization (EUA) does **not** permit use of this product by the general public and should **not** be used in non-healthcare applications. This PAPR is intended to be used only during the declared public health emergency associated with the novel coronavirus (SARS-CoV-2) that causes COVID-19, and only by appropriately

trained and supervised healthcare personnel.

At the end of the current public health emergency, or in the event the FDA revokes the current emergency use authorization or NIOSH revokes their temporary authorization, this respirator should be removed from service immediately. This respirator should be properly disposed of on or before the expiration date.

> The useful life of the product is 6 months
> Filter will last no more than 3 months
> After expiration of the Emergency Use Authorization from the FDA, the product and consumables will no longer be available or supported.

Other manufacturer's are also developing respiratory protective devices in response to COVID-19. For example, Ford have also developed a limited use public emergency PAPR for COVID-19, which is distributed by 3M. Similar to the Whirpool, Dow, & Reynolds PAPR mentioned above, the Ford PAPR is authorized by NIOSH and permitted for use by the FDA in healthcare facilities during the current crises. For information on the Ford PAPR go to: 3M.com/FordPAPR

Confusing Terminology: Mask versus N95

Throughout the current coronavirus pandemic, governmental agencies, private companies, academic institutions, and others have blasted us with the differences between surgical masks and N95 filtering facepiece respirators (FFR). Yet the public is still confused. Why you ask? Maybe we should look at these same organizations and institutions that attempted to distinguish between the two.

Below are quotes from a State agency and an article from an academic institution. In the case of the State agency, the intent was to help the public understand the differences between a mask and a respirator. To make their point, they provided the following "**definitions**". The source will remain anonymous. The blue colored font is my addition to emphasize when and where the word "mask" was used.

Here's how they defined the difference:

> "Surgical **masks** (also called procedure **masks**) are loose-fitting cloth **masks**, sometimes fitted with a face shield for eye protection."
>
> "N95 respirators are **masks** designed to protect the wearer from fine particulates and mists. These **masks** form a seal with the face so all air breathed by the worker comes through the filter material. When available, an N95 respirator is preferred to ensure workers are protected from any contamination residual in the air. N95 respirators and other filtering facepiece respirators should have a NIOSH-approval "TC" number printed on the **mask** or in product packaging."

The explanation of an N95 FFR includes the word "mask" three (3) times. No wonder the public is confused. Here's how the explanation should have been written:

> N95 filtering facepiece respirators (FFRs) are designed to protect the wearer from fine particulates and mists. These respirators form a seal with the face so all air breathed by the worker comes through the filter material. When available, an N95 respirator is preferred to ensure workers are protected from any contamination residual in the air. N95 respirators and other filtering facepiece respirators should have a NIOSH-approval "TC" number printed on the respirator or in product packaging.

Without changing any of their content, I was able to eliminate the word "mask" from their definition of a respirator.

Here's another example. In this case, the source comes from an academic institution and the article was published in a peer-reviewed journal (Cramer A., Tian E., Galanek M., et al., *JAMA Network Open*, May 26, 2020). Here's three of the first four sentences in their article:

> "One component of personal protective equipment, the disposable N95 face **mask**, is in particular demand.[1,2] To alleviate a shortage of N95 **masks**, many methods to resterilize them have been proposed and studied.[3] Any method for resterilizing **masks** must not degrade the filtration efficiency of the **mask**."

The word "mask" is used four (4) times in these three sentences. The words "Respirator" or "Filtering Facepiece Respirator" isn't mentioned at all.

No wonder why the public is confused. For those wondering about the research study. The authors demonstrated that the amount of gamma radiation required to sterilize respirator filters used in their study, resulted in excessive filter degradation with significant loss in filtration efficiency.

Respirator Fit Testing Ethics -What Happened to Them?

Previous I wrote a newsletter about "Just in Time Fit Testing" and raised the question: It's Not What You Think It Is". Related to this is the ethics of respirator fit testing. During COVID-19, the new norm for fit testing is as follows. An employee who never wore an N95 filtering facepiece respirator (FFR) reports to their fit test station. A brief review of donning, doffing, and seal check procedures is provided by the fit test operator. Because the subject has never worn this particular respirator model, they're not familiar with strap positioning, molding of the nose band, seal checks, etc. To speed things up, the fit test operator assists the subject with the donning process. The subject passes the fit test and is assigned the respirator for use in areas that require respiratory protection.

