OHD QuantiFit
(& QuantiCheck)

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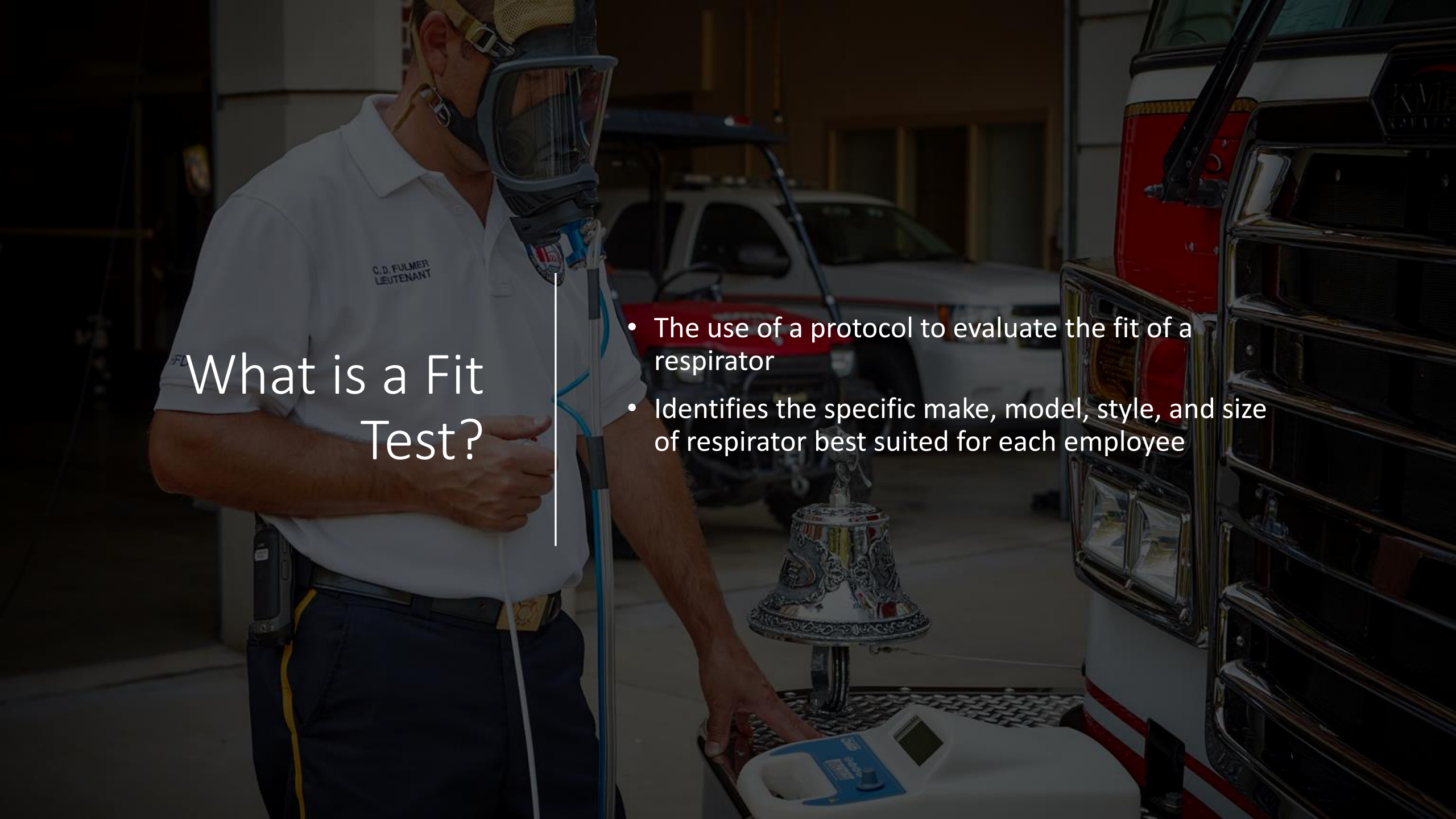
OHD, LLLP

- History
  - Occupational Health Dynamics inception - 1992
    - Occupational Health Products in Southeast of the United States
    - Late 1990's CNP Technology Accepted by OSHA for respirator fit testing
    - Occupational Health Dynamics purchases sales rights for CNP Technology
    - OHD, Inc. acquired by Schauenburg International Group on January 31st 2017



What is a Fit Test?

