

Troubleshooting: Failed Fit Tests

RESFT 301

Created by: John Morton



Course Description

+ Part 1: Troubleshooting

- Understanding the steps for troubleshooting a failing fit test
- Recognizing common issues associated with poor fit factors

+ Part 2: Realtime

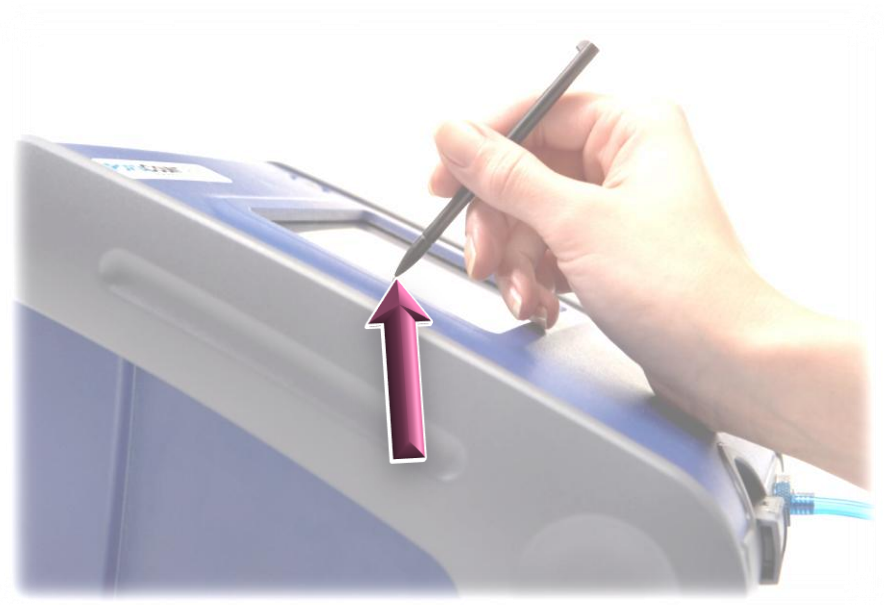
- Analyze the Realtime Fit Factor Display as it relates to fit testing
- Discuss Suspicious Fit Factors

+ Followed by a Q & A session



Course Key

Left Click



Required Material

1. PortaCount Pro/Pro+
2. 5 ft (1.5 m) Blue/Clear Twin Tube Assembly
3. Alcohol Cartridge (recently soaked)
4. Zero Check Filter



Part 1:

Troubleshooting



TSI Fit Test: Step 4 of 4 | Demo-Training Mode

Test FAILED

Exercise Name	Fit Factor	Exercise Name	Fit Factor
NORMAL BREATHING	466181	BENDING OVER	1.0
DEEP BREATHING	493477	NORMAL BREATHING	1.0
HEAD SIDE TO SIDE	999000		-
HEAD UP AND DOWN	500495		-
TALKING	1.0		-
GRIMACE	excl.		-
Fit Factor		Concentration Values	
Overall Fit Factor	2.4	Ambient	4299
Pass Value	100	Mask	4107