This is **NOT** the way OSHA requires fit testing to be conducted. In this case the subject donned an unfamiliar respirator and passed the fit test with assistance from the fit test operator. Unfortunately, this is not uncommon. Of course, passing a fit test is even easier when it isn't administered correctly. What level of confidence is there to suggest this person will don this respirator the same way in the workplace? Does OSHA permit the fit test operator to provide assistance? Yes, but the respirator must be removed, donned again without assistance, and then pass a fit test.

Another consequence of this egregious procedure is that legitimate fit test operators are put out of business. It's difficult for conscientious fit test operators to compete with those that lack experience, knowledge and ethics. It's unfortunate, but we now have an army of fit test operators that promise four (4) or more fit tests per hour.

EPA Disinfection Products on List N:

On April 23, 2020 the U.S. Environmental Protection Agency (EPA) provided information on surface disinfectant products qualified to be effective against SARS-CoV-2, the virus that causes COVID-19. EPA calls this "List N". Currently, there are 392 products on EPA's "List N".

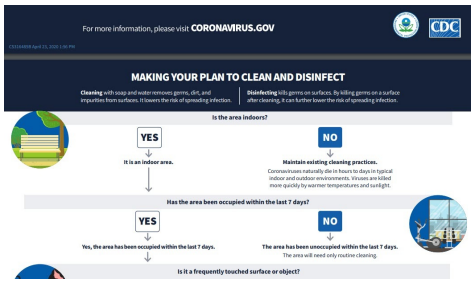
To locate a product on List N - Disinfectants for Use Against SARS-CoV-2 click here or copy and paste the following URL:
https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2

To find a product, enter the first two sets of its EPA registration number into the search bar. You can find this number by looking on the product label.

For example, type in 777-66 and you'll discover Lysol® Brand All Purpose Cleaner. Click the plus ("+") button next to the registration number and you'll discover the active ingredient(s), company, surface type for use, and other information.

When using an EPA-registered surface disinfectant, always follow the product's directions and remember:

* Never apply the product to yourself or others. Do not ingest disinfectant products. This includes never applying any product on List N (the agency's list of disinfectants to use against SARS-CoV-2, the virus that causes COVID-19) directly to food.
* Never mix products unless specified in the use directions. Certain combinations of chemicals will create highly toxic acids or gases.
* Wash the surface with soap and water before applying disinfectant products if the label mentions pre-cleaning.
* Follow the contact time listed for your product on List N. This is the amount of time the surface must remain visibly wet to ensure efficacy against the virus. It can sometimes be several minutes.
* Wash your hands after using a disinfectant. This will minimize your exposure to the chemicals in the disinfectant and the pathogen you are trying to kill.



EPA-CDC Guidance on Cleaning, Disinfecting Workplaces, Homes, Public Spaces, Etc.

For those responsible for cleaning and disinfecting workplaces, homes, public spaces, businesses, and schools, the U.S. EPA and CDC have jointly issued a simple to use 2-page guidance document.
To get you copy try any of the following:
Click here
Copy & paste this URL into your browser:
https://www.epa.gov/sites/production/files/2020-04/documents/316485-b_reopeningamerica_combo_placard_infographic_4.19_6pm.pdf
Or, try this link:
bit.ly/2TT8MTd

QualFit Software. **Improving qualitative respirator fit testing procedures using sweet & bitter fit test methods**

QualFit software automates and records qualitative respirator fit testing using Saccharin and/or Bitrex aerosol solutions. The software prompts the operator to deliver the aerosol solution with the correct number of squeezes for each exercise, at the proper time, and in the proper order. This improves fit testing accuracy. The software displays the current exercise in progress, automates the timing sequence and calculates the number of squeezes to be administered, based on threshold screening results. Visual and audible prompts allow the operator to focus their attention on the respirator wearer. The entire procedure becomes less frustrating for the operator and subject being tested. The software tracks each step of the fit testing procedure required in mandatory Appendix A of the OSHA Respirator Standard. **QualFit** software improves the quality and efficiency of respirator fit testing. The employer benefits by knowing the test procedure was properly administered and provides written documentation for compliance with record keeping requirements specified in paragraph "m" of the OSHA standard. The employee benefits by knowing a standardized procedure was followed, rather than what often appears to be a random procedure.