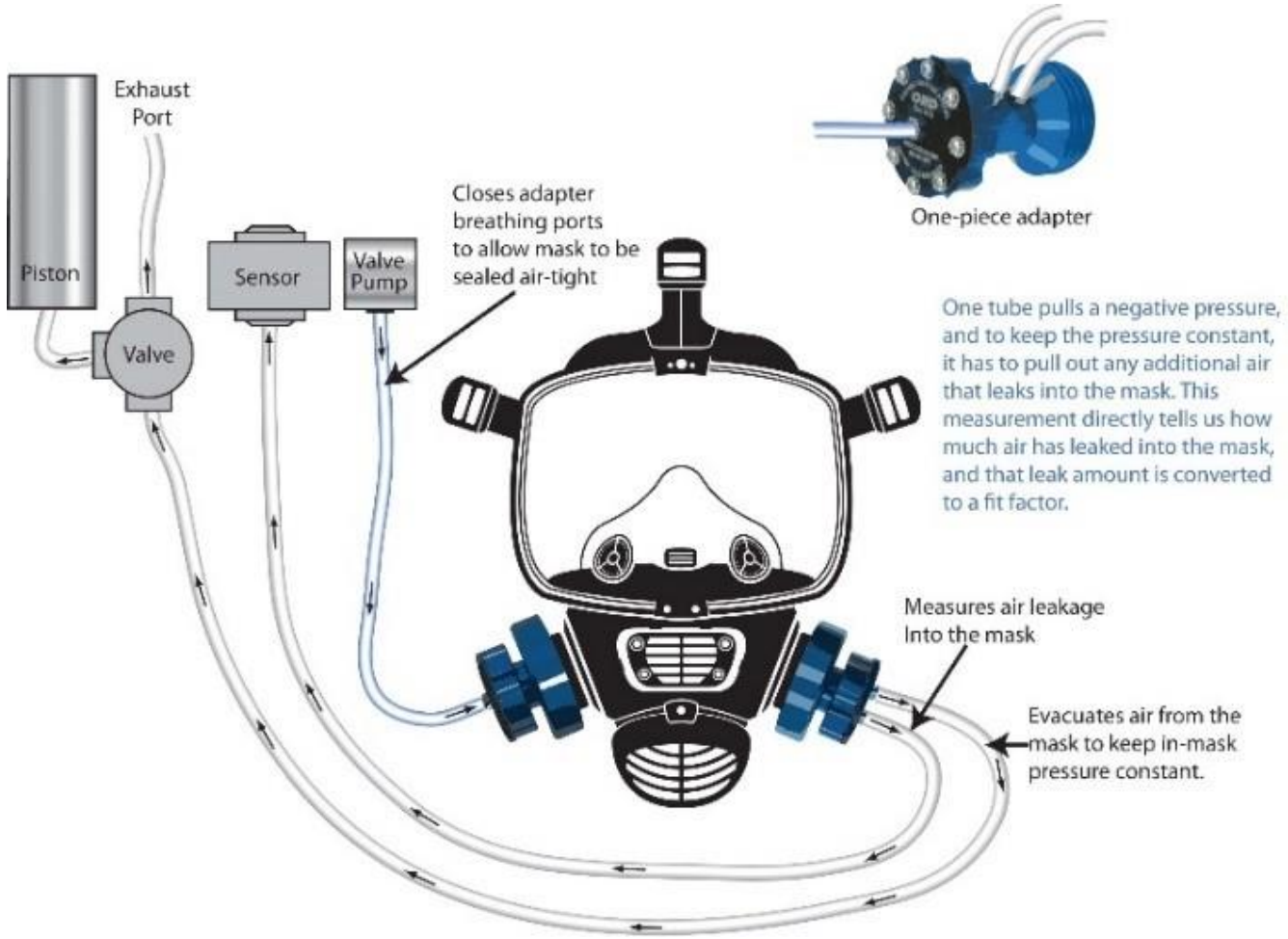
- The use of a protocol to evaluate the fit of a respirator
- Identifies the specific make, model, style, and size of respirator best suited for each employee

