

# CBRN PAPR Standard Development

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# Standard Development

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- Existing NIOSH or Military Standards are not completely applicable to meet a terrorism agent threat
- Inherent differences between NIOSH and Military Standards
  - Purpose
  - Target user groups
  - Hazards
  - Operation
  - Protection



# CBRN PAPR Standard Development

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## Goal:

Develop a NIOSH/NPPTL powered air purifying respirator standard that addresses CBRN materials identified as inhalation hazards and/or possible terrorist hazards for emergency responders.

# **CBRN PAPR Standard Development**

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- A. Hazard analysis**
- B. Protection**
- C. Human factors and environmental factors**
- D. Standards concept definition**
- E. Test requirements and research**
- F. Testing and validation**
- G. Quality assurance requirements**
- H. Public process**



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- 42 CFR, Part 84 – applicable sections
- Requirements derived from other standards and specifications
- Special CBRN PAPR requirements

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- Applicable sections of 42 CFR, Part 84
  - 42 CFR Part 84, Subparts A, B, D, E, F, and G
  - 42 CFR Part 84, Subpart KK:  
Paragraphs 84.1101; 84.1103; 84.1130(b);  
84.1131–84.1138; 84.1150; 84.1154;  
84.1155



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## Requirements based on existing National and International standards

- Respirator containers
  - Markings and labeling
  - Minimum packaging configuration
- General construction
  - Battery requirements
  - Low flow / Pressure Indicator
  - Operational controls

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## Requirements based on existing National and International Standards

- Breathing performance
  - Moderate and high breathing rate performance
  - Breathing performance requirement
  - Test time
- Field of view
- Haze, luminous transmittance, and abrasion resistance



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Requirements based on existing  
National and International Standards

- Low temperature and fogging
- Communications
- Carbon dioxide
- Hydration
- Noise levels

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- Special CBRN requirements
  - Gas life testing (incl. panic demand)
  - CWA penetration and permeation
  - LRPL
  - Practical performance



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- Being conducted in public forum
- Meetings with
  - Stakeholders
  - Manufacturers
- Use of website for concept papers
  - <http://www.cdc.gov/niosh/npptl>

# CBRN PAPR Standard Development

## Docket and Meeting Comments

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### Public meetings

- October 2003
- May 2004

### Docket

- 10 submissions



# CBRN PAPR Respirator Concept Docket and Meeting Comments SUMMARY BY TOPIC

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- Abrasion resistance
- Airflow
- Battery requirements
- Blower requirements
- Breathing resistance
- Canister interchangeability
- Canister shelf life
- Carbon dioxide
- Container requirement
- Crisis mode
- Decontamination and maintenance
- Environmental conditioning
- Facepiece pressure
- Harness design
- Intrinsic safety
- Labels
- Low flow indicators
- LRPL
- Noise levels
- Operational controls
- Particulate canister
- Required components
- Service life testing

# CBRN PAPR Standard Development Docket and Meeting Comments Air Flow (1 of 2)

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## COMMENTS

- Consider different flow rate requirements for different work rates of users
- Constant flow PAPRs and pressure-demand PAPRs should have different test criteria due to difference in design

## HOW ADDRESSED

- 2 Breathing rate performance categories established (moderate and high)
- Gas life capacity is tested at different flow rates for constant flow and demand responsive units



# CBRN PAPR Standard Development Docket and Meeting Comments Air Flow (2 of 2)

## COMMENTS

- Consider performing gas life testing at the average flow through each filter with the entire unit mounted on breathing machine
- Clarification needed, is 115 Lpm the minimum flowrate required, or can the manufacturer specify another?

## HOW ADDRESSED

- *Gas life capacity is tested at different flow rates for constant flow and demand responsive units*
- *Manufacturer may specify based upon system design*

# CBRN PAPR Standard Development Docket and Meeting Comments Decontamination / Maintenance

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## COMMENTS

- Does the standard include specific requirements for decontamination and maintenance?

## HOW ADDRESSED

- Storage and Maintenance procedures are required in the manufacturers User Instructions
- Decontamination procedures are not a standard requirement