

## Notional Test Protocol

- ◆ **Scope:** Applies to hermetically sealed units or packaged units with no functional inspection procedure (e.g., single-use escape hoods)
- ◆ **Method:** Accelerated cyclic storage in environmental test chamber
- ◆ **Storage Conditions:**
  - ◆ Hot/dry: 71 oC at < 10% RH
  - ◆ Cold: -37 oC (RH uncontrolled)
  - ◆ Hot/humid: 45 oC at 85% RH
- ◆ **No. of Samples:** 6
- ◆ **Procedure:**
  - ◆ Packaged units stored for 1 week sequentially in each of above storage conditions; cycle repeated four times for a total of 12 weeks
  - ◆ Visual inspection - No critical or major defects (i.e., defects that adversely impact function or fit)
  - ◆ Three units undergo GB vapor system testing

- ◆ **Inhaled CO<sub>2</sub> and O<sub>2</sub> Content**
- ◆ **Fogging**
- ◆ **Vision**
- ◆ **Breathing Resistance**



## Inhaled CO<sub>2</sub> & O<sub>2</sub> Content

**Scope:** Applies to SCBAs and escape hood respirators

**Methods:** Per current protocols in 42 CFR 84 as appropriate



- ◆ Automated head form test for dead-air space (CO<sub>2</sub> measurement)
  - ◆ Breathing rate of 14.5 BPM at 10.5 Liters/min
- ◆ Human subject tests (i.e., existing man tests for SCBAs)



- ◆ Two test participants - one SCBA per test subject
- ◆ Respirators worn for requested service time
- ◆ Exercise activities in accordance to test Tables 1-4
- ◆ O<sub>2</sub>, CO<sub>2</sub>, and temp measured for closed-circuit SCBAs
- ◆ Measurements also taken for breathing resistance, heart rate, and respiration rate

## Lens Fogging: Notional Test Protocol

**Scope:** Applies to escape hood respirators

**Method:** Human wear trials in environmental chamber

**Conditions:**

- ◆ Ambient: ~23 oC at ~50% RH
- ◆ Hot/humid: 34 oC at 75% RH

**No. of Test Participants:** 6

**Procedure:**

- ◆ Respirator worn for 5 minutes at ambient conditions followed by 5 minute exposure to hot/humid condition
- ◆ Visual inspection - Degree of lens fogging and time to clear recorded



## Vision Testing: Notional Test Protocol

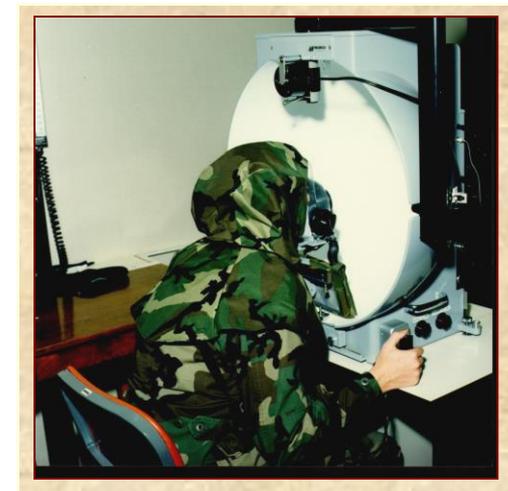
**Scope:** Applies to escape hood respirators

**Methods:** Binocular visual acuity and field of view (FOV) assessed

**No. of Test Participants:** 6

### **Procedure:**

- ◆ Visual acuity assessed using Snellen Eye Test charts or equivalent method at six meters
- ◆ FOV assessed using Macro Projection Perimeter
- ◆ Measure percent visual performance decrement between masked and unmasked wear conditions



## Breathing Resistance

**Scope:** Applies to all respirator types

**Methods:** Per current protocols in 42 CFR 84 as appropriate

- ◆ **Exhalation Resistance**

- ◆ **All respirator types: Full facepieces tested on head form at continuous air flow rate of 85 Liters/min**

- ◆ **Inhalation Resistance**

- ◆ **APRs (including PAPRs): Full facepieces tested on head form at continuous air flow rate of 85 Liters/min**
- ◆ **SCBAs & most SARs: Full facepieces tested on head form using breathing machine (@ 24 BPM, average minute-volume of 40 Liters/min and peak volume of 115 Liters/min)**