Test Complete

< Back

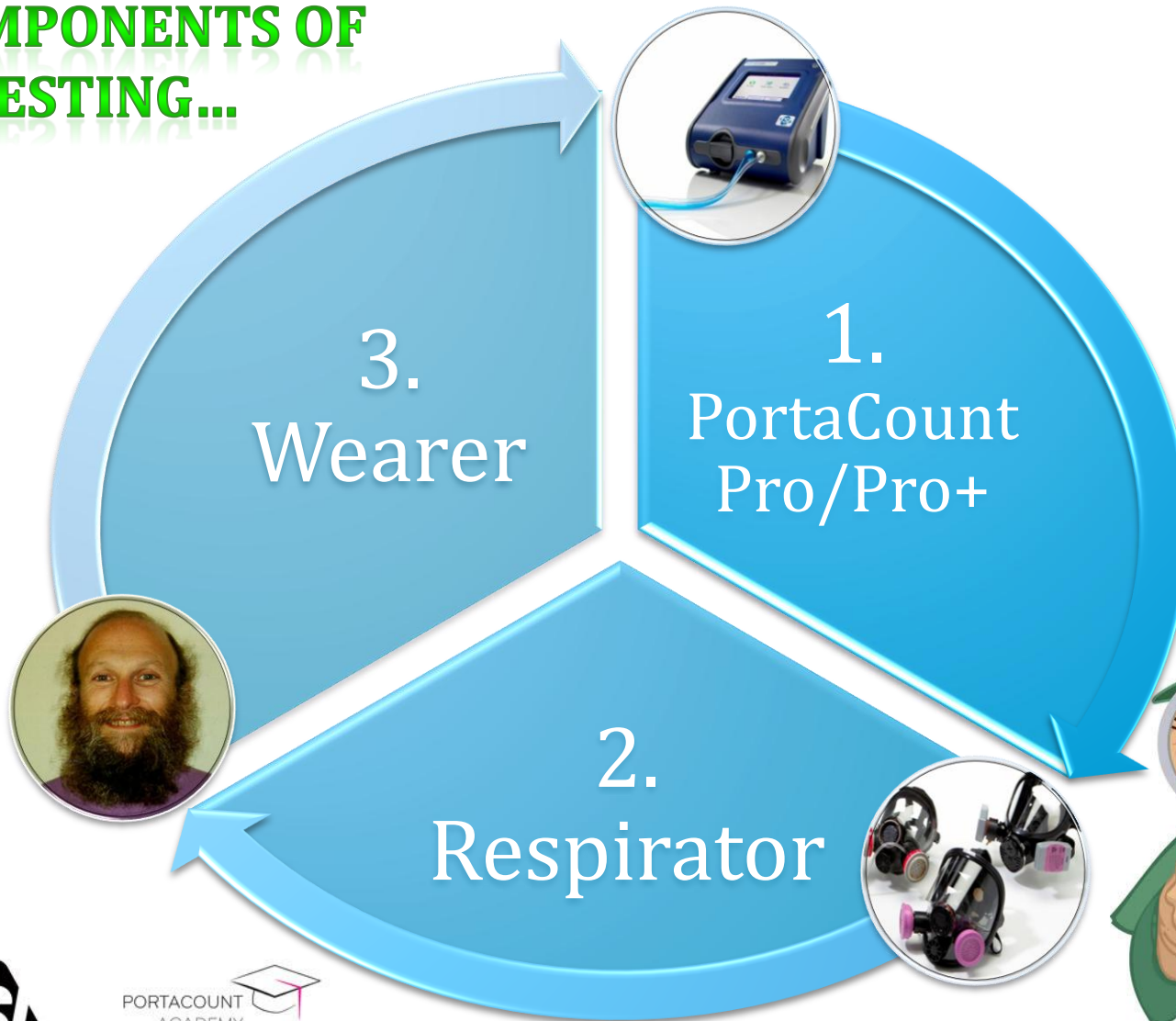
Start

Next >

Troubleshooting



3 COMPONENTS OF FIT TESTING...





PortaCount Pro/Pro+

1st priority

Confirm the **Daily Checks** pass...

- ✓ Ensures environment is suitable for fit testing
- ✓ The PortaCount Pro/Pro+ is functioning properly

If you cannot pass the Daily Checks...
further trouble shooting is required before fit testing can begin

- Troubleshooting Daily Checks are discussed in detail in RESFT 205



Daily Checks

with N95 enabled

TSI Daily Check

Test Status

Test Passed

☐ Enable Valve Check ☒ N95 Enabled

Daily Check Results

Min. Particle Check: PASSED 179 (≥ 30)

Classifier Check: PASSED

Zero Check: PASSED 0.0 (≤ 30)

Max. Fit Factor Check: PASSED 200+ (≥ 200)

Start

Settings

Exit

without N95 enabled

TSI Daily Check

Test Status

Test Passed

☐ Enable Valve Check ☐ N95 Enabled

Daily Check Results

Min. Particle Check: PASSED 3517 (≥ 1000)

Zero Check: PASSED 1.0 (≤ 30)

Max. Fit Factor Check: PASSED 141554 (≥ 25000)

Start

Settings

Exit



**Passing the Zero Check confirms
there are no leaks present in the
PortaCount Pro/Pro+ system**



Respirator

Respirator Inspection...