For Information visit: www.QualFit.net
To place a secure online credit card order visit: https://qualfit-software.square.site/

Qualitative Fit Testing Training Video Available
https://youtu.be/FxpVsm3OhLY
As mention in my March 2020 Respiratory Protection Newsletter, OSHA issued new temporary guidance recommending healthcare employers change from quantitative fit testing to qualitative testing using Saccharin and/or Bitrex fit testing agents to preserve integrity and supply of N95 respirators. Because of this switch, I've been swamped with questions about qualitative fit testing. Therefore, I wanted my readers to be aware of a comprehensive qualitative fit testing training video I've posted to my You Tube channel.

The video also includes a demonstration of **QualFit** Software.

Here's the link: https://youtu.be/FxpVsm3OhLY

This video covers the following topics
- Step-by-step instructions of the OSHA Qualitative Fit Testing procedure in appendix A.
- Donning & doffing with a demonstration (Includes reference to follow manufacturer donning and doffing recommendations specific to each make and model. Modify depending upon contaminant & other factors
- How to prepare respirators for fit testing
- How to prepare the nebulizers with demonstration.
- How to check for clogging of the nebulizer and resolving clogging with demonstration.
- Proper method of squeezing the nebulizer with examples showing results when squeezed improperly.
- Employer requirements for recording results of the fit test.
- Common mistakes to avoid when using the nebulizer (with demonstration) including:
  - Excessive tilting
  - Using fingers
  - Directing aerosol into the filter

Comment:
The video clearly states to follow manufacturer instructions for donning, doffing, and seal check procedures. In addition, it points out that these instructions differ for different make and model respirators and can even differ within the same make (brand). In addition, these procedures can differ depending upon the contaminant, workplace and user factors. For example, **with biological contaminants**, the wearer should **not** touch the front of the facepiece during doffing (removal). Proper hand hygiene should be followed when used for biological contaminants.

For information about **QualFit** Software for qualitative respirator fit testing with sweet and/or bitter agents, go to www.QualFit.net

Personally, I prefer quantitative fit testing over qualitative fit testing. However, I understand the necessity to preserve as many N95 filtering facepiece respirators as possible. Keep in mind that reusable elastomeric respirators with removable particulate filters (N95, P100, etc.) can be quantitatively fit tested without destructive probing (see April 2020 Newsletter). Elastomeric respirators can be cleaned, disinfected, and re-used when following appropriate disinfection guidelines. Using elastomeric half and even full facepiece respirators with removable

particulate filters is another way to maintain respirator supply.

Whichever fit testing method you use, it's important the fit test is conducted according to established standards. Fit testing not only verifies that a specific make, model, style, and size respirator fits; it also provides the employer & wearer confidence that the wearer can correctly don the facepiece and obtain an acceptable seal.

History Repeats Itself
More Lessons Not Learned from SARS in 2003

My March 2020 newsletter mentioned several lessons **not** learned from SARS in 2003. Another lesson not learned was with respect to respirator shortages. You may recall that the CDC released a document titled: "*Strategies for Optimizing the Supply of N95 Respirators*", which recommended switching from quantitative to qualitative fit testing. Shortly afterwards, OSHA issued new temporary guidance regarding the enforcement of OSHA's Respiratory Protection standard for healthcare. This guidance was designed to help ensure healthcare workers would have a sufficient number of N95 respirators in light of anticipated shortages. This temporary enforcement guidance recommended healthcare employers change from a quantitative fit testing method to a qualitative testing method to preserve integrity of N95 respirators.