Why Fit Test?

- Protect the health of employees
- Ensure employees are trained on their respirator
- Provide employees peace of mind
- Required by:
  - OSHA 29 CFR 1910.134
  - ANSI Z88.10 – 2010
  - ISO 16975 – 2017

Controlled Negative Pressure

- The OHD Quantifit instrument.
- Creates and then maintains a negative pressure within the respirator.
- Air is the challenge agent.


Exhaust Port
Piston
Valve
Sensor
Valve Pump
Closes adapter breathing ports to allow mask to be sealed air-tight
One-piece adapter
One tube pulls a negative pressure, and to keep the pressure constant, it has to pull out any additional air that leaks into the mask. This measurement directly tells us how much air has leaked into the mask, and that leak amount is converted to a fit factor.
Measures air leakage Into the mask
Evacuates air from the mask to keep in-mask pressure constant.

CNP Technology

- CNP is recognized by regulatory bodies globally
- The QuantiFit uses challenge pressures related to scientifically supported modelled breathing rates
- Then the Quantifit directly measures facepiece leakage
  - Precisely measures leak rate (in cc/min) by determining the amount of air that leaks into the respirator during the fit test
- The higher the Leak Rate the lower the Fit Factor. The lower the Leak Rate the higher the Fit Factor

CNP Fit Factor = BR / LR

Where:

BR = inspiratory flow rate associated with CNP challenge pressure (modeled breathing rate);