1. Is the Respirator donned correctly?
2. Is the Respirator or Components damaged?
3. Is the Fit Test Adapter damaged? *(if used)*



1. Is the Respirator donned correctly?

Instructions for how to properly don a respirator should come from...

the **Respirator Manufacturer**



- Donning a filtering facepiece
 - http://www.youtube.com/watch?v=0d_RaKdqeck (CDC)
- Donning respirators
 - <http://www.youtube.com/watch?v=Tzpz5fko-fg> (OSHA)



2. Is the Respirator or components damaged?

Filter/Cartridge

- In order to fit test we use a P100 rated filter, typically magenta or purple in color
- Look for cracks or damage to the filter



2. Is the Respirator or components damaged?

Inhalation and Exhalation Valves

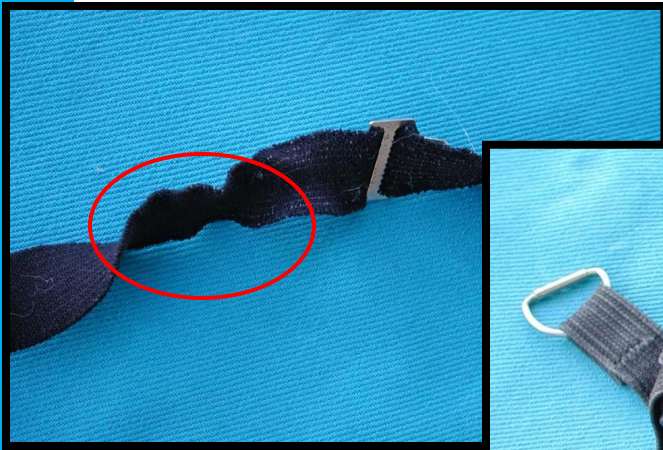
- Ensure the valves are installed properly
- Look for any damage, cracks, or warping



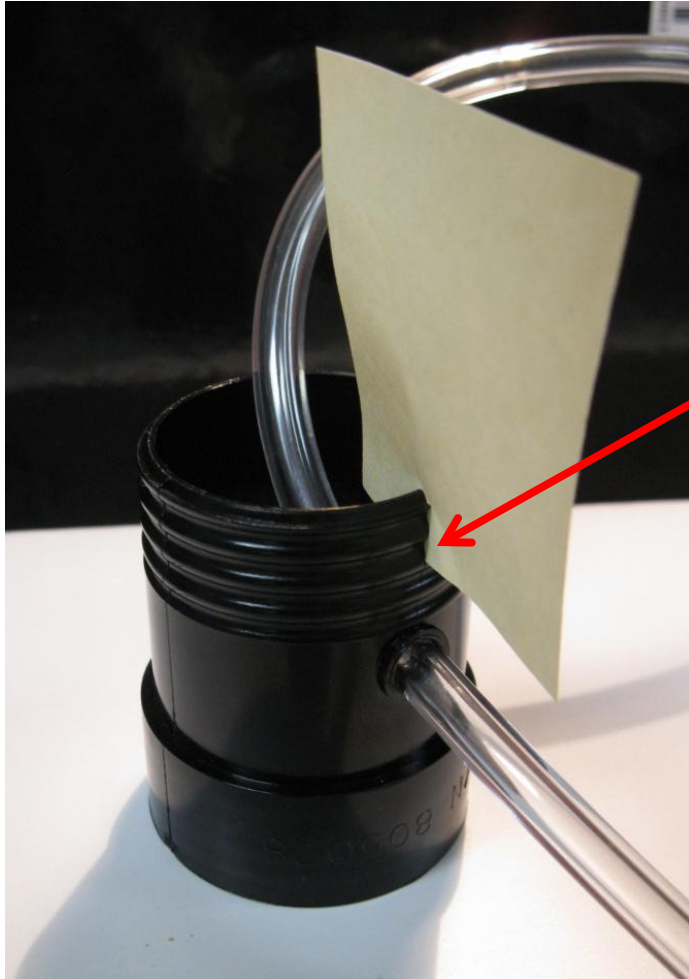
2. Is the Respirator or components damaged?

Facepiece and Head Straps

- Clean off any excessive dirt or contamination
- Look for signs of aging, such as being brittle or warped
- Look for damage or broken components, straps, etc.



3. Is the Fit Test Adapter damaged? (if used)



Even a hairline crack can
cause you to fail fit tests





If...

- the Daily Checks **pass**
- the Respirator appears to be donned properly
- the Respirator has no apparent defects or damage

Than...