On February 16, 2020, I submitted the following letter to the Occupational and Environmental Medicine list serve. Here's the first three (3) paragraphs of my letter:

Unfortunately, history repeats itself and lessons are not always learned. With respect to the current COVID-19 (Corona virus) outbreak, contributors to this list serve have clarified the need to administer an OSHA accepted fit test for persons required to wear N95 Filtering Facepiece Respirator (N95 FFR). Several have referred readers to the CDC document "*Strategies for Optimizing the Supply of N95 Respirators*". All respirator fit test methods have advantages and disadvantages. With respect to respirator shortages, one advantage of qualitative fit testing using saccharin and Bitrex challenge agents is that respirators passing the fit test could subsequently be used by the employee. This helps maintain supplies during shortages. The problem with quantitative fit testing of FFRs using a TSI PortaCount, as described by contributors to this list serve, is that a sampling probe must be inserted into facepiece. Probing the facepiece permits an air sample to be taken inside the respirator, but also puts a hole into the facepiece. This process, sometimes referred to as "destructive probing" makes that specific respirator unusable to the employee.
In 2006, TSI developed a probe "cap" in response to respirator shortages that occurred after the SARS outbreak. After a successful quantitative fit test with a TSI PortaCount, the cap is placed onto the probe opening, thus allowing a quantitatively fit tested respirator to be used by the employee. The caps provide an excellent seal and has been vacuum and pressure tested at levels far beyond what human lungs can generate. It's nearly impossible for the cap to accidentally come off and it's difficult to remove intentionally. I've personally removed and replaced these caps hundreds of times on fit test adapters for another purpose and they've never leaked.
Unfortunately the process of modifying the filtering facepiece respirator (FFR) with a sampling probe voids the NIOSH approval and OSHA has not adapted the modified facepiece. In 2006, I demonstrated the probe cap to NIOSH and recommended they work with OSHA to develop a variance or similar process that would permit the use of quantitatively fit tested facepieces with capped probes for use during a declared emergency. This would eliminate the need for quantitatively fit tested respirators to be discarded. Perhaps it's time to re-evaluate the probe cap inspired by Jeff Weed (previously with TSI) for the next emergency.
Signed,

Roy T. McKay, Ph.D.
Professor Emeritus
University of Cincinnati
Cincinnati, OH 45267-0458

Respirator Program Administrator Training
Attend at least four days of respirator training from three different training categories and earn a certificate for Respirator Program Administrators. For additional information, email us at info@DrMcKay.com

Worker Fatality Due to Chemical Inhalation
On April 23rd OSHA cited a contractor $183,127 after a fatal incident at a worksite in Perry, Georgia. An investigation was initiated after an employee suffered fatal injuries from inhaling lacquer thinner, used to resurface a bathtub. OSHA cited the company for failing to evaluate the chemical wash cleaning task and determine workers' level of exposure to the lacquer thinner. The agency also cited the company for improperly labeling mixtures used to clean and resurface bathtubs and countertops and exposing employees to a concentration of toluene several times above permissible exposure limits. The company was also cited for not performing a personal protective equipment assessment and using respirators properly.

Announcements from NIOSH

Subject: Information regarding damaged or degraded head straps on previously stockpiled NIOSH-approved filtering facepiece respirators

NIOSH CA 2020-1028
Revised May 2020

NIOSH is aware that many different NIOSH-approved filtering facepiece respirator (FFR) models were stockpiled for prolonged times and are now distributed for use during the COVID-19 response. These FFRs are made using different materials (e.g., filtering media and strap material), which may age or degrade over time and become damaged. Generally, FFRs are not designed for long-term storage, and many models may have shelf lives designated by the NIOSH approval holder. The shelf life information is generally found on the packaging or the approval holder's website.

Recently, NIOSH received multiple inquiries concerning the identification and replacement of damaged straps on large caches of NIOSH-approved N95 FFRs that have since passed their designated shelf life. Users should perform a visual inspection of each respirator prior to donning per the user instructions. Additional questions and concerns related to the condition of the respirator should be directed to the approval holder.

Modifications to NIOSH-approved respirators should not be made as part of conventional operations. In accordance with the NIOSH regulation, 42 CFR Part 84, Approval of Respiratory Protective Devices, any changes that modify the design (e.g., replacing damaged straps), as approved by NIOSH, voids the NIOSH approval. In this case, adding new straps may affect the fit or filtration performance of the respirator with potential to negatively impact the respiratory protection provided to the user.

