

## Respiratory Protection Newsletter - December 2025

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### Featured Courses:

<b>Overview of Respiratory Protection</b>	April 21, 2026
<b>2-day Respirator Fit Testing Workshop</b>	April 22-23, 2026

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### **2026 Respirator Training Course Dates**

#### **Overview of Respiratory Protection:**

April 21, 2026  
Oct 27, 2026

#### **Fit Testing Workshop (2-day):**

April 22-23, 2026  
Oct 28-29, 2026

#### **Respirator Selection & Cartridge Change Out Schedule Workshop.**

May 12-13, 2026

#### **Fit Testing Refresher & Advanced Topics**

May 14, 2026

### **N95 FFR Fit Test Failures**

In a few months, we're expected to enter the peak season for influenza (flu). Consequently, the use of respiratory protection for health care workers (HCW) and other workers, increases. The majority will be use N95 Filtering Facepiece Respirators (FFRs) for respiratory protection. Therefore, it might be worthwhile to take a look back at a 2024 article published by R.C. Wang in *JAMA Network Open* regarding fit test failures when reusing N95 FFRs.

The primary purpose of the study was to identify the incidence of fit test failures during extended use and reuse. As you may recall, during the COVID-19 pandemic the CDC developed guidelines for extended use and limited reuse of N95s for HCWs.

In this U.S. study, 412 HCWs were qualitatively fit tested at baseline, and again at the end of their clinical shift with the same N95 FFR. A total of 824 FFRs were tested. Participants were allowed to choose FFRs available at their institution. Models studied were categorized into three types as follows:

- cup shaped (3M 1860R, 1860S, & 8210)
- 3-panel (3M 1870+ and 9205+)
- duckbill (Halyard 46727, 46767, and 46827)

The overall cumulative incidence of fit **failure after 1-shift was 38.7%**. They also found differences in the failure rate based upon shape of the FFR.

Reported failure rates were:

25.8% cup shaped (domed)  
28.3% duckbill  
61.3% 3-panel (trifold)

The risk of fit test failure was determined to be significantly higher for 3-panel facepieces compared to cup shaped (Note: authors referred to cup-shaped facepieces as “domed” and 3-panel as “trifold”).

They also reported that **92.8% of all N95 FFRs failed** fit testing after five (5) shifts.

All studies have limitations. For this study, the authors reported qualitative fit testing was conducted using the OSHA accepted protocol for Bitrex (bitter agent). However, they said: “*the participant performed several exercises, including breathing, head turns, and walking*”. Walking is **not** an exercise used with the standard OSHA fit testing protocol. Furthermore, I can’t imagine how the bitter test agent could be properly administered if the subject was walking. This was not explained in the text or online supplement. I suspect this was an error, but hard to believe an experienced fit test operator or other person familiar with respirator fit testing wouldn’t catch this. They don’t mention if they used **QualFit**© testing software. If they had, readers would have greater confidence that the correct exercises were used, for the correct length of time, with reminders for the number of aerosol squeezes needed for each exercise.

The failure rates for the Wang 2024 study may be surprising to some readers. However, a pilot study published in 2020 reported a failure rate of 7.1% when HCWs reused cup shaped N95 FFRs for one (1) shift. A 2021 study reported failure rates 33.3% after 2 shifts and 42.9% after 3 shifts.

**My Opinion:** N95 FFRs were not initially designed for repeated donning and extended use, but are frequently used in this manner. Therefore, you might want to evaluate the fitting performance of N95 FFRs used at your facility on an individual basis to determine if they maintain acceptable fit for their duration of use. For example, if an employee is intermittently using an FFR for 3 days, repeat the fit test at the end of the 3<sup>rd</sup> day. If it passes, you have a higher level of confidence that acceptable protection has been achieved. If it fails, you now have documentation for the employee to change facepieces at a higher frequency. Furthermore, while the Wang study summarized above reveals differences in fitting performance based on facepiece shape (i.e., cup versus 3-panel), that doesn’t necessarily translate to the performance for a specific person. For me, a 3-panel FFR may be best. That doesn’t necessarily apply to others.

## OSHA Proposal to Eliminate Respirator Medical Clearance for Some Respirators

OSHA announced in Federal Register on July 1, 2025 a proposal to eliminate respirator medical clearance requirements for filtering facepiece respirators (FFRs) and loose fitting powered air-purifying respirators (PAPRs).



