

Mine Safety Quiz

Title: Respiratory Program Quiz

- T / F 1. Every mine must have a written respiratory protection program.
- T / F 2. Respiratory protection standards enforced in metal/nonmetal mines were published in 1973.
- T / F 3. MSHA requires miners who work near respirable dust to wear respirators.
- T / F 4. A good quality respirator will protect you from dust, harmful gasses, and harmful vapors.
- T / F 5. An air-purifying respirator will protect you from oxygen deprivation.
- T / F 6. A self-contained breathing apparatus (SCBA) is an air-purifying respirator.
- T / F 7. The amount of harm from mineral dusts depends on the particle size and composition.
- T / F 8. An air-line respirator is an atmosphere-supplying respirator.
- T / F 9. Beach sand is largely crystalline quartz.
- T / F 10. Almost all mine products contain crystalline silica at concentrations greater than 1 %.
- T / F 11. Mine products containing quartz at concentrations in excess of 1 % crystalline silica are considered to be hazardous chemicals.
- T / F 12. Mine air averaging more than 0.1 mg/m³ of crystalline quartz is a violation of MSHA standards.
- T / F 13. Mine products containing quartz at concentrations in excess of 1 mg/m³ require the use of a respirator.
- T / F 14. A miner exposed to mine air containing crystalline quartz at concentrations in excess of 0.1 mg/m³ for 8 hours is in violation of MSHA standards.
- T / F 15. A major source of exposure to respirable dust is improper housekeeping and a poor choice of cleanup procedures.
- T / F 16. Hosing down the ore pile is a good way to reduce dust.
- T / F 17. Properly functioning water sprays at critical locations in conveying, crushing, screening and sizing operations can significantly reduce respirable dust emissions.
- T / F 18. Dry dust control systems are ineffective.
- T / F 19. Operator isolation is an effective dust exposure control method, if applied correctly.
- T / F 20. Operator isolation may contribute to overexposure.
- T / F 21. Surface drills located out in the open air are a serious dust concern.
- T / F 22. Road dust is a safety concern, AND a health concern.
- T / F 23. MSHA will usually not require you to do a dust survey unless you have been cited for an overexposure condition.
- T / F 24. An MSHA citation usually brings with it the requirement that the mine operator begin to monitor dust and establish a respiratory protection program.
- T / F 25. Monitoring dust can be done by anyone with a little training.
- T / F 26. Crystalline silica is the same thing as crystalline quartz.
- T / F 27. Silicosis is a condition where crystalline silica causes the lung tissue to react by developing fibrotic nodules and scarring around the trapped silica particles.
- T / F 28. The effects of silicosis can be reversed, given time.
- T / F 29. The correct use of dust respirators requires training.
- T / F 30. Persons experiencing difficulty wearing a respirator should receive a medical evaluation to determine if they are capable of wearing one.
- T / F 31. A dust respirator is not effective if the person wearing it has beard stubble.
- T / F 32. Qualitative fit testing requires a specialist to perform.
- T / F 33. N, R, and P are measures of resistance to oil particles with N meaning the respirators are not resistant, R meaning the respirator can be used when oil particles are present and P meaning the respirator will protect against oil particles and can be used for more than one workshift.
- T / F 34. N99 means the respirator is not resistant to oil particles and is designed to remove at least 99% of the particles for which it is designed.

1)F, 2)T, 3)F, 4)F, 5)F, 6)F, 7)T, 8)T, 9)T, 10)T, 11)T, 12)F, 13)F, 14)T, 15)T, 16)T, 17)T, 18)F, 19)T, 20)T, 21)T, 22)c, 23)T, 24)T, 25)F, 26)F, 27)T, 28)F, 29)T, 30)T, 31)T, 32)F, 33)T, 34)T