Only as a contingency or crisis capacity strategy option when no respirators are left other than those with damaged straps, consideration can be given to replacing the damaged straps and using these modified "respirators" as facemasks (i.e., NOT as a NIOSH-approved N95 FFR). The CDC crisis capacity recommendations for prioritizing the use of respirators vs. facemasks by activity type should be followed.

R100 Filter Testing Revision
On Feb 21, 2020, NIOSH made minor changes to R100 filter testing for Non-Powered, Air-Purifying Respirators. The majority of changes to Standard Test Procedure No. TEB-APR-STP-0054 occurred in Section 4. This revision represents an update to current content and editorial standards, with no change to method or criteria. To obtain a copy, copy and paste the link below, or try and Click here.

https://www.cdc.gov/niosh/npptl/stps/pdfs/TEB-APR-STP-0054-508.pdf

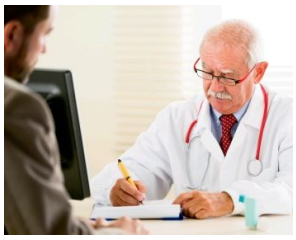
NIOSH has updated two Standard Testing Procedures (STP):

- STP-0120—*Determination of Positive Pressure—Open-Circuit, Pressure-Demand, Self-Contained Breathing Apparatus Standard Testing Procedure (STP)*—has been updated to Revision 1.3, dated 24 February

2020. https://www.cdc.gov/niosh/npptl/stps/pdfs/RCT-ASR-0120-508.pdf
This test establishes procedures for breathing resistance requirements for an open circuit, pressure demand SCBA. This revision updated Section 5 with changes to the calibration sequence and checking for leaks around the face seal.

·STP-0121—*Determination of Rated Service Time—Open-Circuit, Demand and Pressure-Demand, Self-Contained Breathing Apparatus Standard Testing Procedure (STP)*—has been updated to Revision 1.3, dated 10 March 2020. https://www.cdc.gov/niosh/npptl/stps/pdfs/RCT-ASR-0121-508.pdf
This test establishes procedures for determining rated service time requirements for an open circuit, pressure demand SCBA. As in the revision to the breathing resistance requirement, this revision updated Section 5 with changes to the calibration sequence and checking for leaks around the face seal.

Medical Complications from Respirator Use



OSHA requires respirator medical clearance for persons required to wear respiratory protection. Researchers at the University of Cincinnati are collecting information on persons who:
1) Developed a medical complication while wearing a respirator, and
2) Identify pre-existing medical conditions causally related to the complication that developed.

If you have information (published or un-published) that establishes a link between a specific medical condition and a complication that developed as a result from wearing a respirator, please share this information with us. We are particularly interested in cases where a medical complication was induced by respirator use. Information such as the specific type of respirator worn, work environment, duration of use, level of physical exertion, underlying medical conditions that contributed to the complication, etc., is needed. You can send this information to: info@DrMcKay.com

2020 McKay Publications

Respirator Use at High Altitudes. Does an SCBA Respirator Protect Wearers from Oxygen Deficient Atmospheres Due to Increasing Altitude? *The Synergist*. Pages 26-29, January 2020.

Share Your Respirator Experience

Here's an opportunity to contribute your knowledge and experience to others. If you have an interesting respirator selection or other challenging respirator problem (and solution), please submit it to info@DrMcKay.com. I may use your real-life problem to help train students in our graduate and continuing education programs in respiratory protection. This transfer of information will benefit others, maybe even your children or grandchildren.

Wanted: Damaged Fit Test Adapters

Rather than throwing away damaged fit test adapters, consider donating them to our fit testing workshops. We strive to make our fit testing workshops as realistic as possible. Incorporating damaged along with good fit testing adapters can provide a valuable training experience. If you wish to send a damaged fit test adapter or a damaged facepiece with unusual or difficult to find leakage for our respirator inspection workshops, send us an email at info@DrMcKay.com and we'll provide shipping information.

