

Respiratory Protection Newsletter - August 2026

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Respirator Fit Testing Workshop

Oct 27, 2026
Oct 28-29, 2026

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Respirator Leakage: Two Examples

During my four decade career of respirator fit testing, I've uncovered hundreds, perhaps thousands of leaking respirators not detected by the wearer. What's routine to an experienced fit tester, isn't necessarily obvious to the wearer or program administrator. Below are two recent examples that others have described to share with my readers.

Respirator Leakage in a Firefighter

A July 1, 2026 article published in the online version of *Fire Engineering* describes a story of a Texas firefighter who experienced headaches, nausea, and a lingering cough after multiple fire responses. This story, reminds me of this issue. Like many firefighters, this particular firefighter assumed his symptoms were simply part of the job. However, during his annual respirator fit test, he repeatedly failed despite proper donning and seal-check procedures. A closer inspection eventually revealed a barely visible hairline crack in the facepiece that was compromising the respirator's seal. Once the damaged facepiece was replaced, he passed the fit test and his post-fire symptoms disappeared. The incident highlights a critical lesson: visual inspections and seal checks can miss small leak sites that allow hazardous contaminants to enter the facepiece.

The story demonstrates why fit testing is an essential verification tool, not just a regulatory requirement. Firefighters are routinely exposed to toxic combustion byproducts such as benzene, hydrogen cyanide, formaldehyde, and fine particulates. During overhaul operations or when using negative-pressure air-purifying respirators, even a small leak can allow contaminated air to enter a respirator. Subtle problems such as hairline fractures, stretched out straps, distorted sealing surfaces, significant weight change, and other factors may not be detectable through routine inspection or performance of seal checks. Fit testing, in particular, quantitative fit testing can provide an objective measure of leakage that users cannot see or feel. The article in *Fire Engineering* reminds us that fit testing should be

repeated not just annually, but whenever something doesn't appear to be right. In this firefighter's case, fit testing served as the critical safeguard that detected a problem inspection alone could not, preventing further exposure and restoring confidence that his respiratory protection was actually working. In retrospect, respirator training should also raise concern to conduct more thorough inspection and repeat fit testing.

To read the original article use the this URL: <https://www.fireengineering.com/firefighting-equipment/fire-ppe/what-a-failed-fit-test-found-before-it-was-too-late/>
Or [Click Here](#).

Respirator Leakage in Law Enforcement

Here's a summary of an email I received on April 21, 2026. A law enforcement agency in Canada, provides respiratory protection to members of its Tactical Services Team (TST), who may be exposed to CS gas during high-risk operations. Team members use full-face respirators equipped with CBRN-rated filters designed to protect against riot control agents and other hazardous contaminants. One experienced officer reported an unusual concern: while wearing his respirator during CS gas deployments, he could smell the agent and experienced eye irritation and tearing. Because all team members undergo regular fit testing and this officer had consistently achieved excellent fit-test results in the past, the report prompted further investigation.

An initial inspection found the respirator to be in excellent condition, with no visible damage or wear. However, when the officer underwent a new fit test, he could no longer achieve an acceptable fit factor. Troubleshooting began with replacing the filter, since a damaged filter can occasionally compromise protection. When the officer failed again, attention turned to the facepiece itself. A more detailed examination eventually revealed the cause: a tiny black nylon thread wrapped around the exhalation valve, preventing it from closing completely and creating a leak path under negative pressure. The thread blended almost perfectly with the black valve assembly and was difficult to distinguish from normal manufacturing features. Investigators believe it likely originated from the heavy-duty nylon carrying case issued with the mask and became lodged around the valve during routine cleaning or storage.