In the proposed rule change, OSHA said:

“OSHA concludes that the data available for health effects are lacking and insufficient to establish that medical evaluations meaningfully reduce material impairment caused by wearing an FFR or a loose fitting PAPR.”

“The agency acknowledges that respirators may negatively impact some workers’ health due to extreme exertion while wearing one, impact on communication or ability to see, triggering mental health concerns (e.g., claustrophobia), and other impacts on their quality of life. However, medical evaluation before use of an FFR or loose fitting PAPR is not well evidenced to prevent these outcomes.”

Back in 1998 OSHA said:

“the use of any respirator requires a prior medical evaluation to determine fitness.”

In the proposed revision:

“OSHA now believes that the requirement for medical evaluations before the use of any type of respirator is too broad in practice; specifically with respect to the use of FFRs and loose fitting PAPRs.”

OSHA provides justification for proposing the removal of medical evaluation for some respirators in their analysis. There’s nothing new, other than summarizing the existing literature.

To view the proposal use the following URL:  
<https://www.federalregister.gov/d/2025-12235>

Or,  
[Click Here](#)

The deadline to submit comments has already passed. However, for general information: Contact Andrew Levinson, Director, Directorate of Standards and Guidance, Occupational Safety and Health Administration, U.S. Department of Labor; telephone (202) 693-1950; email: osha.dsg@dol.gov

## 2025 CBRN Handbook Corrected

NIOSH has **corrected an error** I pointed out to authors of the May 2025 edition of the Chemical, Biological, Radiological, and Nuclear (CBRN) Respiratory Protection Handbook regarding types of fit testing methods permitted by NFPA.

In its correction, the agency says: **“OSHA continues to accept qualitative fit testing for positive pressure tight-fitting respirators, however NFPA should not have been included in that statement. NFPA only identifies quantitative fit testing for wearers of positive pressure respirators, such as [a self-contained breathing apparatus].”**

For readers not familiar with this handbook, it is intended for organizations that use CBRN respirators in emergency response applications, such as fire service, law enforcement, emergency medical services, corrections officers, etc. Organizations and persons who use CBRN respirators in industrial, public works, construction, utility, and other non-emergency applications will also benefit from information in this handbook. The handbook does not include information on how to conduct response activities.

To obtain a copy of the revised (corrected) handbook use the following URL:  
<https://www.cdc.gov/niosh/docs/2025-111/pdfs/2025-111revised092025.pdf>  
Or, [Click Here](#)



## Fit Testing Refresher & Advanced Topics

This 1-day course is specifically designed for the person who has been conducting fit testing, but needs a better understanding as to why poorly fitting respirators pass can pass a fit test and why good fitting respirators fail. This class provides an opportunity to discuss advanced topics **not** covered during a 2-day fit testing workshop, where time is limited. 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. You'll also learn tricks fit test operators' use to pass poorly fitting respirators (both QLFT & QNFT).

May 14, 2026

## OSHA Top 10 Violations

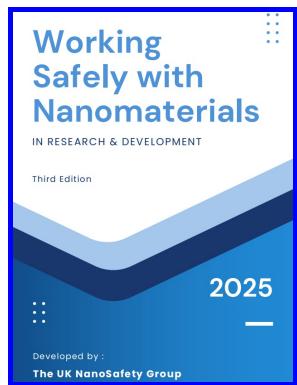
At the 2025 NSC Safety Congress & Expo, OSHA Regional Administrator Eric Harbin unveiled a preliminary list of Top 10 violations for fiscal year 2025. The preliminary list was based on data available as of August 12<sup>th</sup>. The final list will likely be released during the Spring of 2026 and may have minor changes when final numbers come in. For example, the rankings for scaffolding (#6) and fall protection-training requirements (#7) differed by only two (2) violations, so these may flip. Small businesses make up the largest share of citations.

1. Fall Protection – General Requirements (1926.501):  
For the fifteenth consecutive year, fall protection tops the list, with 5,914 violations.
2. Hazard Communication (1910.1200):  
2,546 violations
3. Ladders (1926.1053):  
2,405 violations
4. Control of Hazardous Energy (Lockout/Tagout) (1910.147): 2,177 violations
5. **Respiratory Protection (1910.134):**  
1,953 violations. Dropped to the 5<sup>th</sup> position.  
Failing to provide medical evaluations (e)(1) for workers required to wear respirators was the most frequent violation. Next among the respirator violations was:  
(c)(1): failure to establish and implement a written program,  
(f)(2): failure to comply with fit testing for tight-fitting respirators,  
(c)(2): failure to comply with where respirator use is not required  
(k): training requirements
6. Fall Protection – Training Requirements (1926.503):  
1,907 violations
7. Scaffolding (1926.451):  
1,905 violations
8. Powered Industrial Trucks (1910.178):  
1,826 violations
9. Personal Protective and Lifesaving Equipment- Eye and Face Protection (1926.102):  
1,665 violations
10. Machine Guarding (1910.212):  
1,239 violations.

