Respiratory Protection Newsletter - April 2026

Featured Courses:

Respirator Selection	**May 12, 2026**
Cartridge Change Out Schedules	**May 13, 2026**
Fit Testing Refresher & Advanced Topics	**May 14, 2026**

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Remaining Respirator Training Schedule

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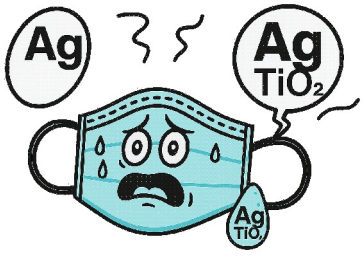
Oct 27, 2026
Fit Testing Workshop (2-day):
Oct 28-29, 2026

More Than Airflow: What Recent Studies Say About Biocides in Filter Media

Over the past several years, a growing body of peer-reviewed research has examined whether particulate filtering materials used in respiratory protection and face masks of various types can release unintended substances during use. Laboratory studies using simulated breathing, agitation, or extraction methods have reported the release of fine fibers, micro- and nanoparticles, and trace chemical constituents, including organic additives and metals, under certain test conditions. Other investigations and reviews note that these materials may originate from raw polymers, manufacturing additives, or surface treatments and emphasize that release characteristics depend on mask design, materials, and test scenarios rather than a single universal mechanism. While the health significance of such releases during normal occupational use remains an area of research, these studies have prompted increased attention to material characterization, exposure assessment, and quality control in respiratory protective devices.



Silver-containing face masks and coverings became more common during the COVID-19 pandemic, driven by the desire to add antimicrobial and antiviral properties to mask materials. In a 2026 publication in the *Journal for Occupational and Environmental Hygiene*, Wouters and colleagues examined a range of commercially available cloth masks and surgical masks to better understand what types of silver-based biocides are actually present in these products. Ten facepieces were evaluated. All were commercially available on the European market, although none

were N95 filtering facepiece respirators (FFRs). Using advanced electron microscopy and elemental analysis, the authors identified not just one form of silver, but a wide range of silver formulations, including metallic silver nanoparticles, silver salts (such as silver chloride), silver ion-exchange materials, and complex silver composites combined with other substances like amorphous silica, titanium dioxide, or zinc oxide. These materials were either embedded within fibers or applied as surface coatings, depending on the product.

A key finding was the diversity and complexity of materials present, sometimes extending beyond what was stated on product labeling. In several masks, silver was found as part of multi-component composites designed to enhance durability, control the release of silver ions, or combine different antimicrobial mechanisms. The size of silver containing nanoparticles ranged from 3 to 200 nm across all masks, with the majority below 50 nm. In addition to silver, the study frequently identified other nanoparticulate materials, most notably titanium dioxide and synthetic amorphous silica, which are commonly used in textiles for whitening, durability, or surface properties. In a majority of silver-containing masks studied, silver-bearing particles were present on the surface of fibers, and in about half of those cases, they were located in the inner layer of the mask, closest to the wearer's breathing zone.

The authors emphasize that while silver-based biocides are effective antimicrobials, comprehensive risk assessment remains challenging due to limited data on what is released under realistic use conditions. Laboratory studies cited by the authors show that silver, whether in ionic or nanoparticle form, can have biological activity depending on dose, particle size, chemical form, and exposure route. However, real-world inhalation data for particles released during normal mask use are largely absent. As a result, current evaluations rely on a "safe-by-design" approach that considers the amount, form, and location of materials in the mask and compares them with existing toxicological reference values.

While silver, titanium dioxide, and/or zinc oxide are not yet commonly used in NIOSH-approved respirator filtration media, that may change in the future. For example, during COVID, I was provided NIOSH-approved antimicrobial FFRs for fit testing. I no longer have the original box, but can confirm that the external packaging for each FFR doesn't identify the type of antimicrobial agent used. Because this particular model didn't have good fitting characteristics, I discarded the original packaging.