Once the thread was removed, the officer immediately passed the fit test with excellent results. I've experienced similar problems with particulate material lodged underneath exhalation valves. This case reinforces an important lesson for respiratory protection programs: even when a respirator appears

undamaged and seal checks reveal no obvious problems, hidden defects can still compromise protection. In this instance, neither the user nor the safety professional could identify the issue during a routine inspection. Quantitative fit testing exposed the leak and confirmed that the respirator was not performing as intended. Similar to the firefighter case involving an undetected hairline crack in a facepiece, this incident demonstrates why fit testing serves as a critical verification step that can identify leakage mechanisms far too subtle to be detected by visual inspection alone. It also highlights the value of investigating reports of symptoms or contaminant detection by users, even when equipment appears to be functioning normally. Sometimes the difference between effective protection and hazardous exposure is something as small as a single loose thread.

If you're a fit tester or respirator program administrator, take my annual 1-day **Fit Testing Refresher & Advanced Topics** and explore other reasons why poorly fitting respirators pass fit testing and why good fitting respirators fail.



Fatal H₂S Release: What Went Wrong

On January 27, 2026, a shutdown at Woodland Pulp LLC in Baileyville, Maine, led to a massive release of hydrogen sulfide (H₂S) inside the Kraft Mill. Two young employees - a 20-year-old chemical engineering co-op student and a 26-year-old chemical engineer, were found collapsed hours later. Both died. Ten other employees were exposed; one briefly lost consciousness. The U.S. Chemical Safety and Hazard Investigation Board (CSB) estimates that the two fatal exposures likely exceeded 500 ppm. The NIOSH IDLH concentration for H₂S is 100 ppm.

How was the H₂S generated?

The mill's 1,000-foot-long "acid sewer" collected alkaline, sulfur-containing process fluids. During the shutdown, fluids containing compounds such as sodium sulfide drained into this piping. A downstream pH probe continued to detect high pH and automatically called for more sulfuric

acid. Because liquid accumulated behind an upward transition in the pipe and moved slowly toward the remotely located probe, the feedback signal did not reflect conditions at the upstream acid-addition point. Sulfuric acid reacted with the sulfur-containing material and generated H₂S.

At about 11:40 a.m., the Bleach Plant scrubber fan was turned off as part of the shutdown. The fan normally created a vacuum and pulled contaminated gas to the scrubber. With that control unavailable, H₂S accumulated in the acid sewer, gas-collection piping, and connected vessels. It then entered the building through open drain valves and several equipment openings, including a damaged fiberglass pipe, two old sampling holes that had never been plugged, and an open condensate drain. There was no general building ventilation system to remove the gas.

Was respiratory protection used?

The CSB specifically reports that the victims were not provided with personal H₂S monitors, and that the building had no fixed H₂S detectors or alarms. The CSB's July investigation update does not identify a respirator make, model, cartridge, escape device, or supplied-air unit used by the victims.

OSHA alleged that workers were exposed to deadly H₂S concentrations without proper alarms or breathing devices. It also cited failures to complete medical evaluations and fit tests for respirator users. Those allegations document serious respiratory-protection program deficiencies, but the publicly available announcement does not say which employees had respirators, what types were available, or whether anyone attempted to use one during this release. The citations were proposed and the case remains open.

Respiratory-protection lesson

At concentrations above the IDLH level and whenever the concentration is unknown, an air-purifying respirator is **not** appropriate. Entry or emergency response requires a NIOSH-approved full-facepiece pressure-demand SCBA, or a pressure-demand supplied-air respirator with an auxiliary escape SCBA, together with a complete respiratory protection and emergency response program. A properly selected escape respirator can support immediate evacuation only; it is not an entry or rescue respirator.

This tragedy also illustrates why respirators must remain the last line of defense. Fit testing matters, but a good facepiece seal cannot compensate for a missing alarm, an unsuitable respirator, or hours without rescue.

Sources and status

U.S. Chemical Safety and Hazard Investigation Board, *Fatal Hydrogen Sulfide Release at Woodland Pulp Mill - Investigation Update*, July 2026; U.S. Department of Labor/OSHA, news release 26-1235-BOS, July 30, 2026; OSHA Hydrogen Sulfide Safety and Health Topics. The CSB investigation and OSHA enforcement case were ongoing as of August 2, 2026.

