

**National Personal Protective
Technology Laboratory**

Industrial PAPR Concept
Pittsburgh, PA

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Information Docket Industrial PAPR

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Industrial PAPR Implementation

- **Much of the Technical Work developed in the CBRN PAPR project can be applied to the Industrial Standard**
- **Will use Concept Paper format up to the initiation of Rulemaking – revised concept in 45 to 60 days**
- **Additional public meeting November 2005**
- **Formal Rulemaking Process –**
 - Follow administrative procedures and staffing requirements
 - Target date for formal notice January 2006
 - 18 to 21 months to implementation (Fall 2007)

Overview

- Place all PAPR requirements in one subpart of 42 CFR
 - Keep existing general categories (Subparts A-G)
 - Supersede Subpart KK
 - Clarify/update/consolidate requirements
 - Incorporate requirements for breath response and constant flow units
 - Provide provisions for positive pressure units

Major Areas Under Consideration

- **Indicators for flow/pressure & battery**
- **Low/moderate/high flow rating**
- **Two filter types (PAPR 95/PAPR 100)**
- **Single level canister/cartridge testing**
- **Conditioning/rough handling requirement**
- **General use (visual, human factors)**
- **Rated duration of battery in 1-hour increments**

Specific Design Consideration Areas

- Accessible switches
- Flexible breathing tubes
- Harness design (unit and head)
- Marked containers
- Lens impact resistance
- Low pressure- real time indicator
- Low flow- real time indicator
- Battery charge indicator
- Noise

Specific Performance Consideration Areas

- **Flow- Positive pressure**
 - Low ≥ 14.5 res./min @ 10.5 lpm
 - Moderate ≥ 24 res./min @ 40 lpm
 - High ≥ 30 res./min @ 86 lpm
 - + 30 res/min @ 103 lpm for 10 min
- **Flow- Continuous flow**
 - Low ≥ 85 lpm tight, 115 lpm loose
 - Moderate ≥ 115 lpm tight, 170 lpm loose
 - High ≥ 261 lpm tight, 350 lpm loose- last 10 min

Specific Performance Consideration Filter

- **PAPR 95- 95% initial filter efficiency when tested against DOP**
- **PAPR 100- 99.97% efficiency when loaded with DOP as the test challenge**
- **Test at highest flow rate of system divided by number**

Specific Performance Consideration Gas/Vapor

- All tested in same manner
- Flow divided by number of units
- Concentrations similar to CBRN

Specific Performance Consideration – Inlet Covering

- CO2 machine test
 - 14.5 res/min 10.5 lpm, 5% CO2 ex., $\leq 0.5\%$ in.
- Breathing gas human subject test
 - Stand then walk at 3.5 mph
 - O2 $\geq 19.5\%$
 - CO2 $\leq 2\%$
- LRPL
 - PF $\geq 10,000$ for $\geq 95\%$ of trials

Specific Performance Consideration - Other

- Eyepiece
 - Impact res. or state otherwise
 - Low temp fog resistant
- ESLI
 - Per existing criteria
- FMEA (failure mode effects analysis)
- Hydration device option
- Intrinsic Safety per recognized lab

New considerations

- **All PAPRs tested and evaluated as positive pressure**
- **Evaluation criteria for silent mode operation**
 - Test requirements with blower off
 - Could serve as FMEA
- **Add field of view requirement**