Overall, the Wouters article provides detailed insight into what antimicrobial face masks actually contain and why release and exposure studies are an important next step. Rather than drawing conclusions about safety or risk, the authors focus on improving transparency, characterization, and regulatory oversight. For respiratory protection programs, the findings highlight the importance of understanding not just whether a mask contains an antimicrobial agent, but what form it takes, where it is located in the mask, and how it may behave over time. I encourage readers of this Newsletter to read more about the use of biocides (see my next article) in particulate filters before drawing conclusions about benefits, uncertainties, and possible toxicity. To read more about the Wouters article, go to the source: *Journal for Occupational and Environmental Hygiene*. Vol 23 (3),155-166, 2026 https://doi.org/10.1080/15459624.2025.2573674

Properties of Silver and Titanium Dioxide as Antimicrobial Agents in Filtration Media

When antimicrobial activity is desired, silver and titanium dioxide are among the most commonly used antimicrobial technologies incorporated into particulate filter media such as face coverings and to a lesser extent respirator filter media. While both materials are intended to limit microbial survival on filter surfaces, they operate through fundamentally different mechanisms that influence real-world effectiveness, particularly in occupational and indoor settings.

Silver:

When used as ions, nanoparticles, or surface coatings, silver provides broad-spectrum antimicrobial activity through the continuous release of Ag^+ ions. These ions bind to thiol groups in proteins and enzymes, disrupt cell membranes and viral envelopes, and interfere with essential cellular processes such as microbial DNA replication and ATP metabolism. Silver's antiviral effects are light-independent, making them reliable with indoor and low-light conditions typical of most workplace environments. In addition, silver nanoparticles promote the formation of reactive oxygen species (ROS) through surface redox processes and ion-mediated interactions, contributing to oxidative stress in microorganisms and viral inactivation. In practical terms, silver functions as a passive, always-on antimicrobial agent once incorporated into filter media.

Titanium dioxide (TiO_2):

In contrast to silver, titanium dioxide achieves antimicrobial activity almost exclusively through photocatalytic ROS generation rather than ion release. When TiO_2 typically present in the anatase or

rutile crystalline forms is activated by ultraviolet (UV) light, it generates electron hole pairs at the particle surface. These reactions form highly reactive superoxide and hydroxyl radicals that can oxidize microbial cell membranes, viral envelopes, proteins, and nucleic acids, leading to loss of viability. However, TiO_2 does not directly release antimicrobial ions, and its effectiveness is therefore highly dependent on adequate UV exposure. Under typical indoor lighting, where UV intensity is low in most occupational and enclosed environments, minimal or no bactericidal effect is achieved unless TiO_2 is heavily loaded, chemically doped, or combined with other metals such as silver. In this sense, TiO_2 functions as an active, light-dependent antimicrobial system.

Implications for filtration media design:
These mechanistic differences have important implications for particulate filter media selection. Silver provides consistent antimicrobial action through ion release and ROS generation without requiring external activation, but it also raises concern related to particle or ion release during use. Titanium dioxide offers UV-driven antimicrobial properties, yet its reliance on UV light markedly constrains real-world performance in most indoor occupational settings.

Respirator Selection & Development of Cartridge Change Out Schedules

May 12-13, 2026

Submit a registration request early, otherwise the course may be cancelled if there's inadequate registration requests.

Go to www.DrMcKay.com for details.

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 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. Learn the tricks fit test operators' use to enable poorly fitting respirators to pass respirator fit testing (both QLFT & QNFT).**

May 14, 2026

Free Silicosis Webinar

If you have an interest in protecting workers exposed to silica dust in the engineered stone fabrication industry, you may want to attend a free Zoom presentation to be held on Friday, May 1, from 3:00 - 4:30 pm EDT. The title of the webinar is:

"Deadly Dust: Silicosis among Workers in Engineered Stone Fabrication - Policy, Prevention and Advocacy for Safer Workplaces"

The webinar is presented by OHS section of APHA in collaboration with AOEC and is open to anyone interested in worker health & safety, including public health practitioners, clinicians, advocates, workers and worker representatives.