OSHA Quick Takes for Hydrogen Sulfide

The June 2026 edition of OSHA's Quick Takes highlighted Hydrogen Sulfide. Here's what the wrote: Hydrogen sulfide (also known as H₂S and sewer gas) is a colorless gas known for its powerful "rotten egg" odor. It is extremely flammable and highly toxic. Used or produced in a number of industries, hydrogen sulfide also occurs naturally in sewers, manure pits, well water, and oil and gas wells. Because it is heavier than air, it can collect in low-lying or enclosed spaces, such as manholes, sewers, and underground telephone vaults. Even low levels can cause health hazards and make working in confined spaces potentially very dangerous. Symptoms can range from headaches or eye irritation, to unconsciousness and death. It can also cause an explosion if exposed to a spark, flame, or other ignition source.

To protect workers:

Evaluate exposure to know whether H₂S gas is present and at what levels.

Eliminate the source of hydrogen sulfide whenever possible.

If the source cannot be eliminated, control exposures through engineering controls (first line of defense) or administrative controls and safe work practices to reduce exposures to safe levels.

Use personal protective equipment if engineering controls and work practices alone cannot reduce hydrogen sulfide to safe levels.

For more information on how hydrogen sulfide can affect your health, and how to prevent harmful exposures, visit these two OSHA websites.

[Click Here for Hydrogen Sulfide Info](#)

[How to Prevent H₂S Exposure](#)

Respirator Selection & Development of Cartridge Change Out Schedules

Tentatively May 11-12, 2027

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

Go to www.DrMcKay.com for details.



Respiratory Protection in Auto Repair

A July 6, 2026 article by Zach Pucillo underscores a critical point for collision repair operations. That is airborne hazards are among the most serious and frequently cited risks in auto body shops. While visible injuries often get more attention, respiratory exposures from painting, welding, sanding, and solvent use can create long-term health consequences and significant OSHA compliance obligations.

Pucillo identifies three major respiratory hazards in collision repair:

1. Diisocyanates in paints and clearcoats

Diisocyanates, common curing agents in two-component urethane paints and clearcoats, are a leading cause of occupational asthma. Once a worker becomes sensitized, even very low exposures can trigger severe respiratory reactions. Exposure may also occur from some body fillers and seam sealers, and contamination can spread to clothing and skin if proper protective clothing is not used. Depending on exposure levels, supplied-air respirators may be more appropriate than half-face air-purifying respirators, especially during spray operations.

2. Hexavalent chromium in welding fumes

Welding, cutting, or grinding chromium-containing metals can generate airborne hexavalent chromium, a known carcinogen associated with increased lung cancer risk. OSHA's hexavalent chromium standard requires exposure assessment, engineering controls such as local exhaust ventilation, regulated areas when needed, respiratory protection when controls are insufficient, medical surveillance, and recordkeeping.

3. Sanding dust and VOCs

Daily exposures from sanding dust, primers, fillers, solvents, and cleaners can build over time and contribute to chronic respiratory disease and reduced lung function. Dry sanding can create airborne dust levels that exceed OSHA limits, making ventilated mechanical sanders with built-in local exhaust a key control. Where exposures remain elevated, NIOSH-approved respiratory protection may be required.

The common thread across these hazards is OSHA's Respiratory Protection Standard, 29 CFR 1910.134. Simply handing employees a respirator is not enough. A compliant program must include written site-specific

procedures, exposure assessment, medical evaluations, at least annual fit testing & employee training, proper maintenance & storage, and thorough recordkeeping.

For collision centers, respiratory protection is not just a compliance issue, it is a core element of protecting technicians from preventable, long-term occupational illness. To read the entire article, use the following URL:

<https://www.autobodynews.com/news/the-top-3-respiratory-hazards-collision-shops-shouldnt-ignore>

Or, [Click Here](#)

Source: Zach Pucillo The Top 3 Respiratory Hazards Collision Shops Shouldn't Ignore. *AUTOBODYNEWS*. Jul 6, 2026.

