

PORTACOUNT® Plus Respirator Fit Tester and N95-Companion™

from TSI



www.tsi.com



There are
two ways
to do
respirator
fit
testing...

...the PORTACOUNT
or
the hard way!

Dust



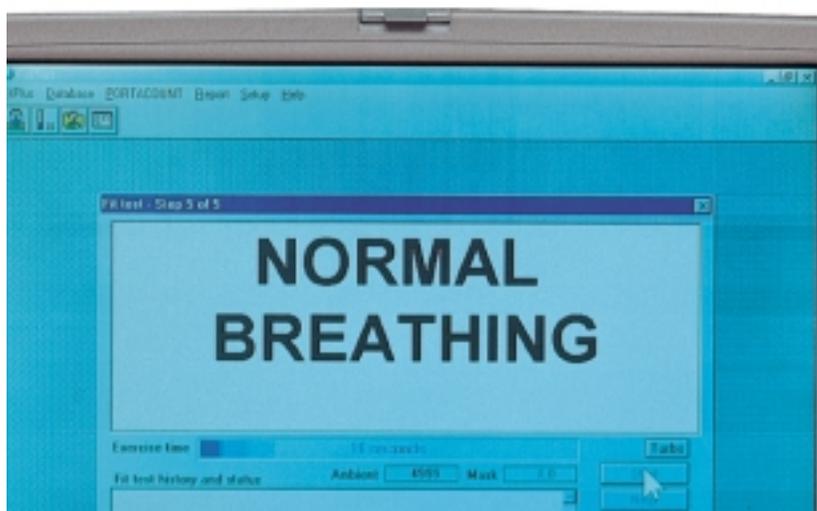
Silica



TB



Paint



Fit Testing Made Easy

Respirator fit testing doesn't have to be difficult. You can make fit testing easier and increase your confidence in the test results by using the PORTACOUNT® Plus Respirator Fit Tester. Any other way is the hard way!

The PORTACOUNT Plus is the easy, hassle-free way to reliably fit test a variety of respirator types. The PORTACOUNT not only eliminates the guesswork found with other testing methods, it also reduces the amount of work associated with fit testing in general. Plus, with the convenient FitPlus™ for Windows® software that comes with each instrument, you can streamline the fit testing process even further by letting your computer do the work.

The PORTACOUNT makes a direct measurement of respirator fit factors. There are no error-inducing assumptions made to calculate "equivalent" fit factors. The measurement is made while the person simultaneously performs dynamic moving and/or breathing exercises designed to stress the respirator seal in ways that simulate anticipated work place motions.

Eliminate the guesswork

The PORTACOUNT eliminates the human variables associated with qualitative methods. Variations in sensitivity to the challenge aerosol or lack of cooperation can't influence the test results because the employee makes no decisions. And, unlike other methods, the PORTACOUNT results are immediate and unambiguous. The PORTACOUNT Plus performs the fit test and delivers a "pass" or "fail". It's that easy.

The PORTACOUNT won't let you measure respirator fit incorrectly because the entire process is automated. Once the fit test is started, the PORTACOUNT goes through a programmed sequence. There is no opportunity to take shortcuts or skip critical steps. Compare that to qualitative methods like saccharin, Bitrex®, banana oil, and irritant smoke that involve tedious manual procedures. Procedures that can easily be done incorrectly, thereby invalidating the fit test.

OSHA accepted

The PORTACOUNT has been accepted by OSHA for compliance with all fit testing regulations since 1988. Recent standards, including the new OSHA respiratory protection standard 29CFR1910.134, specifically recognize the PORTACOUNT and provide specific protocols.



Fit test any tight-fitting respirator

The PORTACOUNT can be used to fit test almost any tight-fitting respirator including elastomeric half and full-face masks, PAPRs, SCBA, and even disposable (filtering-face-piece) respirators. Positive-pressure masks must be temporarily converted to negative-pressure mode per OSHA and

ANSI requirements prior to fit testing. Class-95 disposable masks require use of the N95-Companion™ accessory.

Fit test in the employee's own mask

You can fit test with conventional probed test masks or use a mask sampling adapter to test people in their own respirator. Mask sampling adapters allow you to eliminate hygienic concerns associated with sharing a test mask and also facilitate simultaneous integrity testing of the respirator itself. Mask sampling adapters are available for most popular respirators. They can be obtained through TSI or directly from your respirator manufacturer.