## Working Safely with Nanoparticles

The UK NanoSafety Group recently released the 3<sup>rd</sup> edition of *Working Safely with Nanomaterials*. Nanomaterials are extremely small particles, measuring just 1-100 nanometers in size that are increasingly used in many industries from medicine to electronics. It's an interesting read and valuable resource for those with extensive knowledge of this topic as well as for those wanting to have an introduction to nanoparticles.

This Guidance Document draws attention to the possible health hazards that could result from exposure to nano-objects, including nanoparticles, nanotubes, nanofibres, nanoplates, etc. It provides advice on the precautions that may be needed (including respiratory protection) to prevent or adequately control exposure as required by the UK Control of Substances Hazardous to Health Regulations (COSHH). This document applies to a broad set of nanomaterials, including powders, liquid suspensions, gels, and bound materials containing nano-objects, as well as nanoobjects such as nanoparticles, nanofibres, nanotubes, nanowires, nanoplates and their aggregates and agglomerates. Guidance on respiratory protection is also provided. For example, filtering facepiece respirators (FFRs), no less than FFP3, are **only** suitable as a secondary precautionary measure against accidental "spillage", not as a first line of protection. FFP3 is roughly equivalent to a P100 FFR in the U.S. A minimum of a tight fitting Full-face P3 APF40 (Assigned Protection Factor 40) particulate respirator is required for any work in an atmosphere containing airborne-nano-objects.



The document also dedicates a chapter specific to high aspect ratio nanomaterials (HARNs), including plate-like structures (sometimes called nanoplatelets), where only one dimension falls within the nano size range, could also be considered to be HARNs. In this case, the HSE recommends RPE with an assigned protection factor (APF) of 40 or higher (i.e., no FFRs).

To get a copy of the 82 page document [Click Here](#)

## 3 New IDLH Values Added

In June 2025, NIOSH published new Immediately Dangerous to Life or Health (**IDLH**) profiles for three (3) irritant gases: hydrogen chloride, hydrogen bromide and hydrogen iodide. IDLH values represent the maximum level above which workers should not be exposed without respiratory protection.

NIOSH defines IDLH as: "A situation that poses a threat of exposure to airborne contaminants when that exposure is likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment [NIOSH 2004]."

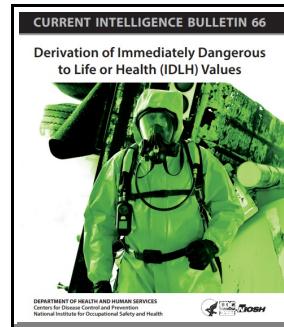
Source: NIOSH Current Intelligence Bulletin 66 (see link below).

In essence, they are based on effects that might occur from 30-minute exposures and intended to ensure workers can escape from a contaminated environment if respiratory protection fails.

The new IDLH values are:

45 ppm for hydrogen chloride  
35 ppm for hydrogen bromide  
45 ppm for hydrogen iodide

Short-term exposure to all three compounds can cause eye irritation, coughing, and difficulty breathing. As levels increase, exposure can lead to nose and throat pain, asthma-like symptoms, lung injury, and fluid in the lungs (chemical pneumonitis).



For information about IDLH values, including how they are derived [Click Here](#)

## Wanted: Photos & Videos of Improper Fit Testing

To my readers, please continue sending photos, videos and testimonials of improperly conducted fit testing. If you worked for an employer that conducted fit testing improperly, share your story. If your employer knowingly had the fit test operator administer the test incorrectly, share this too. I promise to keep your name and employer name confidential. Or, let me know if I can share it. If you have a good story, photo or video, send it to [Roy@DrMcKay.com](mailto:Roy@DrMcKay.com)





## Getting Rid of Suction Cups - Tubing Holders™ Now Available

If you're frustrated with suction cups that won't stick to the ideal sample location or fall off during the middle of fit testing, Fit Test

**Tubing Holders™** are the solution. Tubing holders replace suction cups and clips used with ambient aerosol quantitative respirator fit testing equipment, such as the TSI PortaCount®, AccuFIT 9000®, and AeroFit® systems. Tubing holders make fit testing **faster, easier, and more reliable**.