To register Click Here

Or copy and past the following URL:
https://apha.zoom.us/webinar/register/WN_0RMSJYhdTme3adrAoswajg#/registration

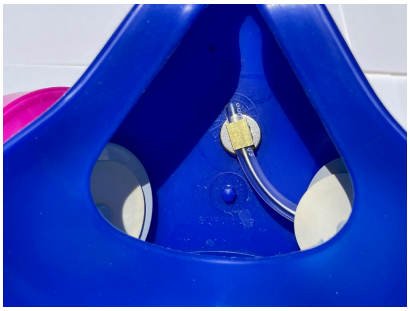
Wanted: Fit Test Adapters

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 use in our respirator fit testing workshops, send us an email at 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 you cabinet, donate them to our workshop.

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 fit testing, then 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

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

Misleading Investigators of Hazardous Material

In a Feb17, 2026 Washington State Department of Labor & Industries (L&I) news release (#26-03),a Puget Sound asbestos removal contractor is facing more than $200,000 in fines for knowingly exposing workers to extremely hazardous conditions while at the same time indicating to state inspectors that the site was perfectly safe. The Washington State Department of L&I cited Seattle Environmental Services LLC Jan. 26 for ignoring more than a dozen safety rules concerning asbestos removal, putting workers at serious risk. When L&I inspectors were called to a Bellevue home in September, the company owner told L&I inspectors the job was just a general demolition project, that samples taken all tested negative for asbestos, and therefore, **respiratory protection** was optional. According to the L&I report, the Seattle company couldn't immediately provide evidence they'd actually tested the material they were tearing out of the home for asbestos - a fundamental first step to understanding what types of abatement measures have to be in place to keep workers safe. So, inspectors posted an Order of Immediate Restraint to stop work.

Evidence at the job site showed the contractor was treating it like an asbestos removal project. Inspectors photographed multiple yellow bags specifically designed for asbestos waste filled with wallboard debris in the house. A negative air machine was operating on the main floor with exhaust tubing running through the sliding door. When the contractor produced the test results hours later, it was confirmed: almost 3,000 square feet of walls and ceilings contained asbestos. By that time, three workers had removed all of the toxic material without wearing proper respirators and without taking decontamination showers. The contractor told workers they didn't have to wear respirators, then told L&I there wasn't any asbestos in the house. The news release states that the employer later changed his story, saying he mixed up this abatement job with another.

Seattle Environmental Services was cited for 10 willful serious, six serious, and four general violations for ignoring asbestos removal rules and providing inaccurate information to L&I. Violations are considered "willful" when the company knew or should have known the requirements, but still failed to meet them. They are classified as serious when the hazard could lead to serious injury or death.

OSHA News

Explosions and Respirator Violations

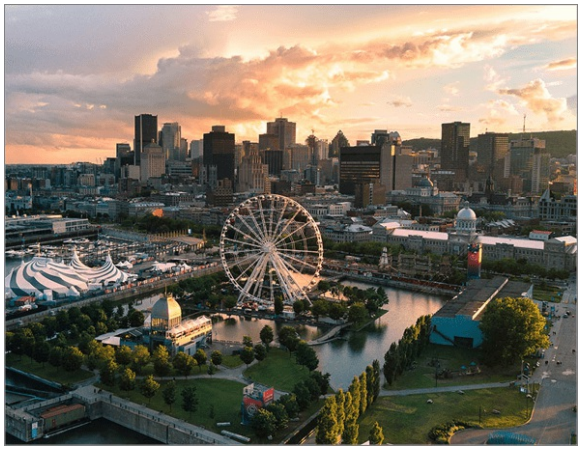
According to an March 18, 2026 *News Release*, OSHA cited California-based SV Labs Prescott Corp., after a 55-gallon fiber drum containing nitrocellulose exploded and started a secondary fire involving flammable liquids. After the explosion and subsequent fire, OSHA determined the employer failed to provide newly hired employees with chemical and respiratory protection training, respirator fit testing, and medical evaluations.