Respirator Training Courses:

The University of Cincinnati is pleased to announce the following programs on Respiratory Protection and Fit Testing that may be of interest to your staff. They are:

Overview of Respiratory Protection:
http://www.drmckay.com/rtc-overview.shtml
October 20, 2020

Fit Testing Workshop (2-day):
http://www.drmckay.com/rtc-workshop.shtml
October 21-22, 2020

Fit Testing Refresher & Advanced Topics
http://www.drmckay.com/rtc-resp-refresher-advanced.shtml
Postponed due to COVID-19

Respirator Selection & Cartridge Change Out Schedule Workshop.
http://www.drmckay.com/rtc-resp_selection.shtml
Postponed due to COVID-19

Fit Testing Workshop Quantitative (1-day):
http://www.drmckay.com/rtc-workshop1day.shtml
Postponed due to COVID-19

All courses are held in Cincinnati, unless noted otherwise. On-site training is available.

Respirator Selection & Change Out Schedules
This workshop provides guidance on respirator selection and the development of OSHA compliant change out schedules for respirator cartridges. A combination of lecture with practice problem sessions is used. The course is designed to teach students how to select a respirator based on workplace conditions (exposure level, type of contaminant, length of time to be worn, etc.). The selection process goes beyond the typical recommendation to "use a NIOSH approved air purifying respirator". Students will learn how to select a specific respirator as well as a specific filter/cartridge (when appropriate). More than a dozen guidelines for development of an OSHA compliant cartridge change out policy will also be taught, including common computer models and how to use them.

Partial Listing of Topics
Respirator Selection
* Review of facepiece definitions and modes of operation.
* Practical and theoretical basis for respirator selection based upon:
  Assigned Protection Factors (APF)
  - MUC's, HR's, IDLH, etc.
* OSHA guidelines for respirator selection.
  - IDLH and non-IDLH atmospheres.
* Selection steps and information gathering procedures.
* Minimum respiratory protection versus practical alternatives.
* Filter selection issues
  - How to select an N, R, or P filter.
  - Why filter selection is influenced by exposures below the exposure limit.
  - How to choose a 95 versus 100 filter.
* Practical methods for handling unknown concentrations without defaulting to an SCBA.
* Calculating MUC's for mixtures.
* Saturated Vapor Concentrations (SVC's) and selection concerns.
* When a particulate filter may be needed for organic solvents.
* Equilibrium Vapor Concentrations.
* Selection Workshop
  - Practical problems and solutions.

Development of Cartridge Change Out Schedules
* OSHA recommendations for a change out policy.
* Factors that affect cartridge service life.
* Learn how to develop an OSHA compliant change out schedule.
* Understanding the breakthrough curve.
* Common methods used to define breakthrough.
* What level of breakthrough should be used?
* Work rate tables.
* Effect of high relative humidity.
* Methods for determining service life (use, limitations, and practice problems)
  - OSHA recommendations
  - Rules of thumb
  - Using laboratory data
  - Using math models
  - Using computer (software) models
  - Cartridge testing methods (3 methods) Combining methods
* Learn how to develop a change schedule when computer models are not available.
* Recommendations for mixtures:
  - OSHA compliance method
  - mole fraction method
  - multi vapor model
* How to confirm your change-out schedule.
* Storage and migration concerns.
* Immediate Breakthrough Upon Reuse (IBUR) concepts

Gain confidence your current procedures are correct! Former students have found this information to be extremely valuable.

Next dates are: **To be Determined** in Cincinnati

Fit Testing Workshop:
This two (2) day workshop provides comprehensive lecture and "hands-on" training for students who need to learn how to conduct an OSHA accepted qualitative or quantitative respirator fit test. Students will have an opportunity to fit test a variety of different style facepieces, including filtering facepieces, half, & full. A combination of lecture and "hands-on" testing in the presence of a trained and experienced instructors will be used to help participants learn how to conduct respirator fit testing to satisfy regulatory requirements. Hands-on fit

testing will include qualitative and quantitative methods. The following types of fit testing equipment will be available: Saccharin (sweetener) and Bitrex (bitter) qualitative fit test kits using squeeze-bulb nebulizers. Quantitative fit testing with the TSI PortaCount, AccuFIT 9000, and the OHD QuantiFit. Class size will be limited to ensure a favorable faculty to student ratio. Students will learn how to set-up, operate, maintain, troubleshoot, analyze, and interpret fit test results. Where appropriate, students will learn how to calibrate testing equipment and record results. All course materials, supplies, equipment, and reference manuals will be provided.