U.S. Forest Service Actions to Improve Respiratory Protection for wildland firefighters

In a June 24, 2026 press release, the U.S. Department of Agriculture's Forest Service along with the Department of the Interior announced new steps to reduce hazardous exposure for federal wildland firefighters during the 2026 fire year. These actions include expanded access to N95 filtering facepiece respirators (FFRs) on the fireline, required training and standardized decontamination protocols. These actions are intended to minimize the health impacts for wildland firefighters now, while they pursue.

The announcement states that no respirator currently meets OSHA standards for wildland firefighting, the Forest Service is moving forward with what they believe to be practical protections that can reduce risk now. For the first time, federal wildland firefighters are authorized to use N95 FFRs on the fireline after receiving formal training on their safe use in the wildland fire environment. Expanded N95 use provides a meaningful, immediate tool to reduce the inhalation of particulates that can result in future health impacts. At the same time, both departments are pursuing a full respiratory protection program that is compliant with OSHA requirements. In addition, decontamination will be integrated into daily operations. Showers, gear cleaning and clean-air recovery reduce cumulative exposure and potential long-term health implications.

The press release emphasizes that firefighters who are healthy, informed, and supported are better positioned to do their jobs effectively and safely.

To read the press release and access additional information about the U.S. Forest Service [Click Here](#)

To read Secretary Rollins memo [Click Here](#)



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.

CSE PRO PP Facemask Adapter Dislodging

In a May 11, 2026 NIOSH announcement, they share a CSE Biomarine User Notice concerning the BioPak 240R PRO PP Facemask Adapter Interface. According to CSE Technical Bulletin #115, the CSE Biomarine Product Team has received two confirmed reports of the PRO PP Facemask Adapter dislodging from the facepiece during training exercises. CSE urges users to take the steps listed in their user notice to ensure proper protection in the event of an emergency or training scenario.



Credit: CSE Technial Bulletin #115

To read Technical Bulletin #TB 115 [Click Here](#)

North Filter Cartridge Notice

In an April 20, 2026 customer letter Pip Global Holdings, Inc issued a user notice Concerning Observed Non-Conforming Product Variations in Certain Lots of 7583P100L and 7582P100L North™ Filter Cartridges.

According to the notice:

“... non-harmful, but non-conforming, minor amount of fine carbon particulate ‘dust’ can potentially escape from the cartridge during use. Our testing also indicated that the filter cartridges continue to perform their intended function of filtering external particulates and Acid Gas vapors in all circumstances.”.



Part No. 7583P100L



Part No. 7582P100L

While their internal investigation is being conducted, they are offering a more comprehensive product the Defender™ multi-gas cartridge, 75SCP100L, as a substitute. If you have an unused 7583P100L or 7582P100L North™ filter cartridge from lot 01E5to 01C6 or produced between dates 05/01/2025 and 03/01/2026 and do not wish to use or resell this filter cartridge, please contact your distributor or PIP seller to inquire about a replacement Defender™ multi-gas cartridge. Lot information can be found on cartridge bottom. Production date is printed on the carton box.

To read a copy of the notice to customers [Click Here](#)

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:

<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.

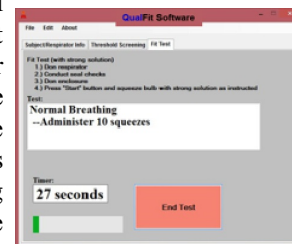
This program can be given onsite.

For additional information, email us at info@DrMcKay.com

QualFit® Software®

An easier, more accurate, and defensible 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

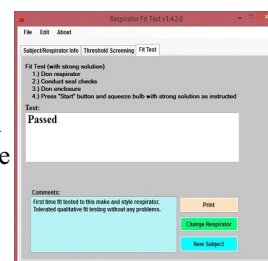
For Information visit: www.QualFit.net

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.

