

ANALYSIS OF DAILY CHECKS & REALTIME FIT FACTOR DISPLAY

RESFT 205

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Course Description

- + Understanding of the purpose of performing the Daily Checks
- + Ability to troubleshoot the Daily Checks
- + Running the Realtime Fit Factor Display
- + Evaluating the ambient particle concentration with the Realtime Fit Factor Display
- + Followed by a Q & A session



Course Key



Touchscreen 'Touch'



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



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





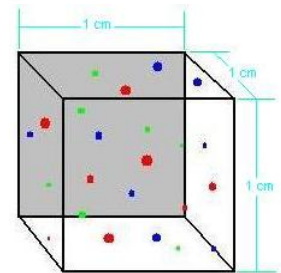
Helpful Definitions

Daily Check

- Maintenance procedure done each day before fit testing. 1 for N95 enabled, 1 for regular fit testing.

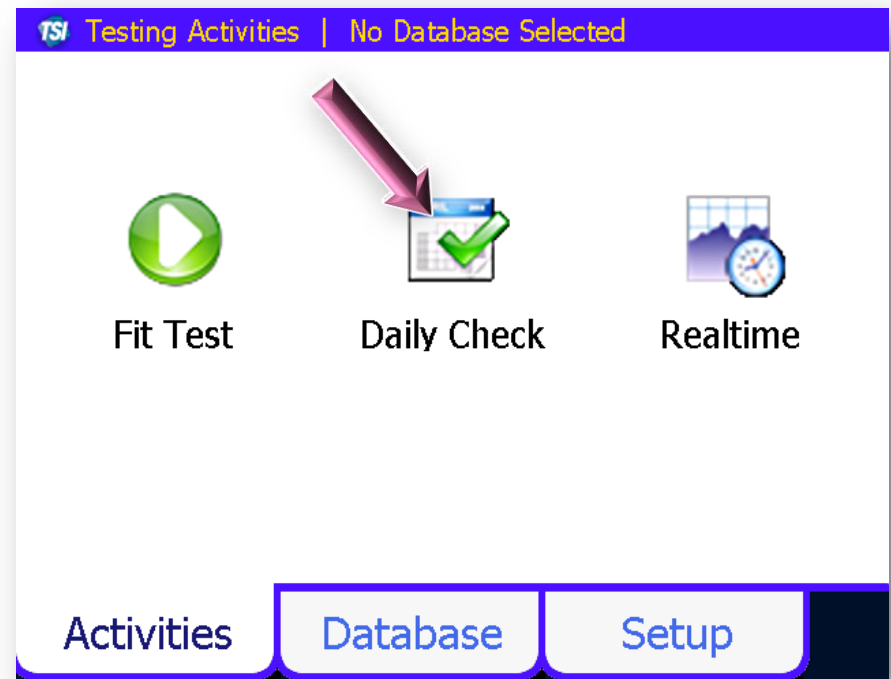
Ambient Particle Concentration

- *ambient aerosol & particle count*; # of particles per cubic centimeter (pt/cc) of air.
- Sampled down **blue** (ambient) tube
- *Conversely “mask concentration” refers to the particles sampled down clear (mask) tube*



Starting the Daily Checks

+ Touch Daily Check



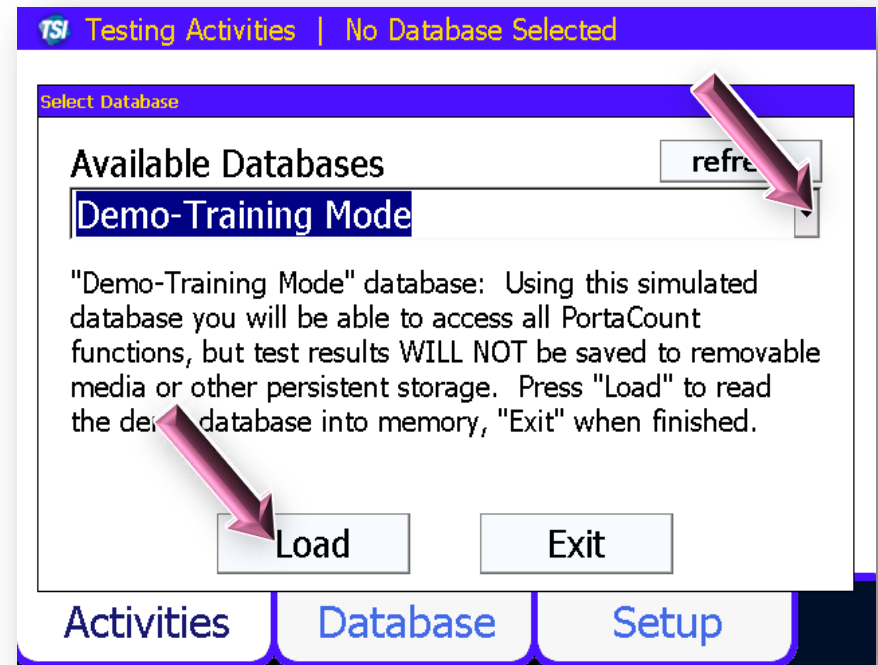
Database Selection

- + Select Database from the drop down window



If you do not have a database to select, choose "Demo-Training Mode"

- + Touch Load



Database Selection

+ Touch **Exit**

TSI Testing Activities | No Database Selected

Select Database

Available Databases refresh

Demo-Training Mode

Successfully loaded database Demo-Training Mode.