Citations included two repeat violations related to respiratory protection and hazard communication, and 10 serious violations and six other-than-serious citations related to other matters. The agency proposed penalties of $275,694. Since the employer has contested the citations, they may be adjusted.

ISRP News

International Conference: Oct 19-23, 2026

ISRP International Conference will be held October 19–23, 2026 at the Centre Mont-Royal in Montreal, Canada.

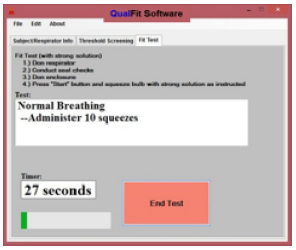


For information, venue information, sponsorship opportunities, call for papers, etc., use this URL: https://www.isrp.com/news/isrp-2026-centre-mont-royal
Or, Click Here

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.

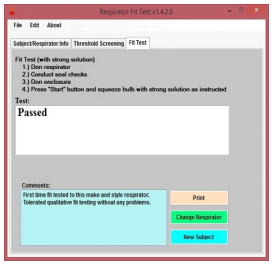


QualFit® - Making Respirator Fit Testing Simple

For Information visit: www.QualFit.net
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

Conformity Assessment Notices

RPB Safety Rescinds 17 Respirator Approvals

NIOSH has honored a request by **RPB Safety**, LLC to rescind 17 PAPR and SAR respirator approvals. As of January 12, 2026, any respirator marked with a NIOSH approval label and approval number listed within the table in CA 2026-1103 is **no longer NIOSH Approved**. The NIOSH Certified Equipment List (CEL) no longer includes the 17 approval numbers provided below.

Type	TC-
SAR	19C - 0423
SAR	19C - 0480
SAR	19C - 0490
SAR	19C - 0497
SAR	19C - 0499
SAR	19C - 0500
SAR	19C - 0502
SAR	19C - 0585
PAPR PX4	21C - 0976
PAPR PX4	21C - 0977
PAPR PX4	21C - 0983
PAPR PX4	21C - 0984
PAPR PX4	21C - 1037
PAPR PX4	21C - 1042
PAPR PX4	21C - 1043
PAPR PX4	21C - 1087
PAPR PX4	21C - 1088

Due to the voluntary rescission of NIOSH approval, respirators bearing these NIOSH approval numbers provided in Conformity Assessment (CA) Notice NIOSH CA 2026-1103 may **no longer** be used, manufactured, assembled, sold, or distributed.

For more information, see the NIOSH Respiratory Protective Device Information Notice CA 2026-1103 or Click Here

Reusable Respirators, LLC rescinds 1 approval

NIOSH has honored a request by **Reusable Respirators, LLC** to rescind one approval.

As of March 5, 2026, any respirator marked with a NIOSH approval label and approval number TC-84A-9388, as listed within the table in CA 2026-1106, is no longer NIOSH Approved. The NIOSH Certified Equipment List (CEL) no longer includes this approval number (TC-84A-9388).

Approval Number TC-	Product Line or Model
84A-9388	ElastoMaskPro series N95 half-mask elastomeric respirator (Facepieces FP0103 and FP-0104, and Filter FT-0102)

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

For additional information and to read the Conformity Assessment (CA) Notice Click Here

Industrias Saver rescinds one respirator approval

NIOSH has honored a request by **Industrias Saver** to rescind one approval. As of February 23, 2026, any respirator marked with a NIOSH approval label and approval number TC-84A-5350, as listed within the table in CA 2026-1105, is **no longer NIOSH Approved**. The NIOSH Certified Equipment List (CEL) no longer includes this approval number. The CEL can be used to locate other NIOSH Approved respirators.

Approval Number TC-	Product Line or Model
84A-5350	Life 1095 and 1095-2

For additional information and to read the Conformity Assessment (CA) Notice Click Here

D. Wheatley Enterprises Rescinds # Respirator Approval

NIOSH has honored a request by **D. Wheatley Enterprises, Inc.** to rescind one respirator approval.