Screen capture showing test passed and operator comments. Includes option to print now or later, change to a different respirator, or select a new subject.



OSHA News

OSHA Proposes \$3,500,000 Fines

In a June 29, 2026 OSHA News Release, OSHA announced a proposed fine of \$3.5 million against three companies after federal inspectors determined they failed to protect workers during post-emergency response cleanup after a chemical spill at the BWC Terminals industrial facility in Channelview, Texas.

Inspections were initiated after a December 2025 sulfuric acid spill led to multiple employee injuries. OSHA found that despite safety warnings, BWC Terminals mixed fresh and spent sulfuric acid, triggering a tank over pressurization that ruptured a supply line resulting in the release of 1 million gallons of sulfuric acid. Following the spill, BWC Terminals contracted with Coastal Environmental Solutions Inc. to handle hazardous waste cleanup and Coastal Environmental Solutions hired subcontractor One Way Environmental Services LLC to provide laborers for the cleanup and remediation.



All three companies were cited inadequate respirator training, failure to provide respirator fit testing, and/or deficiencies related to the proper use of respirators.

In a June 26, 2026 OSHA National News Release, here's what Assistant Secretary for Occupational Health and Safety David Keeling said regarding this matter:

"Despite having full knowledge of the severe hazards involved in the spill and cleanup response, these three employers chose to bypass OSHA requirements and put their workers at serious risk. Their joint failure to protect workers was not an oversight, it was a choice that resulted in preventable employee injuries and environmental impacts. We will not hesitate to hold employers accountable when they ignore federal laws that are in place to protect workers' safety and health."

To read the entire June 29, 2026 OSHA News Release use this URL:

<https://www.dol.gov/newsroom/releases/osha/osha20260629>

Or, [Click Here](#)

NIOSH News

Publications Available

3 New NIOSH SCBA Fact Sheets

July 2026 the NIOSH Fire Fighter Fatality Investigation and Prevention Program (FFFIPP) released three (3) new fact sheets for firefighters to learn about best practices for SCBA use. Content translates lessons learned into practice, covering prevention actions and considerations from decades of FFFIPP line-of-duty death and serious injury investigations. Each fact sheet is two pages in length and highlights three themes: understanding health risks and ensuring readiness, securing and removing an SCBA from service, and notifying NIOSH of SCBA failures or issues. Fire departments can use information from these fact sheets to develop standard operating procedures/guidelines to support firefighter safety and health. A summary for each fact sheet is described below, along with links to obtain a copy of each.

1. Safe Use of SCBA for Firefighters

This NIOSH fact sheet (DDHS NIOSH Pub # 2026-104) explains safe use of Self-Contained Breathing Apparatus (SCBA) for firefighters. The 2-page fact sheet provides a general overview of the physical demands on the body when wearing an SCBA and components of medical clearance, fit testing, and training.

To obtain a copy, use the following URL:

<https://www.cdc.gov/niosh/media/pdfs/2026/07/2026-104.pdf>

Or, [Click Here](#)

2. Securing an SCBA After an Adverse Event

This fact sheet (DDHS NIOSH Pub # 2026-105) explains how to secure an SCBA after an adverse event, serious injury, or a line-of-duty death. Securing an SCBA and removing it from service enables fire departments and other entities to inspect functionality, secure critical data, and establish a chain of custody as part of an investigation.

The National Fire Protection Association (NFPA) 1850 requires fire departments to secure an SCBA following adverse conditions. This includes removing the SCBA with cylinder and facepiece from service, restricting access, and documenting chain of custody. Securing an SCBA helps to identify possible causes contributing to a serious injury or line-of-duty death (LODD). Preserving equipment logs and documentation as outlined in NFPA 1400 assists with understanding use and maintenance before the adverse condition. The fact

sheet also includes a brief summary of the steps to be taken to secure and transfer an SCBA.