Discussion of Answers

3. MSHA does not regulate dust emissions. MSHA regulates worker exposure to dust emissions and requires that engineering controls be put in place when workers are overexposed. Respirators are required as part of a complete Respiratory Protection Program when a mine has been cited for overexposure. Respirators are considered by MSHA to be a temporary corrective measure only while feasible engineering controls are being developed.
4. You need respirators that are specially designed for the airborne contaminant your workers are exposed to.
5. An air purifying respirator only filters out the contaminant for which it is designed. It does not add oxygen to the air. For oxygen deprivation you need an air-supplying respirator.
6. A SCBA is an air-supplying respirator in a small package designed for emergencies, and some underground mines require that one be available for each miner. It provides clean air for a short period of time (usually about an hour) while the miner escapes from a hazardous atmosphere.
7. Particles that are most harmful are the invisible ones that are less than 10 microns. The amount of harm depends on what they contain. For example, the 8 hour time-weighted average worker exposure to some particles is limited to 5 mg/m³, while for crystalline quartz, for example, the limit is 0.1 mg/m³. Other less common forms of crystalline silica have even lower limits – i.e cristobalite and tridymite have limits of 0.05 mg/m³.
8. Air is supplied to the person through a specially designed regulator/hose/face mask system.
9. Beach sand is composed of crystalline quartz, but the particle size is too large to be of concern. If this sand were to be abraded into fine particles less than 10 microns, it would become the very toxic crystalline quartz that causes silicosis.
10. Crystalline silica, which is usually in the form of quartz, is found in almost all rock formations at concentrations in excess of 1%. However, it is the concentration and composition of the very finely abraded (less than 10 micron) crystalline silica, which becomes airborne, that is of concern to workers. The standard is based on the concentration in the air miners are exposed to and not the concentration in the ore that is mined.
11. When mine products contain more than 1 % crystalline silica, they are considered to be hazardous chemicals; the mine must have an MSDS for the product and train workers about its hazards and protective measures.
12. MSHA doesn't regulate the concentration in the mine air. MSHA regulates the amount a miner is exposed to and measures this by mounting a sampler on the miner for the entire workshift.
13. MSHA doesn't regulate the amount in the mine product, but the amount in the air a miner is exposed to. However, the HazCom rule requires that when the mine product contains more than 1 % crystalline silica, the mine must have an MSDS available, on request, to miners and customers and train the miners in the hazards and protective measures.
15. As odd as this sounds, this is probably the major source of overexposure in many mines. The miner collects the fine toxic silica dust in his clothing and brings it into the lunchroom, office, vehicle cabs, control booths, his car, his home, etc. This dust collects in seat cushions, on the floors, walls etc. If fresh air is not continually ventilating this enclosed space, every movement the miner or others make, stirs up the fine crystalline silica dust, which is so fine that it remains airborne for hours. 1 teaspoon of this fine crystalline silica in the air inside a large great lakes ore carrier would cause the concentration in the air to exceed the level a miner can legally be exposed to over an 8-hour workshift. While, blowing the dust off of clothing prior to entering a clean environment would greatly reduce the problem, blowing off clothes with

compressed air is dangerous. However, consider a blower such as the Circuiteer II air blower (Item (DS)17594 \$339.95 – 28 lbs) that may be suitable to blow dust off clothing without causing harm to individuals. Phone Orders or Questions: 800-419-9524 Fax Orders: 800-446-5597 E-mail: Service@ValleyVet.com Valley Vet Supply. 1118 Pony Express Hwy . Marysville, Kansas 66508.

16. This would wash the fine silica dust from the rocks before they are transported to the next step in the process.
17. The placement of sprays is critical because each time a particle is crushed or abraded, new faces are exposed, which release the fine crystalline silica dust. The spray should preferably be directed at the particles while they are being crushed or abraded in other process steps.
18. Enclosed systems, which draw the dusty air away, are effective means of dust control.
19. Operator isolation is effective if precautions are taken to ensure that dusty clothes are not worn into the control room or other operator station. Good housekeeping and effective ventilation with fresh clean air will help ensure that a buildup of fine crystalline silica in the operator's workspace does not occur. See comment in item 15 above.
20. If the abovementioned precautions are not taken, operator isolation may very well become a major contributor to operator overexposure to crystalline silica.
21. Inadequate dust controls on surface drills is a major source of operator overexposure to crystalline silica. MSHA is very concerned and issues numerous citations
22. While it is not the visible dust that causes silicosis, visible dust is unsafe because it restricts operator visibility. Also, visible dust is an indication that the toxic respirable silica dust is present in excessive concentrations.
25. Dust monitoring requires training and experience. Equipment is expensive and maintenance is time consuming. Meaningful results require extreme care in following carefully-designed procedures. MSHA uses only MSHA's sampling results to determine whether or not an overexposure condition exists. Once a mine is cited for overexposure, mine operators may be required to sample to ensure that controls are working.
26. Crystalline quartz is only one form of crystalline silica. The three types of crystalline silica of main concern are quartz, tridymite and cristobalite. While the standard limits the average respirable crystalline quartz concentration to which a worker may be exposed over an 8-hour shift to less than 0.1 mg/m³, concentration limits for cristobalite and tridymite are ½ this level or about 0.05 mg/m³.
27. Chronic silicosis limits the ability of the lungs to transfer oxygen into the bloodstream through which it is delivered to other parts of the body. Acute silicosis, resulting from extremely high exposures for short periods of time, causes death by severe lung inflammation.
28. Silicosis is irreversible.
30. A medical evaluation will determine whether or not the person is capable of wearing a respirator. Some people cannot wear a respirator and breathe sufficient air to do work.
31. Beard stubble breaks the seal between the respirator and the worker's face, and the dusty air simply bypasses the respirator, offering no protection to the worker.
32. A kit with instructions is available for less than 100 dollars.