As of February 17, 2026, any respirator marked with a NIOSH approval label and approval number TC-13F-0885, as listed within the table in CA 2026-1104, is **no longer NIOSH Approved**. The NIOSH Certified Equipment List (CEL) no longer includes this approval number. The CEL can be used to locate other NIOSH Approved respirators.

Approval Number TC-	Product Line or Model
13F-0885	DWE 300S Escape Breathing Apparatus

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

For additional information and to read the Conformity Assessment (CA) Notice Click Here

Jahan Company t/a IREMA Ireland Rescinds 1 Respirator Approval

NIOSH has honored a request by **Jahan Company t/a IREMA Ireland** to rescind 1 respirator approval.

As of March 16, 2026, any respirator marked with a NIOSH approval label and approval number TC-84A-8129, is **no longer NIOSH Approved**. The NIOSH Certified Equipment List (CEL) no longer includes this approval number.

Approval Number TC-	Product Line or Model
84A-8129	Facemate N95

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

For additional information and to read the Conformity Assessment (CA) Notice 2026-1107 Click Here

PIP Global Rescinds 4 Respirator Approval

NIOSH has honored a request by PIP Global Holdings, Inc. to rescind four CBRN Panther respirator approvals..

As of April 8, 2026, any respirator marked with a NIOSH approval label and approval number TC-##X-####, is **no longer NIOSH Approved**. The NIOSH Certified Equipment List (CEL) no longer includes this approval number.

Approval Number TC-	Product Line or Model
13F-284 CBRN	Panther CBRN, 30 min, 4500 PSIG
13F-285 CBRN	Panther CBRN, 30 min, 2216 PSIG
13F-286 CBRN	Panther CBRN, 45 min, 4500 PSIG
13F-287 CBRN	Panther CBRN, 60 min, 4500 PSIG

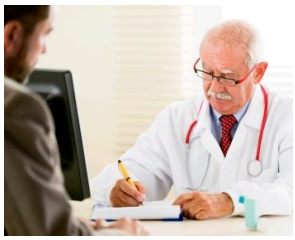
Due to the voluntary rescission of NIOSH approval, respirators bearing the above NIOSH approval number may **no longer** be used, manufactured, assembled, sold, or distributed.

For additional information and to read the Conformity Assessment (CA) Notice 2026-1108, 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

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 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

Training Opportunities

Cincinnati Respirator Training Courses:

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
Oct 27, 2026

Fit Testing Workshop (2-day):
https://www.drmckay.com/rtc-workshop.shtml
Oct 28-29, 2026

Respirator Selection & Cartridge Change Out Schedule Workshop.
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.

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 or use it in this newsletter. This transfer of information will benefit others, maybe even your children or grandchildren.

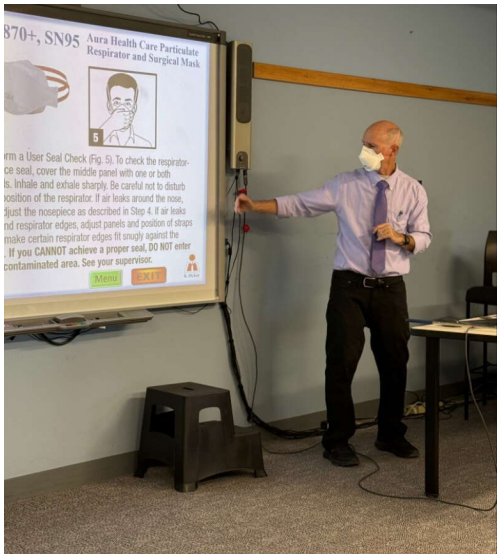
Overview of Respiratory Protection:

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©. 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.



Dr. McKay at Respirator Fit Testing Workshop. Bermuda, October 2025

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)

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Roy McKay, Ph.D.
University of Cincinnati
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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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