To obtain a copy, use the following URL:

<https://www.cdc.gov/niosh/media/pdfs/2026/07/2026-105.pdf>

Or, [Click Here](#)

3. Notifying NIOSH of SCBA Failure

The third fact sheet (DDHS NIOSH Pub # 2026-106) describes the process and procedures for notifying NIOSH of SCBA failure or reduced performance. NIOSH is the federal agency responsible for evaluating and approving respirators used in U.S. workplace settings. Prompt reporting of SCBA failures or performance issues helps NIOSH identify problems early and prevent similar risks from affecting other firefighters or future equipment. These investigations, known as Nonconforming Respirator Investigations (NRIs), help ensure that active SCBAs remain reliable, approved, and safe for use in emergency operations. Firefighters can contribute to this process of safer SCBAs by reporting failures and issues early. NFPA 1850 establishes the fire service's responsibilities for the selection, care, use, inspection, maintenance, and retirement of SCBA.

To obtain a copy, use the following URL:

<https://www.cdc.gov/niosh/media/pdfs/2026/07/2026-106.pdf>

Or, [Click Here](#)

Manufacturer Notices

Repair Service Ending for TSI PortaCount™ Models 8030/8038

In a May 20, 2026 email, TSI sent customers an announcement that repair service support for TSI PortaCount™ Respirator Fit Tester models 8030 and 8038 will officially end on **December 31, 2027**. However, they will continue to offer clean and calibration support for those models until December 31, 2030. A trade-in program is available



If you have any questions or need assistance, TSI suggests contacting your local TSI Sales Representative.

RPB Safety LLC to become GVS Safety

GVS has issued a User Notice concerning their acquisition of RPB Safety LLC. This transition will occur during 2026, when GVS plans to rename "GVS Filter Technology UK Ltd" to "GVS Safety". Respirator products will be updated and listed in the NIOSH Certified Equipment List.

It's the intention of GVS to transfer the active RPB Safety LLC approvals issued by NIOSH to GVS Safety. Throughout and after this transition, the RPB Safety LLC approvals will remain valid, and the products approved to be used. The approval label, abbreviated label packaging, user instructions and other documentation will be updated with the "GVS Safety" name.

To read a copy of the Feb 12, 2026 letter [Click Here](#)

Walter Surface Technologies -Allegro Notification

In a letter dated April 10, 2026 Walter Surface Technologies issued a User Notice concerning the acquisition of ArcOne and Allegro Industries.

Walter Surface Technologies acquired ArcOne in February 2020 and Allegro Industries in January 2022. The intention of Walter during 2026 is to transfer the active ArcOne approvals issued by NIOSH to Allegro. During and post transition, the ArcOne approvals will remain valid, and the products approved to be used. This will be reflected in the NIOSH Certified Equipment List (CEL). The approval labels, abbreviated approval labels, packaging, user instructions and other documentation will reflect the "Walter" brand. The ARC approval numbers will remain the same and all the approvals will be available under Walter Surface Technologies in the NIOSH Certified Equipment List.

To read the April 10 letter [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

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](#)

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.drmmckay.com/rtc-overview.shtml>

Oct 27, 2026

Fit Testing Workshop (2-day):

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

Oct 28-29, 2026

Respirator Selection & Cartridge Change Out Schedule Workshop.

https://www.drmmckay.com/rtc-resp_selection.shtml

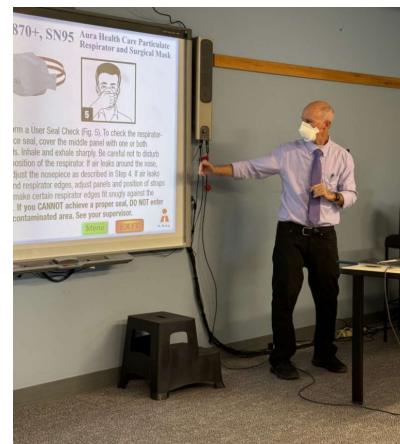
May 11-12, 2027

Fit Testing Refresher & Advanced Topics

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

May 13, 2027

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



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

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.

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.

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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