Load Exit

Activities Database Setup



Daily Checks

+ **Select N95 Enabled;**
if applicable



The **Valve Check**, is not
part of the recommended
Daily Checks

+ **Touch Settings**

TSI Daily Check

Test Status

Remove HEPA filter from sample inlet, then click "Start" button.

☐ Enable Valve Check

☒ N95 Enabled

Daily Check Results

Start

Settings

Exit



Helpful Definitions



Minimum Particle Check

- Determines if the concentration of particles in the ambient air is sufficient to conduct fit testing

Classifier Check

- *Occurs in N95 mode ONLY; Verifies the internal classifier is functioning properly*

Zero Check

- Assures that there are no leaks present

Maximum Fit Factor Check

- Ensures the internal switching valve is functioning properly, so both Mask and Ambient samples are taken



Daily Check Settings

Settings with N95 enabled

N95 Settings Selected

Minimum ambient particle level
30 Value must be ≥ 30

Zero Check: Max. particles allowed in 30 s
30 1 - 30

Maximum Fit Factor Check: Minimum Fit Factor
200 Value must be ≥ 200

Valve Check minimum pass level
0.8 0.5 - 0.8

Valve Check maximum pass level
1.2 1.2 - 2.0

Save

Exit

+ Touch Exit



Settings without N95 enabled

N99 Settings Selected

Minimum ambient particle level
1000 Value must be ≥ 1000

Zero Check: Max. particles allowed in 30 s
30 1 - 30

Maximum Fit Factor Check: Minimum Fit Factor
25000 Value must be ≥ 10000

Valve Check minimum pass level
0.8 0.5 - 0.8

Valve Check maximum pass level
1.2 1.2 - 2.0

Save

Exit

+ Touch Exit

Daily Checks

Remove HEPA
(Zero) Filter,
if attached

+ Touch **Start**

TSI Daily Check

Test Status

Remove HEPA filter from sample inlet, then click "Start" button.

☐ Enable Valve Check ☒ N95 Enabled

Daily Check Results

Start

Settings

Exit



Daily Checks

1. Minimum Particle Check

The screenshot displays the TSI Daily Check interface. At the top, a blue header bar contains the TSI logo and the text "Daily Check". Below this, the "Test Status" section shows "Mask Sample: 139" in green text, which is circled in red. Underneath, there are two checkboxes: "Enable Valve Check" (unchecked) and "N95 Enabled" (checked). The "Daily Check Results" section shows "Min. Particle Check: In Progress" in black text, also circled in red. To the right of this section are three buttons: "Start", "Settings", and "Stop". At the bottom of the interface is a progress bar with a blue segment on the left and a grey segment on the right. Three pink arrows point from the bottom of the progress bar towards the left, middle, and right.

TSI Daily Check

Test Status

Mask Sample: 139

☐ Enable Valve Check ☒ N95 Enabled

Daily Check Results

Min. Particle Check: In Progress

Start

Settings

Stop



Daily Checks

Classifier Check

TSI Daily Check

Test Status

Mask Sample: 0.0

☐ Enable Valve Check ☒ N95 Enabled

Daily Check Results

Min. Particle Check: PASSED 179 (≥ 30)

Classifier Check: In Progress

Start

Settings

Stop

Progress bar: [Blue bar] [Grey bar]



Classifier Check for N95 enabled units only



Daily Checks

2. Zero Check

TSI Daily Check

Test Status

Zero Check: Attach HEPA filter to sample inlet, then click "Start" button.

☐ Enable Valve Check ☒ N95 Enabled

Daily Check Results

Min. Particle Check: PASSED 203 (≥ 30)

Classifier Check: PASSED

Start

Settings

Stop

Attach HEPA (Zero)
Filter

+ Touch **Start**



Daily Checks

2. Zero Check

TSI Daily Check

Test Status

Mask Sample: 0.0

☐ Enable Valve Check ☒ N95 Enabled

Daily Check Results

Min. Particle Check: PASSED 179 (≥ 30)

Classifier Check: PASSED

Zero Check: In Progress

Start

Settings

Stop

Progress bar: [Dark Blue] [Light Grey]



Daily Checks

3. Maximum Fit Factor

TSI Daily Check

Test Status

Mask Sample: 0.2

☐ 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: In Progress

Start

Settings

Stop

Progress bar: [Dark blue segment] [Light grey segment]