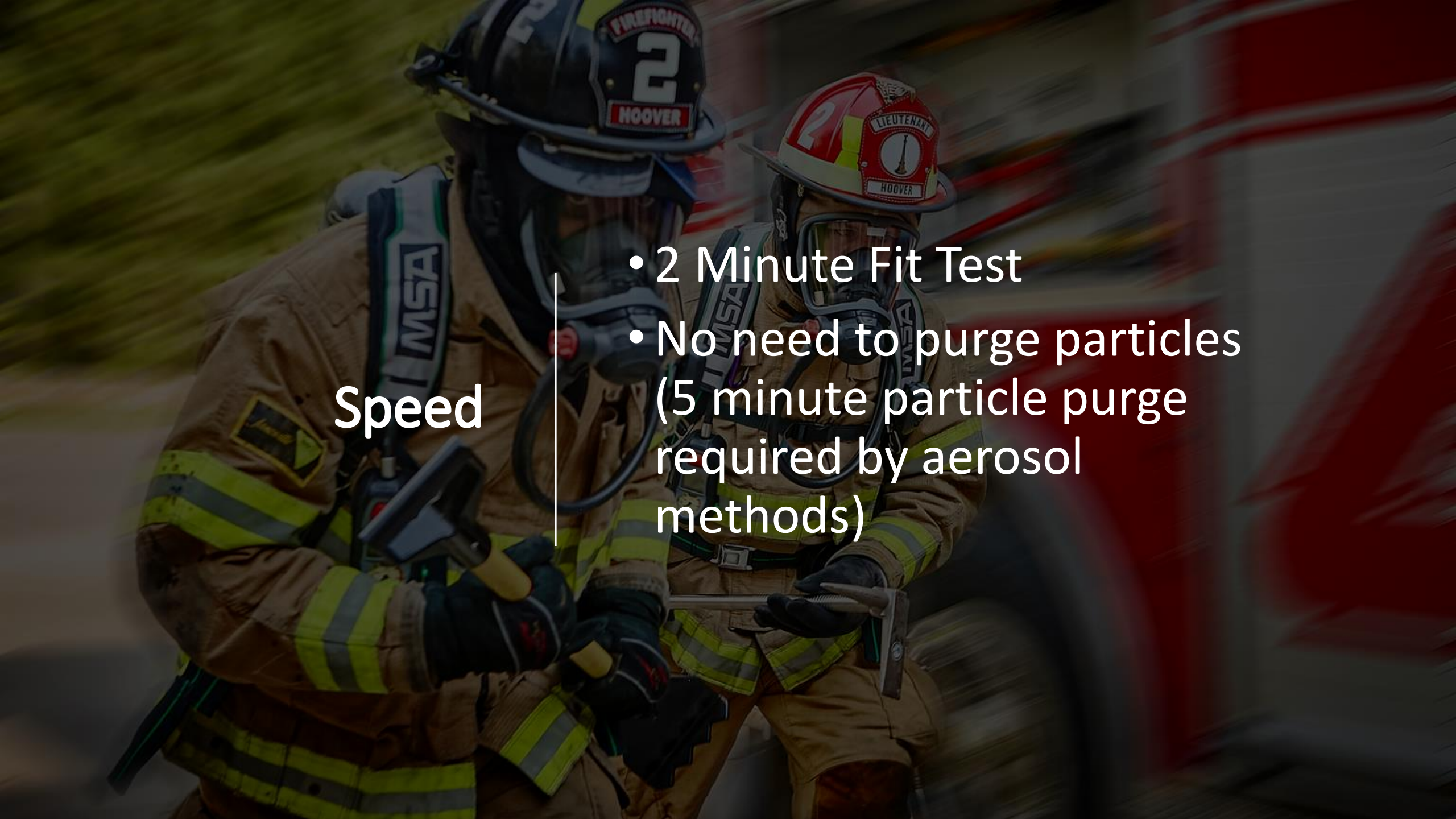
LR = mean leakage flow rate (leak rate) measured with the head held in a motionless position at the end of each test exercise

Redon Protocol

Step	Procedure
Step 1: Face Forward	Stand and breathe normally. Face forward while holding breath for measurement.
Step 2: Bend Over	Bend at the waist, as if going to touch his or her toes. Face parallel to the floor, while holding breath for measurement.
Step 3: Shake Head	For about three seconds, shake head back and forth vigorously several times while shouting. Stop and face forward while holding breath for measurement.
Step 4: Re-don 1	Remove the respirator, loosen all facepiece straps, and then redon the respirator. Face forward while holding breath for measurement.
Step 5: Re-don 2	Remove the respirator, loosen all facepiece straps, and then redon the respirator. Face forward while holding breath for measurement.

