

Enhancing Respiratory Protection in Mining

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Section 7

Quiz, Post Survey, Resources and References

Quiz (1)

1. You can ask for a respirator from your supervisor and use it immediately.

True_____ False_____

2. An N100 filtering facepiece will not protect you from oxygen deficiency or toxic gases.

True_____ False_____

3. Facial hair can prevent the proper fit of a respirator.

True_____ False_____

4. Mine operators can ask miners to wear respirators to demonstrate compliance with the new MSHA silica rule.

True_____ False_____

5. You can rely on your taste or smell to determine if the filters or cartridges need to be changed.

True_____ False_____

6. If you taste or smell the contaminant, you should take off the respirator right away and check if it is broken or if it fits properly.

True_____ False_____

Quiz (2)

7. You can use a supplied air (airline) respirator to enter an immediately dangerous to life and health (IDLH) environment.

True_____ False_____

8. Since a user seal check before each use ensures good seal, fit tests are not needed.

True_____ False_____

9. The respirators used in mining environment should be certified by_____

a) MSHA; b) OSHA; c) NIOSH; d) Respirator manufacturer

10. You need a fit test:

a) before initial use of a respirator; b) at least annually;
c) significant changes in weight or face; d) all of the above

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Disclaimer

- This material was produced under grant number 24R60BS000012-01-01 from the Mine Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.
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Training Survey



Follow-up survey (3 months later):

- **How has the training influenced respirator use?**
- **How many people have the trainers trained on this topic?**

For Industrial Hygienists and Trainers

- Please feel free to incorporate these training materials in your training. Please email Dr. Wang (xiaoliang.wang@dri.edu) if you need PowerPoint slides.
- Any suggestions on improving this training material are welcome.
- We would appreciate a report (preferably signup sheets) of how many people you trained on respiratory protection after each of your training sessions. This will help us evaluate the impact of this training program.

List of Acronyms

- APF: assigned protection factor
- CFR: Code of Federal Regulations
- CO: carbon monoxide
- DPM: diesel particulate matter
- DRI: Desert Research Institute
- EFR: Elastomeric Full-Facepiece Respirator
- EHFR: Elastomeric Half-Facepiece Respirator
- FFR: Filtering Facepiece Respirator
- ESLI: End-of-Service-Life-Indicator
- H₂S: hydrogen sulfide
- HE: high efficiency
- HR: Hazard Ratio
- IDLH: immediately dangerous to life or health
- MSHA: Mine Safety and Health Administration
- MUC: maximum use concentration
- NIOSH: National Institute for Occupational Safety & Health
- NO_x: oxides of nitrogen
- OSHA: Occupational Safety and Health Administration
- PAPR: powered air-purifying respirator
- PEL: permissible exposure limit
- PLHCP: physicians or other licensed health care professional
- PPE: personal protective equipment
- RCS: respirable crystalline silica
- SAR: supplied-air respirator
- SCBA: self-contained breathing apparatus
- SO₂: sulfur dioxide

Useful Resources – ASTM and Respirator Manufacturers

- ASTM F3387-19 *Standard Practice for Respiratory Protection*: a free read-only version can be viewed at: <https://www.astm.org/products-services/reading-room.html>
- ASTM F3620-22 *Standard Practice for Respiratory Protection - Respirator Use-Physical Qualifications for Personnel* (formerly ANSI Z88.6-2006): <https://www.astm.org/f3620-22.html>
- ASTM F3537-21 *Standard Guide for Respirator Fit Testing Methods* (formerly ANSI/AIHA Z88.10-2010): <https://www.astm.org/f3537-21.html>
- 3M Center for Respiratory Protection https://www.3m.com/3M/en_US/respiratory-protection-us/support/center-for-respiratory-protection/

Useful Resources - NIOSH

- Respirator Resource Page: <https://www.cdc.gov/niosh/topics/respirators/default.html>
- Respirator Trusted-Source Information: https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/RespSource.html
- Respirator Selection Logic: <https://www.cdc.gov/niosh/docs/2005-100/default.html>
- Selection and Use of Particulate Respirators: <https://www.cdc.gov/niosh/docs/96-101/default.html>
- PAPR Fact Sheet: <https://www.cdc.gov/NIOSH/docs/2013-146/pdfs/2013-146.pdf>
- MultiVapor® Application: <https://www.cdc.gov/niosh/npptl/multivapor/multivapor.html>
- Certified Equipment List: <https://www.cdc.gov/niosh/npptl/topics/respirators/cel/default.html>
- Approval Label Fact Sheet: <https://www.cdc.gov/niosh/docs/2011-179/default.html>
- Pocket Guide to Chemical Hazards: <https://www.cdc.gov/niosh/npg/>
- The National Personal Protective Technology Laboratory (NPPTL) <https://www.cdc.gov/niosh/npptl/default.html>

Useful Resources - OSHA

- Respiratory Protection Resource Page: <https://www.osha.gov/respiratory-protection>
- Respiratory Protection eTool: <https://www.osha.gov/etools/respiratory-protection>
- Small Entity Compliance Guide for the Respiratory Protection Standard:
<https://www.osha.gov/sites/default/files/publications/3384small-entity-for-respiratory-protection-standard-rev.pdf>
- CAL OSHA Dept. of Industrial Relations – Respiratory Protection in the Workplace – A Guide for Employers: https://www.dir.ca.gov/dosh/dosh_publications/respiratory-protection-employer-guide.pdf
- AIHA Technical Framework – A Resource for Respiratory Protection Programs:
<https://www.aiha.org/education/frameworks/technical-framework-resource-respiratory-protection-programs>

Other References

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- Kimberly-Clark Professional, (2011). "Workers Jeopardize Their Health and Safety by Failing to Wear Required Safety Equipment: Survey of Safety Professionals Finds High Rate of Noncompliance with PPE Protocols." Roswell, GA. Accessed on September 4, 2024. <https://www.prnewswire.com/news-releases/workers-jeopardize-their-health-and-safety-by-failing-to-wear-required-safety-equipment-126254403.html>.