Easy to use

The PORTACOUNT Plus eliminates the awkward fit test hoods and chemical exposure concerns associated with other fit test methods. It uses the microscopic particles that exist in ambient air to measure the fit factor directly. The PORTACOUNT measures the concentration of these particles around the person's head and then measures the concentration of those particles that leak into the respirator. The ratio of these two numbers is the fit factor. A fit factor of 100, for example, means that the air inside the respirator is 100 times cleaner than the air outside. The PORTACOUNT measures a fit factor for each of the fit test exercises and then computes an overall fit factor for the entire test, along with a pass or fail indication.

Unlimited fit testing for full-face masks

You can use full-face masks to their full potential if you fit test them with the PORTACOUNT. This is not the case with qualitative methods because they are inherently limited to a half-mask fit factor pass level of only 100, thereby limiting the use of full-face masks to environments where a half mask is allowed. OSHA and ANSI both require a fit factor pass level of 500 or more for full-face masks. A pass level of greater than 100 cannot be achieved with any existing qualitative fit test method. The PORTACOUNT accurately measures fit factors up to 10,000.

FitPlus™ for Windows Software

This is the ultimate respirator fit testing software...and it's included for free with every PORTACOUNT Plus! It has all the features you need to make fit testing easy, automated and organized.

FitPlus software further automates fit testing by leading you through the fit test procedure step by step. Select the person to fit test from a list, select the respirator from a list, enter the mask size, and go! The computer takes over from that point on by controlling the PORTACOUNT and prompting the respirator wearer to perform the proper fit test exercises one by one. Since your undivided attention is no longer required, you can spend time getting the next person ready to go, or operate two PORTACOUNTS at once.

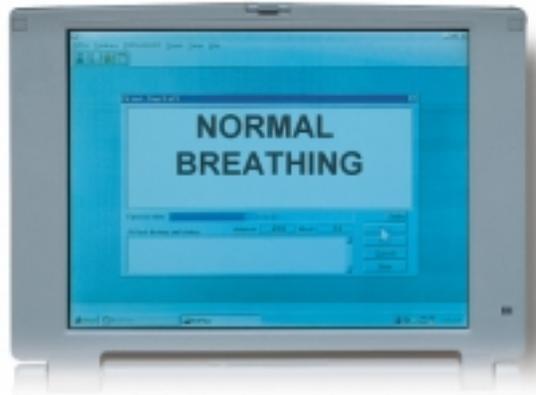
Exercises

TSI provides pre-installed fit test protocols that comply with all U.S. regulations. If you need to do something different, simply create your own protocol and permanently add it to the list. FitPlus for Windows remembers which protocol you used last and automatically makes that the default protocol, thereby eliminating errors.

When the fit test is completed the resulting fit factor and pass/fail indication is displayed on the screen. The data is automatically saved to a database for a permanent record. Hardcopy reports can be generated immediately or at any time in the future.

Documentation

Need to know who's due for a fit test? You can simply view or print a report listing the names of those



individuals needing a fit test today, this week or this month.

In fact, you can even create your own custom reports to supplement the pre-defined reports provided. FitPlus software uses the industry-standard dBASE data format so all information is readily available for analysis with third-party software like Excel, Lotus 123, Quattro, Access, Paradox and many others.

FitPlus for Windows software provides the vital documentation you need for your respirator program. You can provide management with hard-copy evidence that each employee who passed the fit test was trained to don the respirator properly, and was assigned a mask size that fits correctly. You can't get this from a qualitative fit test because the results are highly operator dependent and subject to employee deception.

Respirator training

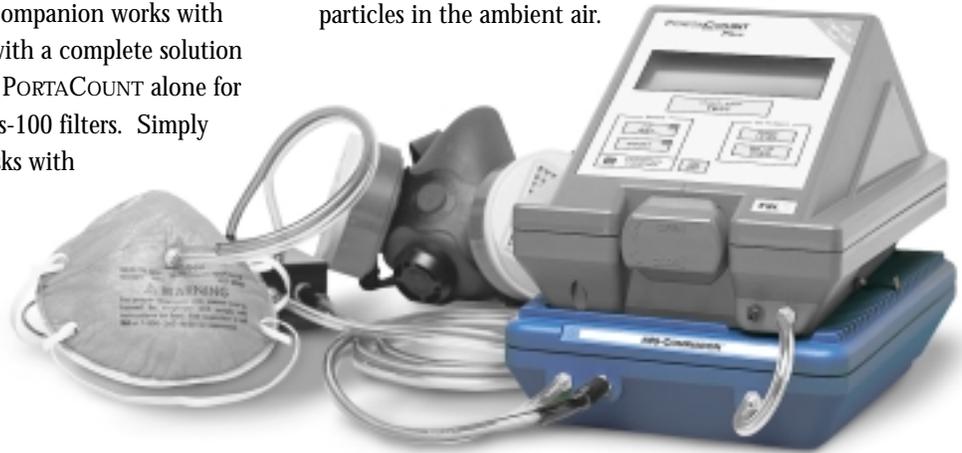
FitPlus for Windows software can assist in employee respirator training, as well. Use the Real-time Fit Factor Display to show employees the real-time effects of mask positioning and strap tightness as they experiment and learn proper donning procedures. This is especially useful for learning how to properly bend the flexible nosepiece commonly found on filtering-facepiece (disposable) respirators.



