

New Technology and Innovations in Respiratory Protection

Sean Murray
3M Construction & Home
Improvement Markets Division
Friday, September 14, 2007

Technological Breakthroughs

□ **New Exhalation Valve**

- Allows hot air to leave, decreases moisture buildup inside facepiece
- Easier to breathe
- Valve position on face critical to expelling hot air
- Available on filter facepiece and elastomeric facepiece respirators
- Increases worker comfort, safety compliance and productivity



Technological Breakthroughs

□ **M Shaped Nose Clip**

- Molds easily to face
- Less crimping reduces pressure on bridge of nose
- Custom and secure fit
- Reduced potential for eyewear fogging
- Increases worker comfort, safety compliance and productivity

Technological Breakthroughs

❑ **Foam Face Seal**

- Molds easily to face
- Soft and secure
- Conforms to face for long lasting comfort
- Conforms to wide range of face sizes
- Increases worker comfort, safety compliance and productivity

❑ **New Filter Media**

- Electrostatically charged filter media pull particles to the media
 - ❑ Makes breathing easier and cooler
- Less filter media needed to achieve filter efficiencies
 - ❑ Easier to breathe with less filter resistance
- Increases worker comfort, safety compliance and productivity

Technological Breakthroughs

□ **Cake Resistant Filter Media**

- Multi-layered filter traps large particles first and finer particles further inside
- Easier breathing during longer wear time
- Increases worker comfort, safety compliance and productivity

□ **Odor Removing Filter Material**

- Specially treated carbon removes nuisance level odors (levels below OSHA PEL)
- Increases worker comfort, safety compliance and productivity

Technological Breakthroughs

❑ **Silicone facepiece**

- Soft on face
- Less pressure on nose
- Reduces pressure ring/painter face on sealing surface
- Increases worker comfort, safety compliance and productivity

❑ **New Filter/Cartridge combinations**

- Polyethylene/polypropylene filter
 - ❑ Activated carbon or loaded web not possible on fiberglass
- OV/AG nuisance level relief
- Geared for use in mining industry
 - ❑ Aluminum smelting
 - ❑ Hydrogen fluoride
- Multi Gas/Vapor Cartridge: NIOSH approved for chlorine, hydrogen chloride, chlorine dioxide, sulfur dioxide, and hydrogen sulfide (escape only)

New Ways to wear Powered Air Purifying Respirators (PAPRs)

- **Old OSHA rule:** chemical cartridges not to be used for isocyanates due to poor warning properties
 - PAPRs not allowed
- **Current OSHA rule made in 1998:** air monitoring determines contaminant level
 - Smell and taste no longer the standard
 - Cartridge changeout schedule required
 - PAPRs with chemical cartridges allowed
 - PAPRs increase portability
 - PAPRs increase worker comfort, safety compliance and productivity

Supplied Air Respirators

- Dual Airline provides wearer flexibility
 - Use half or full facepiece with cartridges, Type C mode, or in combination
 - Cool or heat facepiece by 50 degrees
 - Increases worker comfort, safety compliance and productivity

- Figuring out which Chemical Cartridge to use
 - Air monitoring is critical in helping you determine cartridge changeout schedule



Questions???

- If you have any questions, email me at **s-murray@mmm.com**