**INVESTIGATE THE FIT OF THIS RESPIRATOR TO
THE WEARERS FACE**





Wearer

Facial profile

- Facial hair
- Higher cheekbones or thinner faces
- Facial scars
- Eyeglasses or other head gear
- Excessive makeup
- Dentures

Smoker

- Wait 30 minutes prior to fit testing

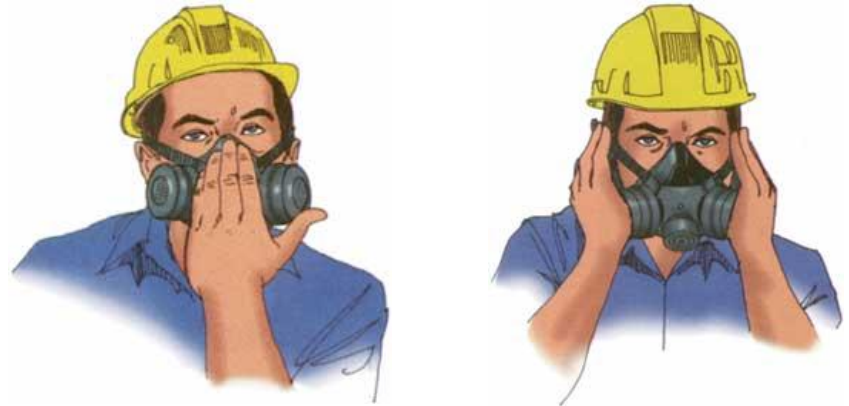


Respirator Fit

2 easy ways to verify fit of a respirator before the fit test

A User Seal Check

Discussed in further detail at the links listed earlier



Respirator Fit

2 easy ways to verify fit of a
respirator before the fit test

The Realtime Fit
Factor Display

Saves time!



Part 2:

Realtime Fit Factor Display

This class will present operations using the PortaCount Pro/Pro+ in stand alone mode



Helpful Definitions



Realtime Fit Factor Display

- A graph and numerical values displaying both **ambient** and **mask** particle concentrations
- Calculates fit factors in real-time
- Use for troubleshooting failing fit tests and determining potential fit factors



Realtime



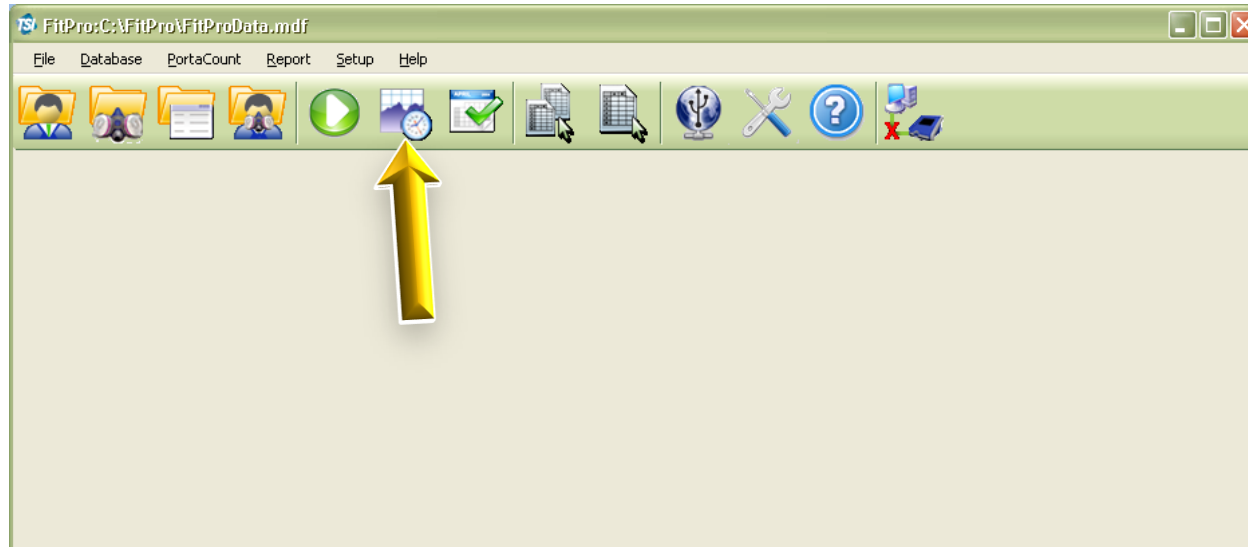
Let's begin...