Daily Check Results

Complete 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

+ Touch **Exit**



Complete 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

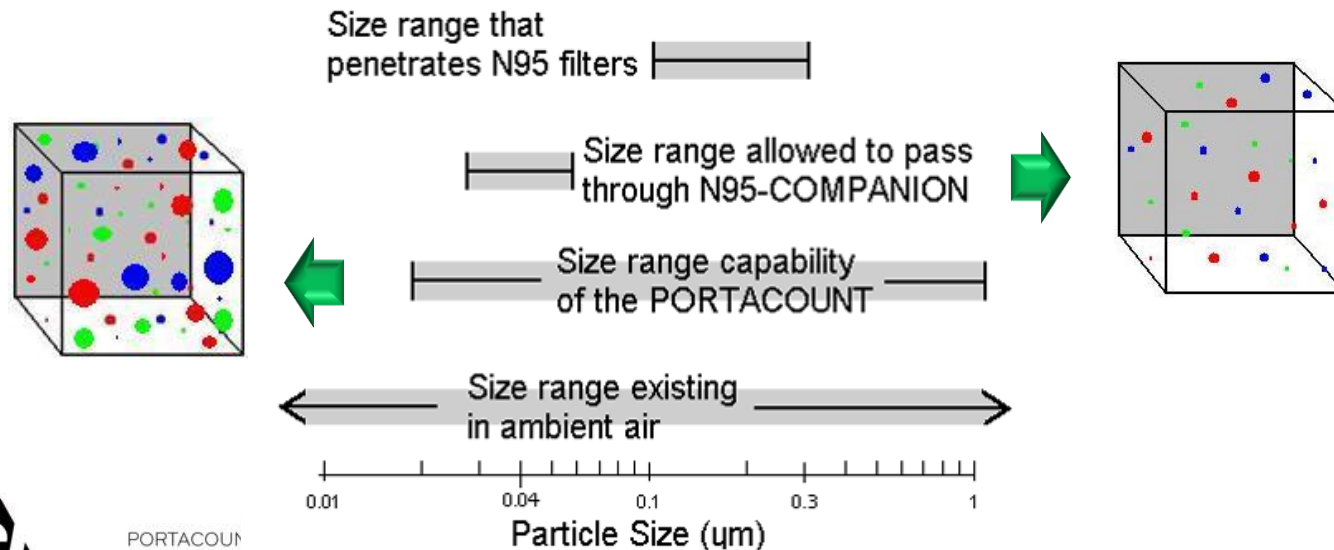
+ Touch **Exit**



Did you know?

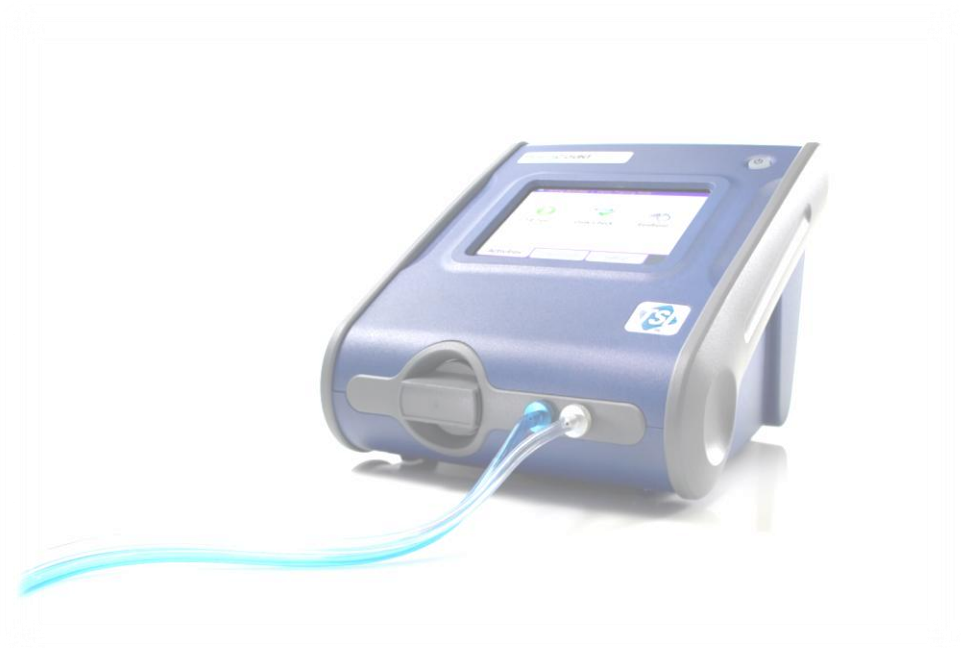
Ambient Particle Concentrations

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



PORTACOUNT
ACADEM...

