

National Personal Protective Technology Laboratory

Industrial PAPR/CBRN Step 2 Concepts

Sheraton Station Square
Pittsburgh, PA

Jon Szalajda
Bill Hoffman

December 13, 2005



Industrial PAPR Concepts

- The module must be flexible enough to cover a potential wide range of applications while providing the desired respiratory protection to the user
- The module must also have the flexibility to provide for specific tests associated with specific applications (like CBRN or Mining)
- One size fits all approach may be too restrictive for some applications and not protective enough for others



Industrial PAPR Concepts

Concept for consideration: Develop PAPR performance requirements using categorization techniques

Base Requirements – Performance requirements that all PAPR exhibit

Enhanced User Requirements – Performance requirements based on the type of system being evaluated

Advanced Specific Requirements – Performance requirements based on the workplace use of the system



Industrial PAPR Concepts

Base Requirements – Performance requirements that all PAPR exhibit

Examples:

- Maintain positive pressure in the breathing zone
- Inhalation/Exhalation Resistance
- Low pressure indicator



Industrial PAPR Concepts

Enhanced User Requirements – Performance requirements based on the type of system being evaluated

Examples:

- Field of View
- Lens Abrasion
- Low Temperature

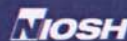


Industrial PAPR Concepts

Advanced Specific Requirements – Performance requirements based on the workplace use of the system

Examples:

- CBRN
- Mining
- Healthcare



Industrial PAPR / CBRN Step 2 Implementation

- Much of the Technical Work developed in the CBRN PAPR project can be applied in the Industrial Standard
- CBRN Step 2 will be an Advanced Specific Requirement in the new Industrial PAPR Standard
- Will use Concept Paper format up to the initiation of Rulemaking
- Next edition of the Concept paper during 2QFY06 will expand on categorization
- Additional public meeting late spring 2006
- Formal Rulemaking Process –
 - Follow administrative procedures and staffing requirements
 - Target date to begin rulemaking process by end of 2006
 - 18 to 21 months to implementation following initiation of rulemaking processes



Current Industrial PAPR Concept

**Place all PAPR requirements in one
subpart of 42 CFR
(unchanged from 7/05)**

- Clarify/update/consolidate requirements
- Incorporate requirements for breath response and constant flow units
- Keep existing general categories (Subparts A-G)
- Provide provisions for positive pressure units



Current Industrial PAPR Concept

Design Consideration Areas

(unchanged from 7/05)

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



Workplace
Safety and Health



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Current Industrial PAPR Concept

Specific Performance Consideration Areas

(revised from 7/05)

- All considered Positive pressure
- 3 Flow ratings
 - Low: remains positive @ 14.5 res/min @ 10.5 lpm
 - Moderate: remains positive @ 24 res/min @ 40 lpm
 - High: remains positive @ 30 res/min @ 86 lpm
& 30 res/min @ 103 lpm for 5 min



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Current Industrial PAPR Concept

Filter

(Unchanged from 7/05)

- PAPR95- 95% initial filter efficiency when tested against DOP
- PAPR100- 99.97% efficiency when loaded with DOP as the test challenge
- Test at highest flow rate of system divided by number of filters



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Current Industrial PAPR Concept

Canister/Cartridge

(revised from 7/05)

- Cartridges tested same as Part 84 except eliminate the one-half minimum life test times
- Canisters tested same as CBRN
- Flow is highest flow rate specified by manufacturer divided by number of units



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Current Industrial PAPR Concept

Other Testing (Revised from 7/05)

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 $\geq 2,000$ or 10,000 for $\geq 95\%$ of trials
as requested by applicant



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Current Industrial PAPR Concept

Questions?



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