1. Insert the PortaCount Pro/Pro+ Alcohol Cartridge
2. Power on the PortaCount Pro/Pro+
3. Connect the twin tube assembly to the blue and silver nozzles



Realtime Fit Factor Display



The Realtime Fit Factor Display can also be accessed thru the FitPro software



Realtime Fit Factor Display



For Demonstration purposes:

- + Attach HEPA (Zero) filter to clear (mask) tube
 - This replicates a 'perfect' fit, and can be useful for troubleshooting

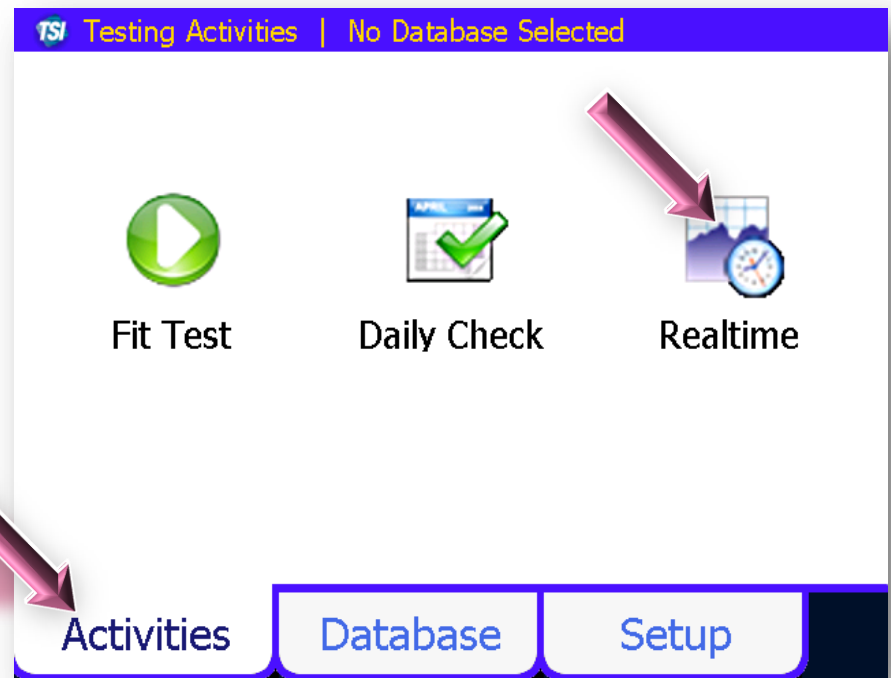
In real life, the employee would don the respirator as if it were a fit test