Quantifit Features & Benefits

- Speed
- Ease
- Accuracy

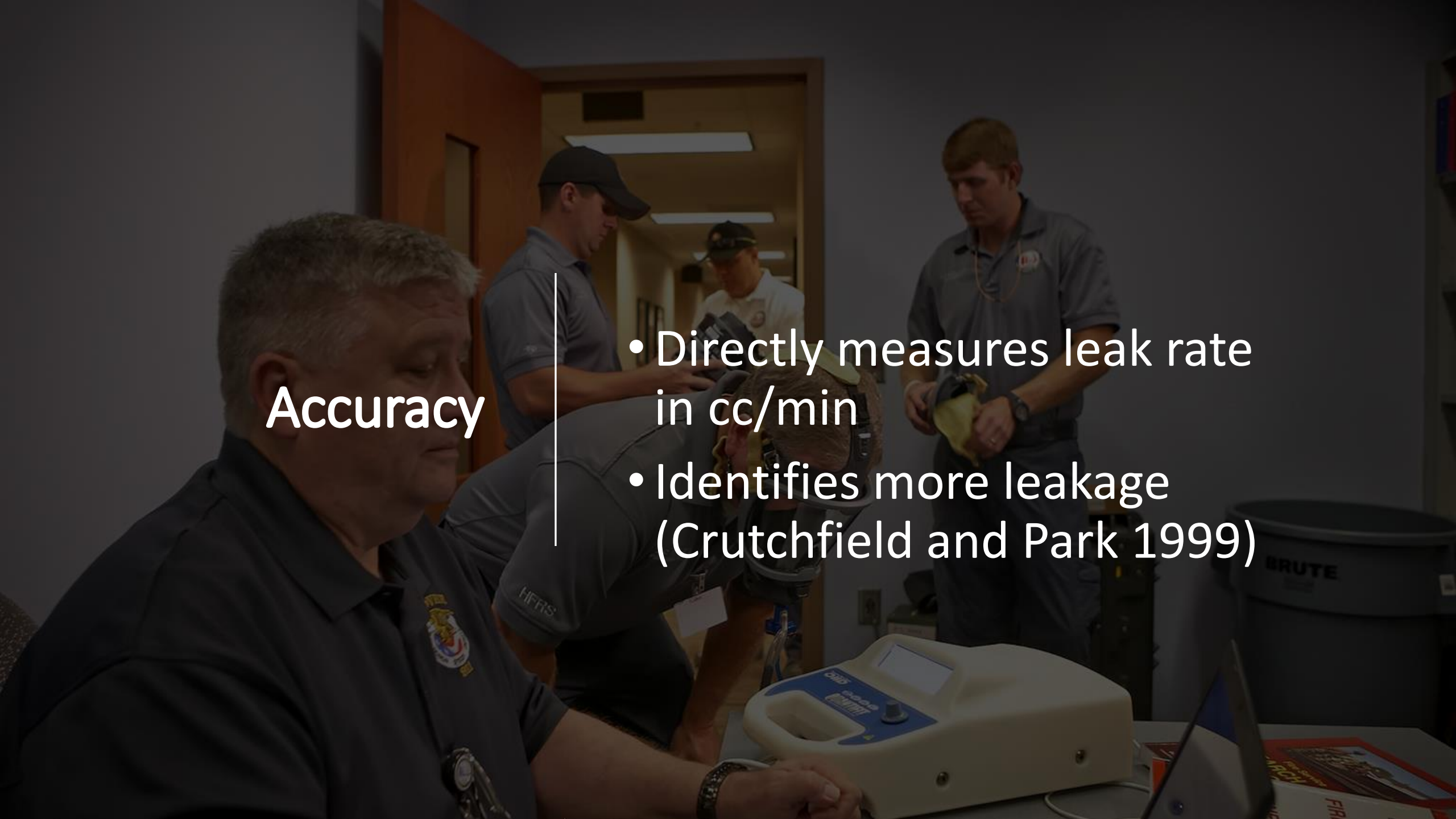


Speed

- 2 Minute Fit Test
- No need to purge particles (5 minute particle purge required by aerosol methods)

Ease

- No Consumables
- No Testing Environment
- No Probing Respirators



Accuracy

- Directly measures leak rate in cc/min
- Identifies more leakage (Crutchfield and Park 1999)

QuantiFit Fit Test Demo

Introduction to User Seal Checks

Positive-pressure check

Negative-pressure check

OSHA Regulation

- **Appendix B-1 to § 1910.134: User Seal Check Procedures (Mandatory)**
- The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

OHD QuantiCheck

The world’s first quantitative seal check instrument

Background

- Meant to confirm seal
- Not a substitute for a fit test
- Often not performed
- Performed poorly
- No record

Applying Tech to Checks

- Sensor measures pressure decay
- Static check of respirator integrity and seal
- Companion app to track respirator performance

QuantiCheck User Seal Check Demo

Questions?

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