Troubleshooting the Daily Checks ...made easy

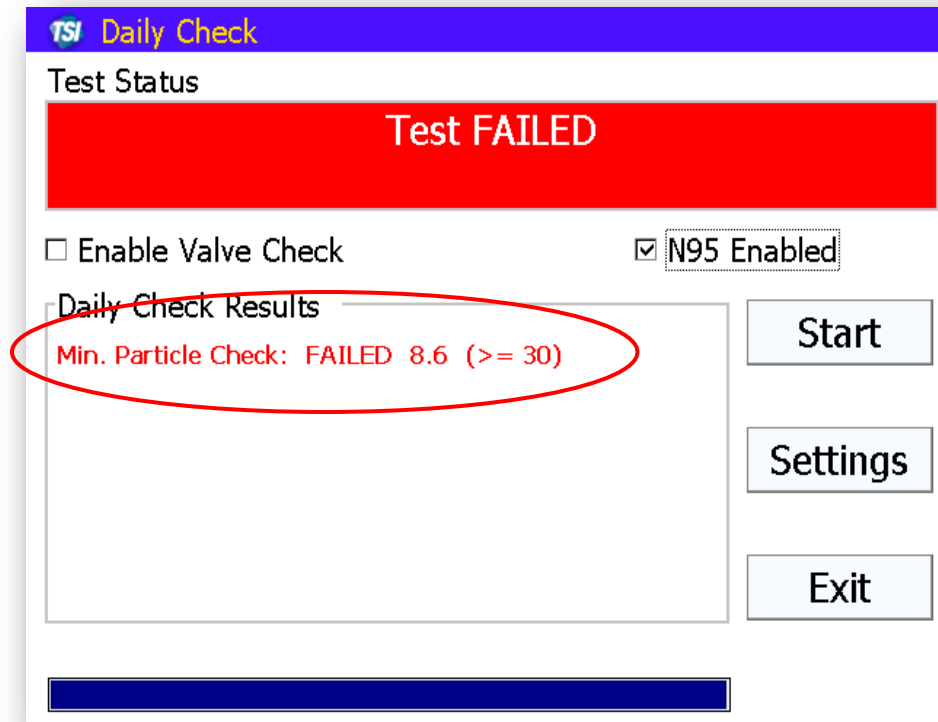


Troubleshooting



What if...

the **Minimum Particle Check** fails?



+ Select **Cancel**

Did you know?



Ideal Ambient Particle Concentration

~100 to 400 pt/cc
with N95

~2,000 to 8,000 pt/cc
without N95



Troubleshooting the Minimum Particle Check...

Steps...

1

2

3

Alcohol

Room
Setup

Nozzle
Cleaning
Procedure



1. Check Alcohol & Cartridge

Alcohol

- Installed correctly?
- Using **Reagent Grade 99.5% or greater Isopropyl Alcohol?**
- Alcohol is up to the fill-line in the Fill Capsule (with no Alcohol Cartridge installed)
- Try a different alcohol wick



2. Look for Environmental Factors



Room Setup

- Is the room smaller than 20' x20'?
- Close off ventilation & doors
- Look for ways to generate particles
- Review Room Setup
(Module 5 of the Interactive Tutorial)



3. Perform Nozzle Cleaning

Nozzle Cleaning Procedure

- Reference the Maintenance section of the PortaCount Pro/Pro+ Operations Manual

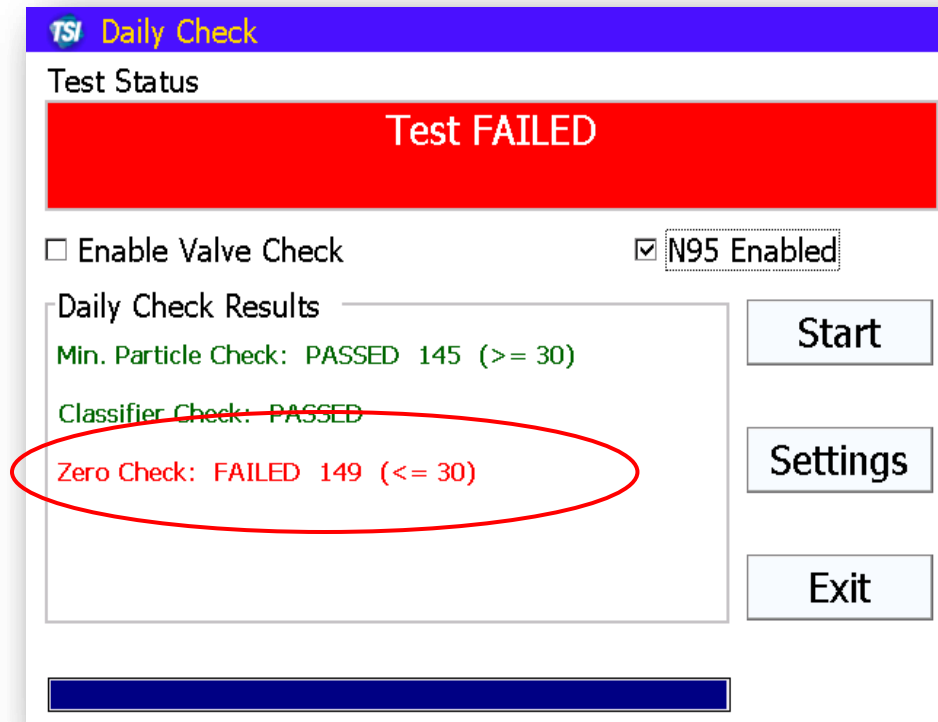


Troubleshooting



What if...

the **Zero Check** fails?



The screenshot shows the TSI Daily Check software window. At the top, the title bar reads "TSI Daily Check". Below it, the "Test Status" section features a large red banner with the text "Test FAILED". Underneath, there are two checkboxes: "Enable Valve Check" (unchecked) and "N95 Enabled" (checked). The "Daily Check Results" section lists three items: "Min. Particle Check: PASSED 145 (>= 30)", "Classifier Check: PASSED", and "Zero Check: FAILED 149 (<= 30)". The "Zero Check" line is circled in red. To the right of the results are three buttons: "Start", "Settings", and "Exit". A blue progress bar is visible at the bottom of the window.