Introducing a new way to fit using the PORTACOUNT® Plus

New technology from TSI now makes it possible for you to use the PORTACOUNT Plus to quantitatively fit test N95 disposable respirators. You no longer have to mess with the tedious and error-prone qualitative methods like saccharin, Bitrex, and irritant smoke. The N95-Companion works with the PORTACOUNT Plus to provide you with a complete solution to all of your fit testing needs. Use the PORTACOUNT alone for masks equipped with Class-99 and Class-100 filters. Simply add the N95-Companion to fit test masks with Class-95 filters, including the popular N95 filtering-facepiece disposables. When necessary, you can disconnect the N95-Companion in a matter of moments and use the PORTACOUNT Plus alone. The N95-Companion

is simply an accessory for the PORTACOUNT Plus. The fit factor measurement is made by the PORTACOUNT. When the N95-Companion is attached, the PORTACOUNT uses only a small portion of the particles in the ambient air.



PORTACOUNT/N95-Companion Respirator Compatibility



PORTACOUNT Plus



N95-Companion

	FACEPIECE STYLE	USE PORTACOUNT ALONE	USE N95-COMPANION WITH PORTACOUNT
	Half-mask*	✓	
	Full-Face*	✓	
	Class-100 Disposable Class-99 Disposable Class-95 Disposable	✓ ✓ ✓	✓

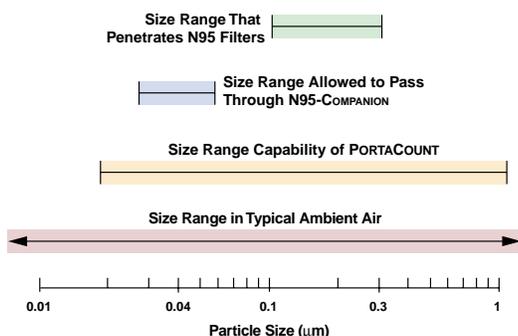
* Equip mask with Class-100 or Class-99 filter during fit test regardless of cartridge used in workplace.

test N95 disposable respirators and the new N95-Companion™

How it works

The N95-Companion contains an electrostatic particle classifier. The particle classifier takes advantage of electrostatic charges that exist on ambient particles to strip out a predetermined particle size range of interest, from the broad range of sizes present in ambient air. The resulting particles leave the N95-Companion and are transported via flexible tubing to the PORTACOUNT for counting.

The PORTACOUNT, seeing only the particles of interest, then compares the number outside the mask to the number inside the mask. This ratio of particles counted is the fit factor. For a detailed explanation of the theory of operation, see TSI's application bulletin ITI-053.



There is no need to obtain probed respirators from your respirator manufacturer. The N95-Companion comes with a set of tools and a supply of probe sets for installing your own sampling ports onto any filtering-facepiece respirator*. It only takes a few seconds!



*Once probed, disposable respirators cannot be sanitized or used for respiratory protection. They must be discarded after each fit test. Additional probe sets are available from TSI in packages of 500.

Model 8026 Particle Generator

Some locations may not contain a naturally-occurring ambient particle concentration of at



least 70 particles/cc in the size range required by the N95-Companion. This is often due to high-efficiency filters found in some specialized building ventilation systems. To address this situation, the Model 8095 N95-Companion Kit comes complete with a Model 8026 Particle Generator**. The particle generator produces a non-detectable, low concentration salt (NaCl) aerosol in the proper size range for the N95-Companion. Since the aerosol output of the particle generator is limited, its use restricts fit testing activities to an average-size room.

Is your PORTACOUNT Plus N95-Companion ready?