Realtime Fit Factor Display

+ Touch the **Activities** tab

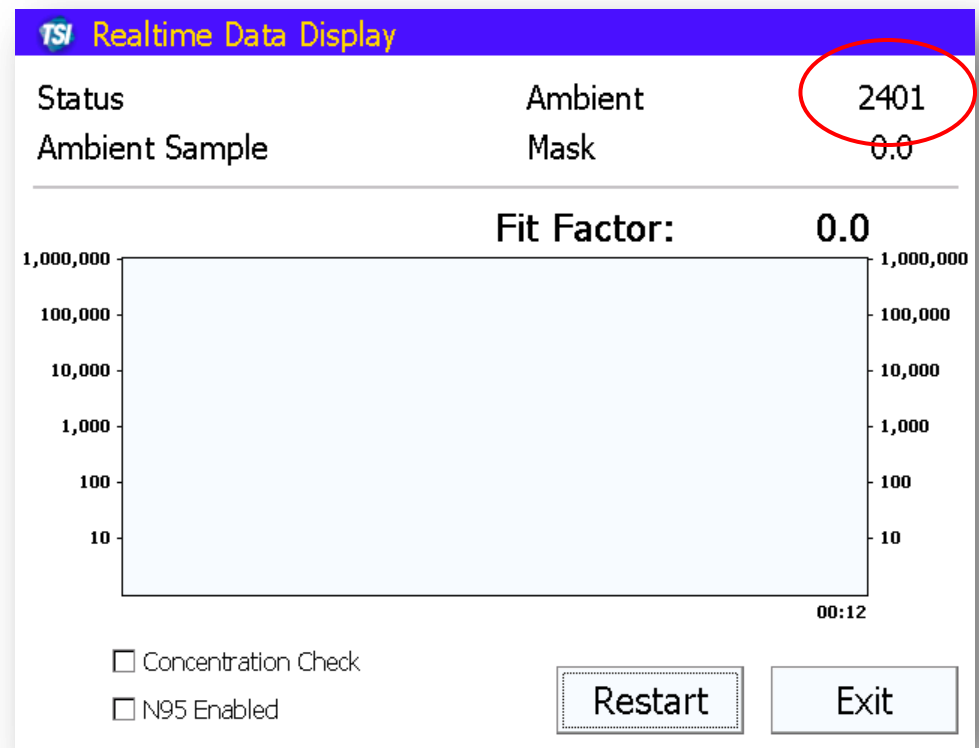
+ Touch **Realtime**



Realtime Fit Factor Display

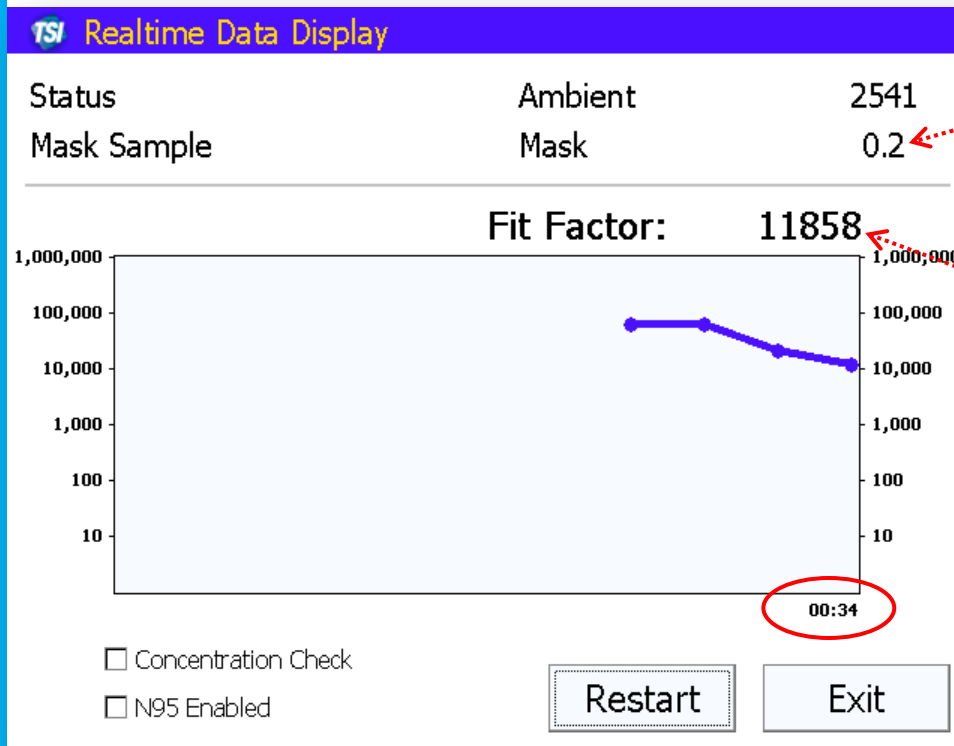
1st – a 30 second Ambient sample is taken

After which...
the average Ambient
Concentration will be
displayed



Realtime Fit Factor Display

2nd – the internal valve switches and we take a continuous sample from the mask tubing