Test Item	Result	Value	Limit
Min. Particle Check	PASSED	145	≥ 30
Classifier Check	PASSED		
Zero Check	FAILED	149	≤ 30



+ Select **Cancel**

Troubleshooting the Zero Check...

Steps...

1

Zero Filter

2

**Daily Check
Settings**

3

**Ambient
Concentration**



1. Check the Zero Filter



- Try a different Zero Filter
- Connect two Zero Filters in series
(use a small piece of tubing)
- Use Realtime Fit Factor Display using thumb instead of Zero Filter

2. Check Daily Check Settings...



Adjust the “Zero Check:
Maximum Particles Allowed”
setting to a greater value
(*maximum is 30*)

N95 Settings Selected

Minimum ambient particle level
30 Value must be ≥ 30

Zero Check: Max. particles allowed in 30 s
30 1 - 30

Maximum Fit Factor Check: Minimum Fit Factor
200 Value must be ≥ 200

Valve Check minimum pass level
0.8 0.5 - 0.8

Valve Check maximum pass level
1.2 1.2 - 2.0

Save

Exit



3. Check Ambient Concentration

**Ambient
Concentration**

~100 to 400 pt/cc
with N95

~2,000 to 8,000 pt/cc
without N95

~ ideal ~



Troubleshooting



What if...

the **Classifier Check** **fails**?

What if...

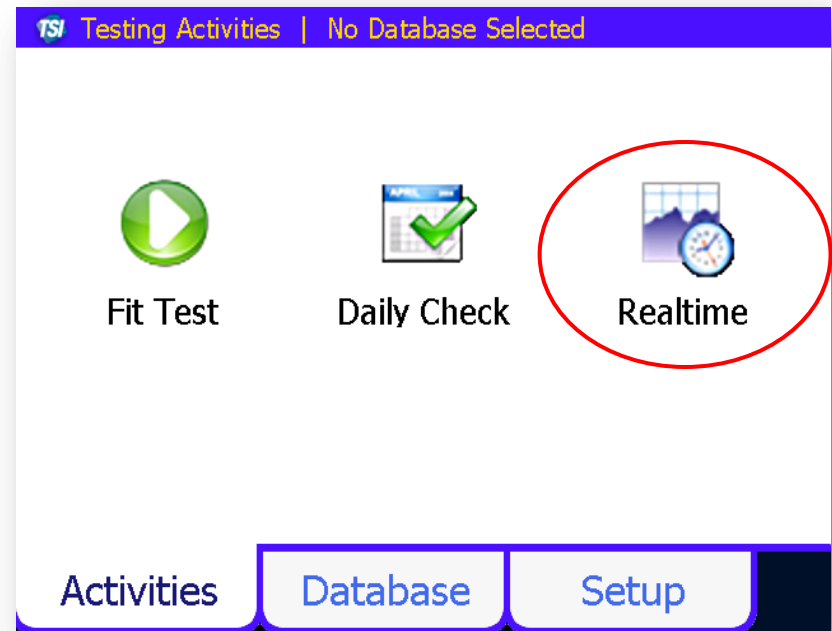
the **Maximum Fit Factor** **fails**?

- Cycle power on the PortaCount Pro/Pro+
- Verify Ambient Concentration is less than recommended maximum (refer to previous slide)
- Contact Technical Support
(+1.800.874.2811 or technical.service@tsi.com)



Realtime Fit Factor Display

Tool for troubleshooting the
Daily Checks and Fit Tests





Helpful Definitions

Realtime Fit Factor Display

- Graph and values showing fit factors in real-time.
- Used for troubleshooting failing fit tests and determining potential fit factors

Concentration Check

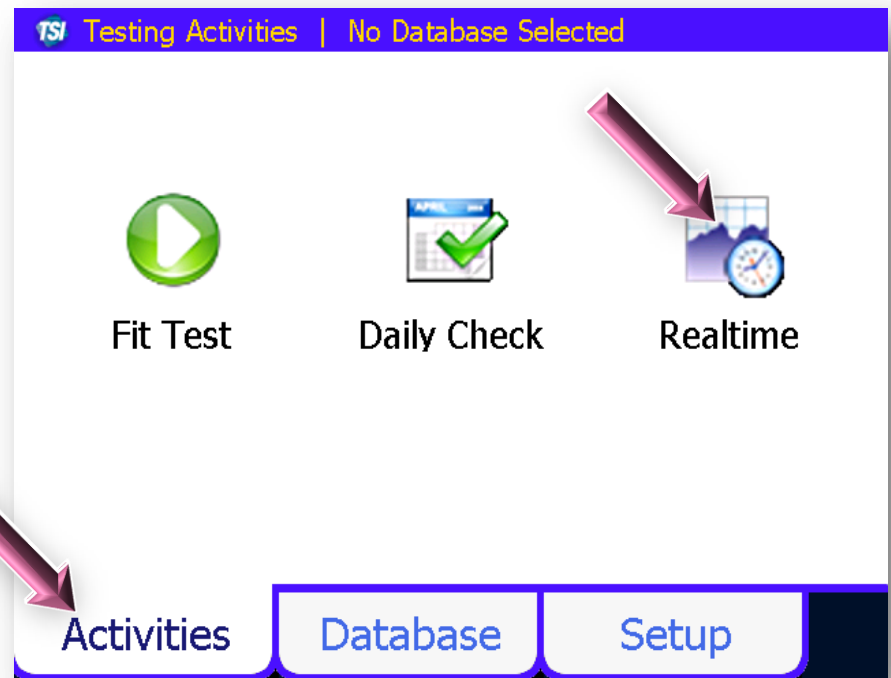
- A mode *within* the **Realtime Fit Factor Display** which continuously measures the ambient particle concentration.
- Used to troubleshoot ambient concentration issues