The N95-Companion can only be used with a PORTACOUNT Plus Model 8020 that has the "revision A" modification, as indicated by the model number designation "8020A" located on the serial number tag. All PORTACOUNT Plus instruments shipped after September 10, 1997 are N95-Companion ready. Contact TSI about converting your PORTACOUNT Plus, if necessary. Have your PORTACOUNT Plus converted, and order an N95-Companion at the same time for a reduced price. Note that the N95-Companion cannot function with the discontinued PORTACOUNT Model 8010. Contact us for trade-in information.

**The Model 8026 Particle Generator is also available separately for PORTACOUNT users who need to supplement ambient particle counts, but do not have use for the N95-Companion.

Model 8020 PORTACOUNT Plus Specifications

Size	9.5 in. × 7.5 in. × 5.5 in. (24 cm × 19 cm × 14 cm)
Weight	
With battery	4.2 lb (1.9 kg)
Without battery	3.3 lb (1.5 kg)
Fit Factor Range	1 to greater than 10,000
Concentration Range	0.01 to 5×10^5 particles/cm ³
Particle Size Range	0.02 to greater than 1 micrometer
Typical Fit Factor Accuracy	±10% of reading
Minimum Exercise Duration	30 sec
Temperature Range	
Operation	32 to 100°F (0 to 38°C)
Storage	-40 to 160°F (-40 to 70°C)
Flow Rate	
Sample	100 cm ³ /min
Total	700 cm ³ /min (nominal)
Optional Battery	
Hours of operation per charge	3 hours at 70°F (21°C)
Charge Cycles	500
Rating, type	4 volts, 2.5 amp-hour, lead-acid
Alcohol	
Hours per charge	8 hours at at 70°F (21°C)
Alcohol type	100% reagent grade isopropyl
RS-232 Output	
Baud Rate	User-selectable: 300, 600, 1200, 2400, 9600 (factory set at 1200)
Carrying Case	
Size	21 in. × 14 in. × 8.3 in. (53 cm × 36 cm × 21 cm)
Weight	
With standard accessories	13 lb (5.9 kg)
With optional printer & battery kit	18.5 lb (8.4 kg)
Pass/Fail Setting	User-selectable: 0, 100, 250, 500, 1000, 1250, 1667, 2000, 4000, 5000, 6667, 10000 (other values can be programmed by user)
Factory Recalibration Interval	One year
Warranty	Two year on parts and labor, 90 days on batteries

FitPlus Fit Test Software

Minimum PC Hardware Requirements

- PORTACOUNT Plus Model 8020
- Microsoft Windows 3.1, Windows 95 or Windows NT
- Windows-compatible printer
- 5 MB hard disk space for program files
- Serial port

Optional Accessories

- Model 8925 Portable Printer (fits in carrying case)
(not for use with FitPlus Fit Test Software)
- Model 8021 Battery Kit includes: 115V charger, three Model 8903
Battery Packs (fits in carrying case)
- Sampling adapters for select respirator models

Model 8095 N95-Companion Specifications

Size	9.5 in. × 7.5 in. × 2.3 in. (24 cm × 19 cm × 58 cm)
Weight	2 lb (.908 kg)
Fit factor range	1 to 200
Concentration range	0.01 to 5×10^5 particles/cm ³
Test particle size	0.04 micrometer (nominal)
Typical fit factor accuracy	±10% of reading
Minimum exercise duration	80 seconds
Temperature range:	
Operation	32 to 100° F (0 to 38°C)
Storage	-40 to 160° F (-40 to 70°C)
Flow rate	700 cm ³ /min (nominal)
Carrying case	
Size	19 in. × 14 in. × 4.8 in. (48 cm × 35 cm × 12 cm)
Weight with accessories	13.5 lb (6.1 kg)
Pass/Fail setting	User selectable: 0, 10, 25, 50, 100, 125, 166, or 200 (other values can be programmed by user)
Factory recalibration interval	One year
Warranty	Two years on parts and labor

Licensed under US Patent No. 5,117,190 and other patents
from Commissariat a L'Energie Atomique, France. Other patents pending.

Model 8026 Particle Generator

Size	9 in. × 3.5 in. × 5 in. (23 cm × 9 cm × 13 cm)
Weight	2.75 lb (1.25 kg)
Particle Size	Poly-disperse, sodium chloride
Operating Voltage	115 V
Warranty	One year on parts and labor

Service Policies

- Typical turn-around time for PORTACOUNT/N95-Companion factory
service is 2 business days in-house
- Warranty repairs returned via overnight carrier at TSI expense

Specifications are subject to change without notice.
Specifications within parentheses indicate metric equivalents.



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