Mask concentration is displayed

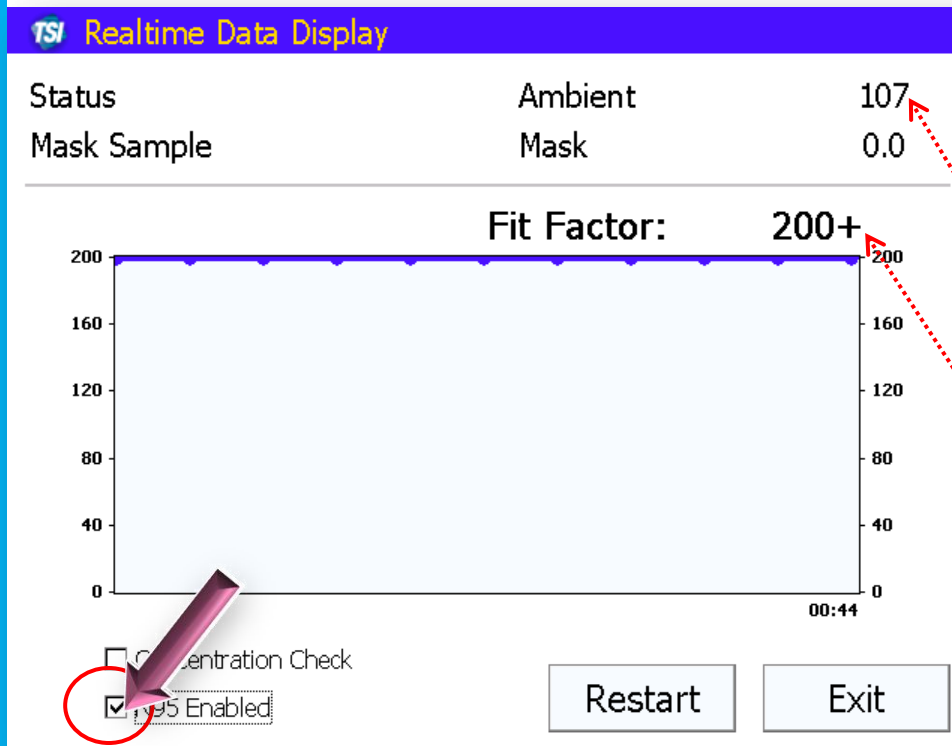
Fit Factor is calculated and displayed

These values are updated once per second



Realtime Fit Factor Display

8038 models will see an **N95 Enabled** option



- Select **N95 Enabled**; *if applicable*

Note difference in ambient concentrations

Note difference in displayed Fit Factors

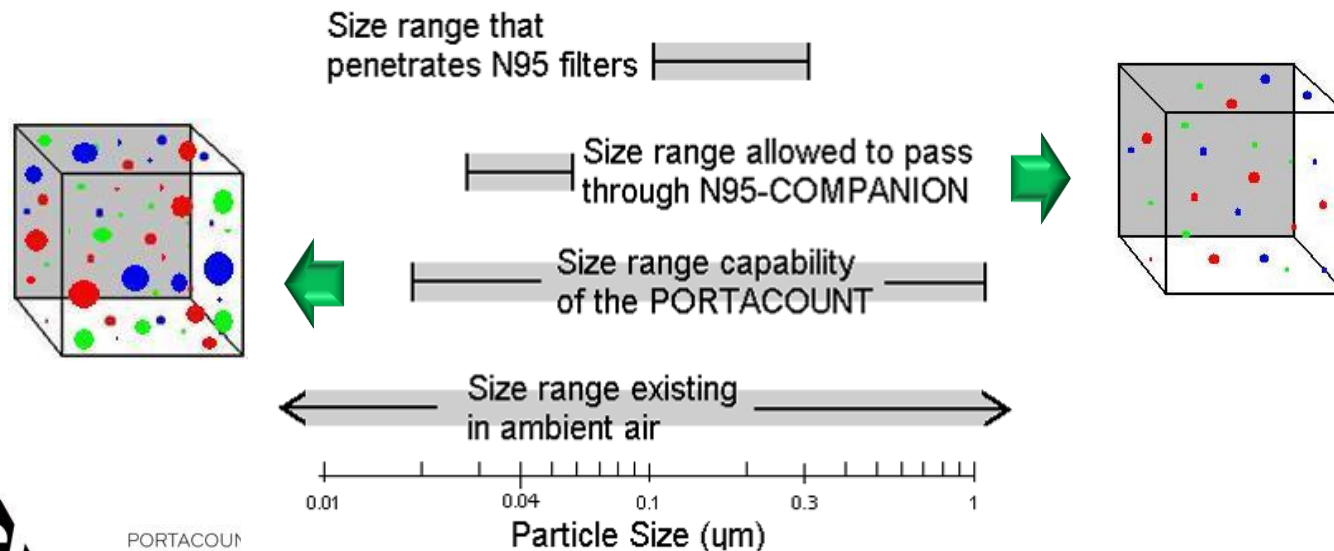


Did you know?



Ambient Particle Concentrations

An 8038 **with** N95 Enabled counts far less particles
because it counts only a small fraction of the
particle size range