More importantly, they reduce the occurrence of passing of poorly fitting respirators. They're also more hygienic and re-usable. In the long term, they're less expensive than replacing suction cups and clips.



When a suction cup dislodges during a fit test, testing must stop and the subject must remove (doff) the facepiece. The operator must then re-install the suction cup, repeat another donning with seal checks, re-start the fit test, and hope it doesn't happen again.

**Tubing Holders™** are also easier to remove. No more struggles trying to pull the metal clip from the interior sample tubing. You'll also save the embarrassment of repeating fit tests when suction cups unknowingly dislodge. Rubber suction cups are not flavored and don't taste good. Consequently, there's no satisfaction when a suction cup dislodges and the subject sucks on it like a lollipop.

For additional information use this link:  
<https://roy-mckay-phd.square.site/tubing-holders>  
Or, [Click Here](#)

## Dräger SCBA User Notice

In an October 22, 2025 letter, Dräger Safety announced an intermittent issue with an Electronic Control Unit (ECU) used on the Dräger PSS 5000 and PSS 7000 series SCBAs manufactured from July 2024 to October 2024 with serial number range BRTB to BRTL. Serial numbers of affected units are located in two (2) places:

- 1) Engraved on the pressure reduce, and
- 2) Label on the backplate of the SCBA

Photos to assist in locating the serial number are provided with the October letter provider by Dräger.

Dräger reports that the issue with the Electronic Control Unit, only affects a small number of units currently in the field. The good news is this issue can be simply corrected with a firmware update that can easily and quickly be applied by a local service technician.



Dräger PSS 7000 SCBA

For more information on identifying impacted models, use this link to see the Draeger Safety UK Ltd user notice: [Click Here](#)

NIOSH has also posted information on their NIOSH Respirator Approval Program website, which you can read using the following link: [Click Here](#)

## OSHA News

### Respirator Violations for Silica Dust

According to a July 11, 2025 Fox 5 Atlanta news report, OSHA cited a Georgia countertop manufacturer \$33,000 for seven serious violations related to excessive exposure to respirable crystalline silica. They claim the company failed to enforce respirator use, conduct fit testing, provide respirator training, and perform necessary air monitoring for workers among other violations.



## QualFit® Software®

An easier, more accurate, and defendable way to administer respirator fit tests using sweet or 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. An OSHA compliant report can be printed or electronically saved. 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.



### QualFit® - Making Respirator Fit Testing Simple

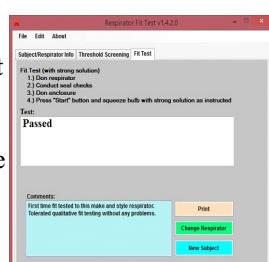
For Information visit: [www.QualFit.net](http://www.QualFit.net)

To place a secure online credit card order visit:  
<https://qualfit-software.square.site/>

The name (mark) **QualFit®** is registered with the U.S. Patent & Trademark Office.

**QualFit® Software®** is registered with the U.S. Copyright Office June 13, 2021.

**Final screen indicating test passed and operator comments.** Includes option to print now or later, change to a different respirator, or select a new subject.



# NIOSH News

## Interspiro Rescind 16 Respirator Approvals

NIOSH has honored a request by Interspiro USA, Inc. to rescind 16 respirator approvals. The list of rescinded approval numbers are provided below and can also be found in the NIOSH Respiratory Protective Device Information Notice, NIOSH CA 2025-1099. As of September 15, 2025, any respirator marked with a NIOSH approval label and approval number listed in the table below is no longer NIOSH approved. The NIOSH Certified Equipment List no longer includes these approval numbers:

Approval Number TC-	Product Line or Model
13F-0132	Spiromatic/Spirolite 4515
13F-0132 CBRN	Spiromatic SCBA Models S3, S4, S5, S6, 9030, 6630, 4530 and 4515
13F-0133	Spiromatic
13F-0133 CBRN	Spiromatic, CBRN and NFPA 1981, 2007 Edition
13F-0197	Spiromatic
13F-0197 CBRN	Spiromatic, CBRN and NFPA 1981, 2007 Edition
13F-0199	Spiromatic/Spirolite 9030
13F-0213	Spiromatic
13F-0213 CBRN	Spiromatic, CBRN and NFPA 1981, 2007 Edition
13F-0375	SPIROTEK T4
13F-0375CB RN	SPIROTEK T4, CBRN and NFPA 1981, 2007 Edition
13F-0381	UNITOR 4515 (industrial) and SPIROTEK 4515 (NFPA)
13F-0420	SPIROTEK
13F-0420CB RN	SPIROTEK, CBRN and NFPA 1981, 2007 Edition
13F-0421	SPIROTEK
13F-0421CB RN	SPIROTEK, CBRN and NFPA 1981, 2007 Edition

Due to the voluntary rescission of these NIOSH approvals, respirators bearing these NIOSH approval numbers may no longer be used, manufactured, assembled, sold, or distributed.

To read /review NIOSH CA 2025-1099, use the following URL:  
<https://www.cdc.gov/niosh/media/pdfs/2025/09/NIOSH-CA2025-1099-ISP.pdf>  
Or, [Click Here](#)

**3M/Scott Rescinds 1,030 Respirator Approvals**  
NIOSH has honored requests by 3M and 3M Scott Fire & Safety to rescind 1,030 respirator approvals (1,030 is **not** a typo!). The complete list of rescinded approval numbers can be found in the following NIOSH Respiratory Protective Device Information Notices (click the links below for additional information):

[NIOSH CA 2025-1096 \(95 Approvals\)](#)  
[NIOSH CA 2025-1097 \(801 Approvals\)](#)  
[NIOSH CA 2025-1098 \(134 Approvals\)](#)

Due to the voluntary rescission of these NIOSH approvals, respirators bearing these NIOSH approval numbers may no longer be used, manufactured, assembled, sold, or distributed.

#### **Pure Environments Rescinds 1 Respirator Approval**

NIOSH has honored a request by Pure Environments by Shatkin First, Inc. to rescind one approval. As of September 25, 2025, any respirator marked with a NIOSH approval label and approval number TC 84A-9383 is no longer NIOSH approved. This approval has been removed from the NIOSH Certified Equipment List.

Approval Number TC-	Product Line or Model
84A-9383	PESF-H Filtering Facepiece

Due to the voluntary rescission of this NIOSH approval, respirators bearing this NIOSH approval number may no longer be used, manufactured, assembled, sold, or distributed.

To read Conformity Assessment document CA 2025-1101 use the following URL:  
<https://www.cdc.gov/niosh/media/pdfs/2025/10/NIOSH-CA2025-1101-PEB.pdf>  
Or, [Click Here](#)



## ISRP News

### **International Conference: Oct 20-22, 2026**

ISRP International Conference will be held October 20 – 22, 2026 at the Centre Mont-Royal in Montreal, Canada. More details will be published in the coming months, including venue information, sponsorship opportunities, and a call for papers.

<https://www.isrp.com/news/isrp-2026-centre-mont-royal>

## HSE News:

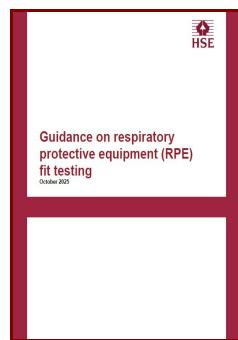
### **HSE Revises Fit Testing Guidelines**

For readers who desire to comply or simply want to explore fit testing guidelines used in the United Kingdom, the HSE released a revision to their previous guidelines on October 2025.

This 23 page guide gives advice on fit testing for the employer and those conducting fit tests. It provides information on:

fit test methods;  
what can be achieved from a fit test; and  
the core details to be included in a fit test report.

The guidelines state that following this guidance is not compulsory and users are free to take other actions to comply with the requirements of the law. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustration of good practice.



This publication is available on the HSE website  
<https://www.hse.gov.uk/>

Or, go directly to  
<https://www.hse.gov.uk/pubns/indg479.htm>

# WANTED!

## Wanted: 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 and undamaged fit testing adapters provides 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 and fit testing workshops, send us an email at [info@DrMcKay.com](mailto:info@DrMcKay.com) and we'll provide a shipping address.

**Undamaged** fit test adapters are also needed. On average, we lose one (1) fit test adapter every workshop due to wear and tear, poor adapter design, improper removal and other causes. If you've switched to another fit testing method and no longer need the adapter, rather than putting unwanted adapters into a landfill or taking-up space in your cabinet, donate them to our workshop.