Realtime Fit Factor Display

+ Attach HEPA (Zero) filter to the end of the clear tubing (*mask tubing*)

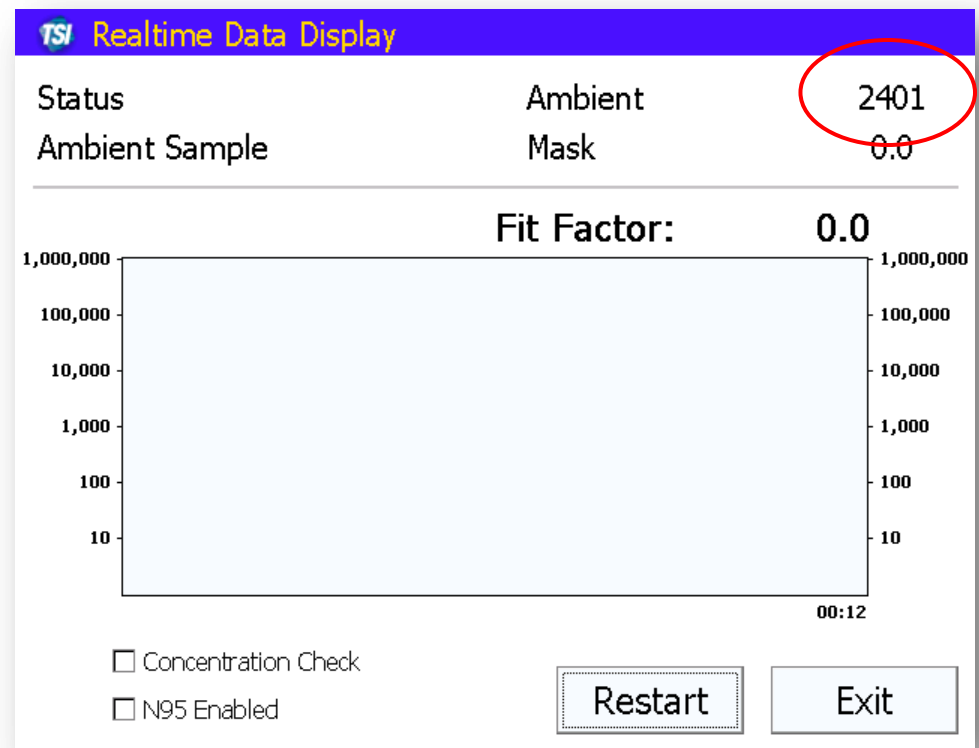
+ Touch the **Activities** tab



Realtime Fit Factor Display

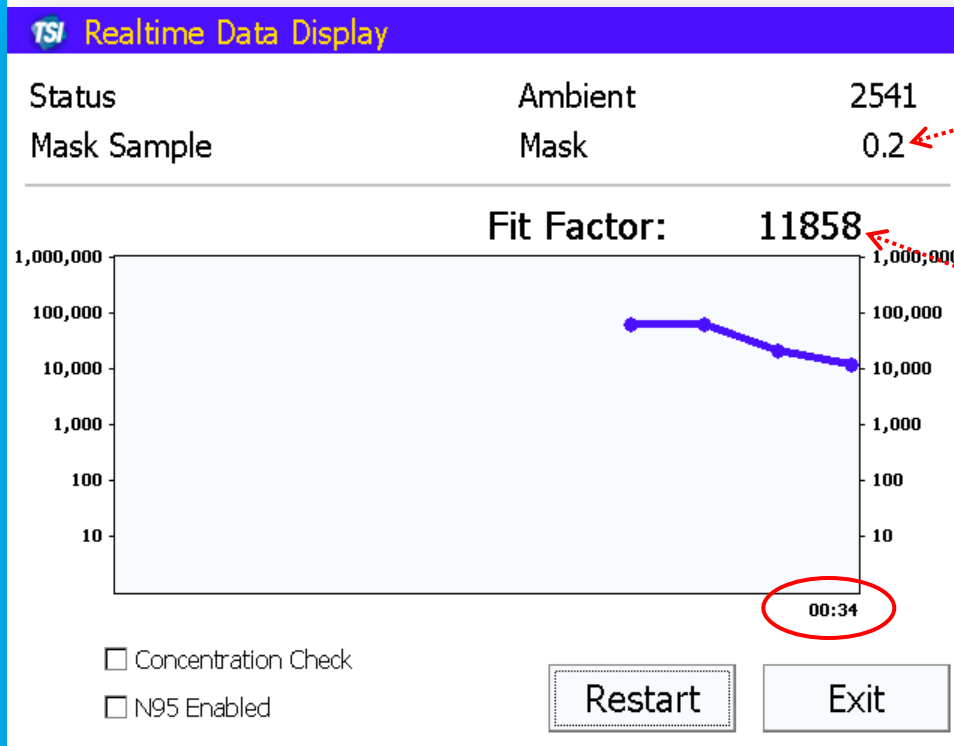
1st – a 30 second Ambient sample is taken