Students will also disassemble, reassemble, and inspect respirators for common problems. The workbook alone is a valuable reference for solving fit testing problems in the future.

This course uses a combination of lecture and small practicum groups to ensure students have ample time to practice and learn fit testing techniques. The second day provides students sufficient time to concentrate on the particular methods of interest to them. The "Hands-On" approach is emphasized in this course. Students will have the opportunity to fit test several different make and model respirators. The fit testing workshop provides an opportunity to see and experience many different types of commonly used fit testing methods (qualitative and quantitative).

Individuals who plan to attend the fit testing workshop, but have little or no experience with respiratory protection should take our 1-day "Overview" class, routinely offered before the fit testing workshop. A substantial discount is given when both courses are taken.

Dr. McKay is the past chair of the ANSI Z88.10 Respirator Fit Testing sub-committee, a voting member of the full ANSI Z88 Respiratory Protection Committee, the AIHA Respiratory Protection Committee, and others.

Fit Testing Refresher & Advanced Topics:
This 1-day course is specifically designed for the person who has been conducting fit tests, but has not had formal training or needs a review. This course reviews OSHA fit testing requirements and helps the operator understand **why poorly fitting respirators pass fit testing and why good fitting respirators fail**. It also provides an opportunity to discuss advanced topics not covered during a typical 2-day fit testing workshop due to time limitations. This course is also valuable for respirator program administrators who need a better understanding of fit testing procedures and assurance that their fit testing program is being run properly. The emphasis of this course is on quantitative fit testing, although many of the concepts are applicable to all fit test methods.

Partial Listing of Topics
Review of fit test procedures
- Facial hair: issues & solutions
- Selection process
- Comfort assessment
- Interference with PPE

Establishing pass/fail criteria
Interpretation of fit test results
Why user seal checks fail to detect leakage
Why user seal checks create leaks not present
Proper use of fit test adapters
Selecting sample probe location
Why leaking respirators pass fit testing
Why good fitting respirators fail fit testing
What does a high fit factor really mean?
Wear time & non wear time issues
- Understanding fit factor vs protection

When is quantitative fit testing required?
Opportunity to get answers to your questions

This course can also be given on-site.

Overview of Respiratory Protection:
This one day course provides a practical overview of respirators, standards, guidelines, use, and limitations of commonly used air purifying respirators. This class also provides an excellent overview of the OSHA Respirator Standard. Little or no prior formal training is required. The morning session includes lectures on the types and use of respirators and basic respirator selection procedures using APFs and MUCs. The advantages and disadvantages of different respirator facepieces, filters (N, R, & P), cartridges, PAPR's, and the physiologic effects of wearing a respirator will also be discussed. Respirator standards and program requirements will be reviewed to help the student comply with OSHA regulations. Discussion of qualitative and quantitative fit testing, user seal checks, worker training, and respirator medical clearance requirements will be provided. This course is essential for those individuals who oversee respirator users in their work place or new to respiratory protection.

Respirator Training at Your Location:
A variety of respirator training programs are available on-site. Courses available include:

* Fit Testing Refresher & Advanced Topics

* How to Develop a Cartridge Change Out Schedule (1 day)
* Respirator Selection (1 to 1.5 days)
* Fit Testing for Health Care Professionals (1 day)
* Basics of a Respiratory Protection Program (2 days)
* Overview of Respiratory Protection (1 day)
* Respirator Fit Testing: Quantitative (1 or 2 days)
* Respirator Fit Testing: Qualitative (1day)
* Fit Testing at your workplace. Not a course, but a hands-on program with your staff and equipment.

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Roy McKay, Ph.D.
Course Director
University of Cincinnati
www.DrMcKay.com

Dr. McKay does not receive any public or private funding for this educational service. The opinions in this newsletter are those of Dr. McKay and not the University of Cincinnati.

QualFit Software

For information about **QualFit** Software for qualitative respirator fit testing with sweet and/or bitter agents, go to www.QualFit.net

Link to comprehensive Qualitative fit testing video by Dr. McKay: https://youtu.be/FxpVsm3OhLY