## Medical Complications from Respirator Use

OSHA requires respiratory medical clearance for persons required to wear respiratory protection. Researchers at the University of Cincinnati are collecting information on persons who:



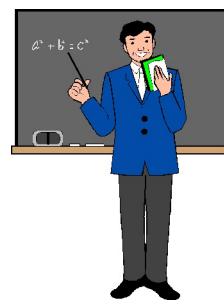
- 1) Developed a medical complication while wearing a respirator, and
- 2) Identify pre-existing medical conditions causally related to the complication that developed.

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 or during fit testing, please share this information with us. We're 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](mailto:info@DrMcKay.com)

## Cincinnati Respirator Training Opportunities

Dr. McKay and the University of Cincinnati are pleased to announce the following Respirator Training programs. They are:



### Overview of Respiratory Protection:

<https://www.drmckay.com/rtc-overview.shtml>

April 21, 2026

Oct 27, 2026

### Fit Testing Workshop (2-day):

<https://www.drmckay.com/rtc-workshop.shtml>

April 22-23, 2026

Oct 28-29, 2026

### Respirator Selection & Cartridge Change Out Schedule Workshop.

[https://www.drmckay.com/rtc-resp\\_selection.shtml](https://www.drmckay.com/rtc-resp_selection.shtml)

May 12-13, 2026

### Fit Testing Refresher & Advanced Topics

<https://www.drmckay.com/rtc-resp-refresher-advanced.shtml>

May 14, 2026

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

### Overview of Respiratory Protection:

This 1-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. This class will help the student understand the most significant physiologic effects of wearing a respirator and OSHA requirements for respirator medical clearance. An introduction to qualitative and quantitative fit testing and seal check procedures will be covered (unless all attendees are participating in the fit testing workshop, where these topics will be covered more comprehensively). This

course is essential for those individuals who oversee respirator users in their work place or new to respiratory protection.

For additional information and listing of course topics, request a brochure.

This course can be given at your location.

#### **Fit Testing Workshop (2-days):**

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, including **QualFit®** software<sup>®</sup>. Quantitative fit testing with the TSI PortaCount, AccuFIT 9000, and the OHD QuantiFit<sup>®</sup>. 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 ASTM sub-committee on respirator fit test methods, the AIHA Respiratory Protection Committee, and others.

#### **Respirator Selection & Development of Change Out Schedules**

This 2-day workshop provides guidance on respirator selection and the development of an OSHA compliant change out schedule for cartridges and filters. A combination of lecture and practice problem sessions will be used. Instructional methods will include comprehensive lectures on each topic, practice problems, and an explanation of the solution by Roy McKay, Ph.D. This course is designed to teach the student how to select a respirator based on workplace conditions (exposure level, type of contaminant, etc.). However, there is more to respirator selection than comparing exposure levels to Assigned Protection Factors (APF's). Respirator selection is an information gathering process. This process, as well as its limitation and pitfalls will be shared with the student to help him/her select respiratory protection when the SDS simply says to "use a NIOSH approved respirator when exposure levels are exceeded". Students will also learn how to select a specific filter/cartridge (when appropriate). Guidelines for development of an OSHA compliant cartridge/filter change out policy will also be taught. Nearly ten 10 methods for developing a cartridge change out schedule (in addition to the usual guidelines of odor detection, ESLI, damage, etc.) will be provided. Perhaps the most useful and practical aspects of this class is learning how to merge various change-out methods to solve practical problems when computer software models don't work. Methods to confirm change out schedules will also be presented. Factors that affect re-use of cartridges due to desorption and migration will be presented to help understand if and when cartridges can be re-used. In-class practice problems help the student recognize if the training material is understood. This workshop is an excellent way to learn selection and change-out procedures from someone who routinely solves these and other respirator problems.

#### **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.
- \* 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!  
For additional information and listing of course topics, request a brochure.

This course can be given at your location.

### **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
- Pass-fail criteria for annual (follow-up) fit testing
- Interpretation of fit test results
- Why high fit factors are not always good
- Why seal checks fail to detect leakage
- Why 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 OSHA doesn't say about fit test exercises
- What does a high fit factor really mean?
- When is quantitative fit testing required?
- Opportunity to get answers to your questions

This course is **not** a substitute for those who require an initial "hands-on" fit testing workshop. For initial training, students should take our 2-day fit testing workshop.