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

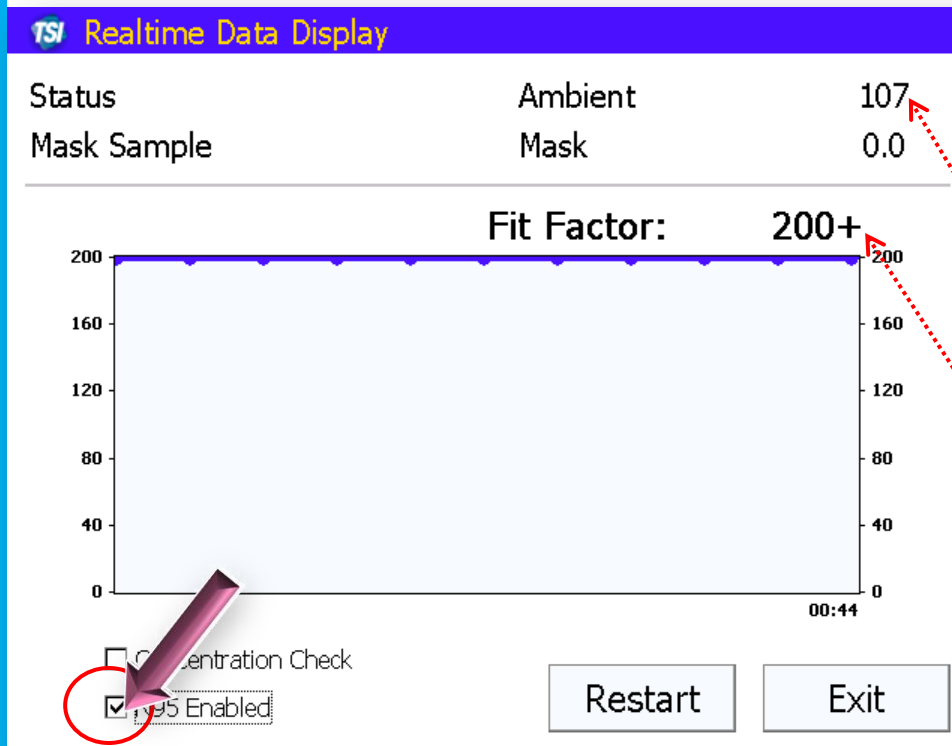
Fit Factor is calculated and displayed

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

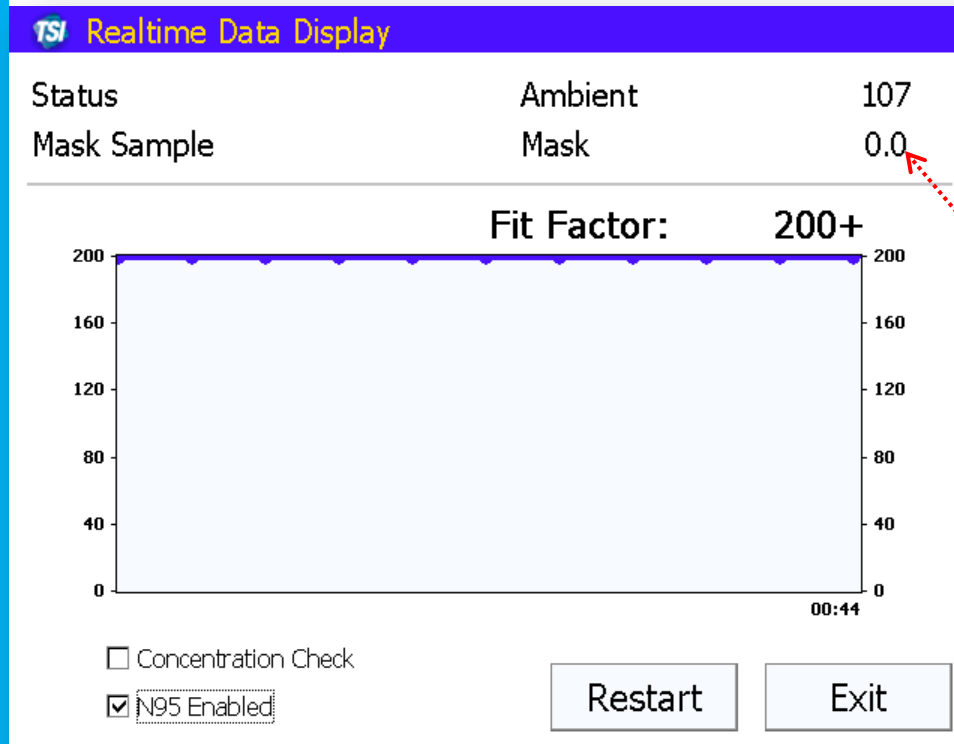


Troubleshooting



Failing your **Zero Check**?