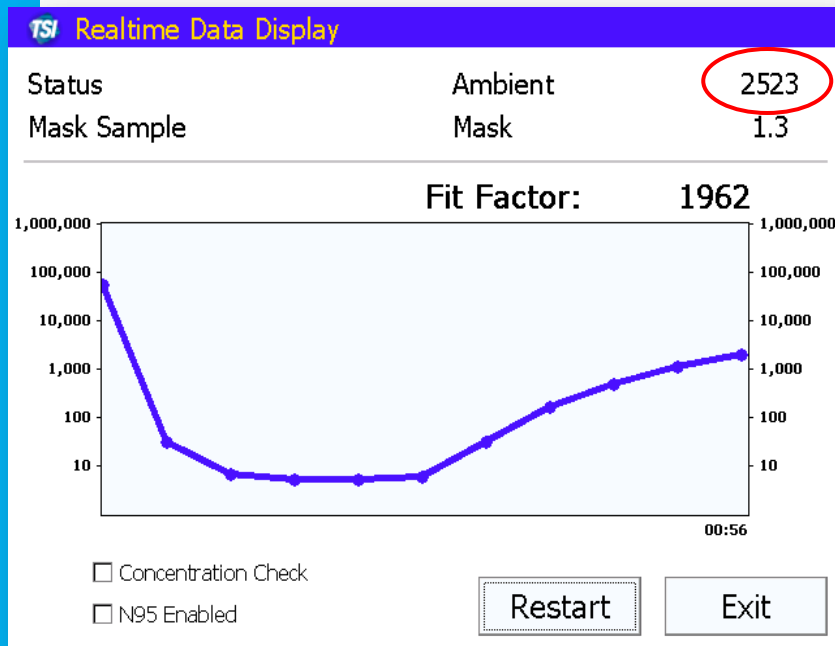
PORTACOUNT
ACADEM...

Troubleshooting

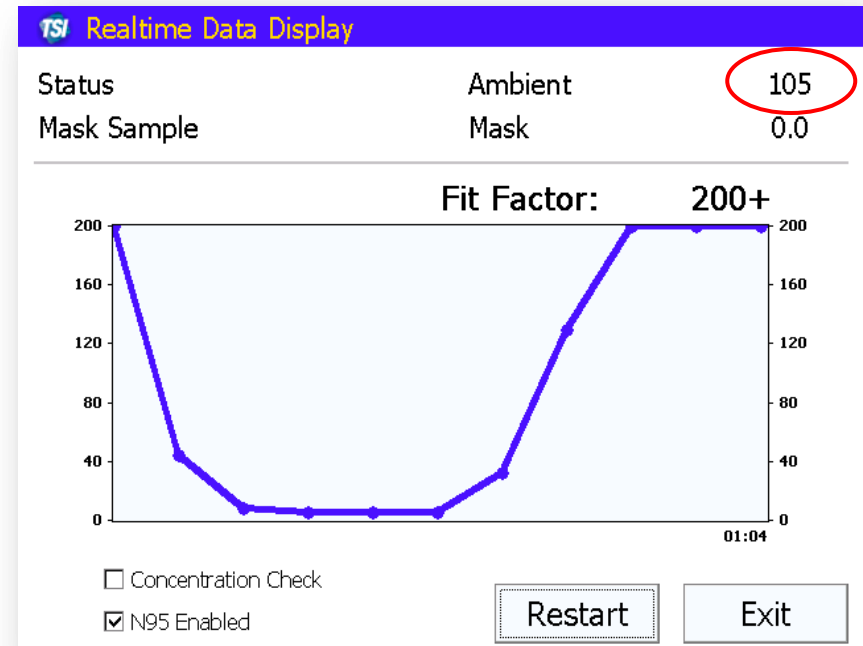


Quickly responds to changes in mask concentrations,
providing a fast diagnosis

without N95 enabled



with N95 enabled



If...



the Realtime Fit Factor Display still reports a low or failing fit factor?

Try different respirators...



Respirator Selection

+ No Respirator has a universal fit

- ✓ Try another size of respirator
- ✓ Try another make/model of respirator



The employer shall select respirators from a *sufficient* number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

- OSHA 29CFR1910.134 C(3)

(Refer to CSA Z94.4-11 section 9.1.3 for comparative statement)



Did you know?



**Fit factors greater than 100,000
are considered “suspicious”**

**Troubleshoot with the
Realtime Fit Factor Display**

- ✓ Run the Realtime Fit Factor as described previously
- ✓ Purposely break the seal around their face, slightly
- ✓ If the fit factor does not decrease dramatically then there is likely a block or kink in the clear (mask) tube



Summary

+ Troubleshooting

- 3 aspects of Fit Testing
 - + PortaCount Pro/Pro+
 - + Respirator and components
 - + Wearer
- Resolving common issues

+ Realtime Fit Factor Display

- Troubleshooting a failed fit test
- Troubleshooting Suspiciously high fit factors



PortaCount Academy

Online Training Center

- Available at the PortaCount Academy website;
www.tsi.com/PCacademy

Answers

- Available at www.tsi.com/PCacademy and
www.tsi.com/portacount