For additional information and listing of course topics, request a brochure.

This course can be given at your location.

### **Onsite Fit Testing Workshop for N95 Filtering Facepiece Respirators**

This comprehensive one-day workshop delivers expert-led instruction by Dr. McKay with "hands-on" experience to help you perform OSHA-accepted respirator fit testing -accurately and efficiently. Whether you're new to fit testing or need a refresher, you'll gain practical skills to improve testing outcomes and save time.

Participants choose the fit testing methods most relevant to their needs; quantitative and/or qualitative:

Quantitative: TSI PortaCount, AccuFIT 9000, AeroFit, &/or QuantiFit

Qualitative: Saccharin (sweet) &/or Bitrex (bitter); including **QualFit®** testing software , which makes qualitative fit testing easier and more reliable.

Regardless of the N95 fit test method or methods requested, you'll learn how to set up, operate, maintain, troubleshoot, and interpret results with confidence.

Class sizes are intentionally small to ensure personalized instruction and real-world practice. If respirator fit testing is part of your job, this course is essential. This training program will accelerate your learning experience and improve the quality of your fit testing program overnight. The included workbook will be your go-to resource long after training ends. OSHA/NIOSH/ANSI & ASTM tell you what to do, but not how or why. Learn from a master fit tester.

For additional information and listing of course topics, request a brochure.

This course can be given at your location.

#### **Respirator Training at Your Location:**

A variety of respirator training programs are available on-site. Courses available include:

- \* Overview of Respiratory Protection (1-day)
- \* Quantitative Respirator Fit Testing Workshop (1-day)
- \* Quantitative Respirator Fit Testing Workshop for N95 Filtering Facepiece Respirators (1-day)
- \* Qualitative Respirator Fit Testing Workshop for N95 Filtering Facepiece Respirators (1-day)
- \* Fit Testing Refresher & Advanced Topics
- \* How to Develop a Cartridge Change Out Schedule (1 day)
- \* Respirator Selection (1 or 1.5 days)

#### **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.

This program can be given onsite.

For additional information, email us at  
[info@DrMcKay.com](mailto:info@DrMcKay.com)

#### **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](mailto:info@DrMcKay.com). I may use your real-life problem to help train students in our graduate and continuing education programs in respiratory protection or use it in this newsletter. This transfer of information will benefit others, maybe even your children or grandchildren.

#### **QualFit® Respirator Videos**

For information about **QualFit®** Software® for qualitative respirator fit testing with sweet and/or bitter agents, go to [www.QualFit.net](http://www.QualFit.net)

-  **What is QualFit® Software®?**  
12 minutes  
<https://youtu.be/RwdMfrQXdTY>
-  **Basic Operation of QualFit® Software®:**  
18 minutes  
<https://youtu.be/vfwfuVOkAKw>
-  **Comprehensive Fit Test Training Video**  
54 minutes  
<https://youtu.be/FxpVsm3OhLY>
-  **Respirator Fit Testing Errors and Solutions** - 21 minutes  
<https://youtu.be/0RsQEeOcS7o>
-  **QualFit® Full Screen Option** - (5 min)  
<https://youtu.be/RJr-IIKTLas>

The full screen exercise option makes it easier for the test operator to visualize the exercise testing screens during the test procedure, even when standing 8 feet away. In addition, audio beeps and changes in font color help the operator to deliver the aerosol at the proper time and sequence as required by OSHA, ANSI, ASTM, ISO and other organizations.

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Roy McKay, Ph.D.  
University of Cincinnati  
[www.DrMcKay.com](http://www.DrMcKay.com)

Dr. McKay has approximately 40 years of national and international experience in all areas of respiratory protection including **research, teaching, clinical practice, peer reviewed publications, and consultation** as a faculty member at the University of Cincinnati. Dr. McKay is past chair of ANSI/AIHA Z88.10 (now ASTM), the committee responsible for "Respirator Fit Test Methods" and a member of ANSI/ASSE Z88.2-2015, which published the "American National Standard - Practices for Respiratory Protection". Respirator committee assignments also include the American Industrial Hygiene Association's Respiratory Protection committee. He has conducted respirator fit testing, training, and consultation services for governmental agencies, including OSHA, NIOSH, NPPTL, CDC, private industry, and respirator manufacturers. He's developed more than a dozen different continuing education courses on respiratory protection, which include fit testing, respirator selection, cartridge change out, program administration, filter penetration, protection factors, and other topics.

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