use this screen to verify the HEPA Filter's efficiency



Leaks in the HEPA filter
will be displayed as leaks
in the Mask

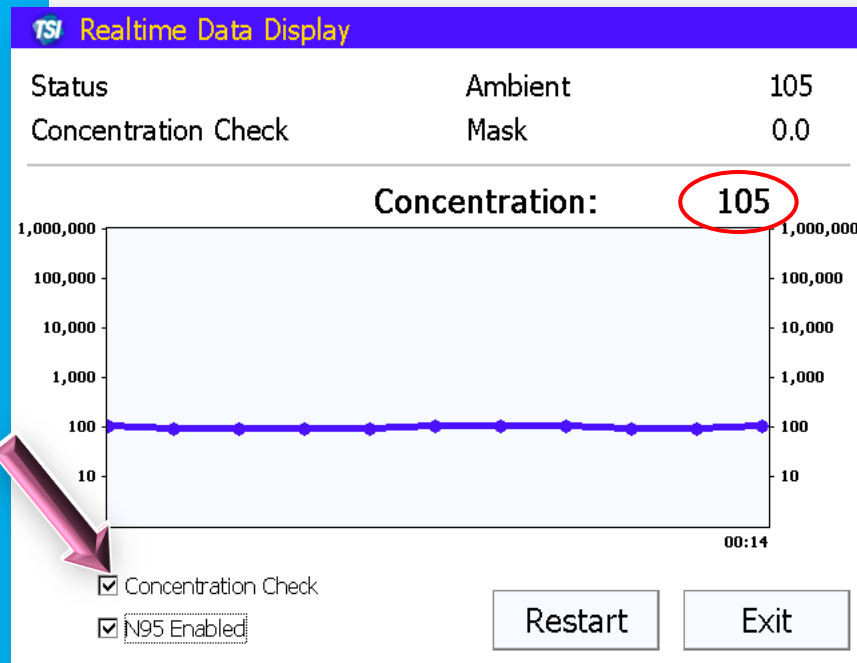


Concentration Check

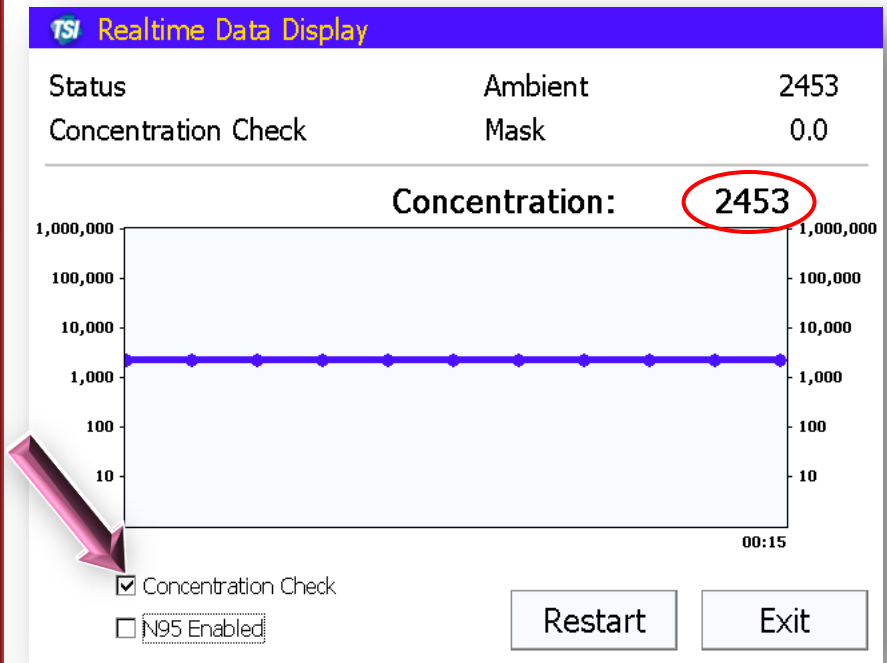
Failing your **Ambient Particle Check?**

+ **Select Concentration Check**

with N95 enabled



without N95 enabled



Troubleshooting



Investigating Ambient Particle Concentration issues... using the **Concentration Check**

1. Verify levels of ambient particle concentration



2. Investigate different particle concentrations in different environments



3. Assist in Room Setup
(referred to in Module 5 of the Interactive Tutorial)



4. Determine best fit testing locations or times



Summary

+ Daily Checks

- Understanding the process and reasons
- Resolving common issues

+ Realtime Fit Factor Display

- Troubleshooting the Zero Check
- Use of the Concentration Check
- Troubleshooting the Ambient Particle Concentration



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

