

CONFINED SPACE ENTRY HAZARD ALERT

Unsafe work in confined spaces has led to miner deaths and injuries in the metal and nonmetal mining industry. Recent tragic incidents include: a fatality while cleaning the inside of a tanker railcar and a miner being severely burned during maintenance of a baghouse screw hopper. To address these regrettable occurrences, special emphasis should be placed on enforcing MSHA standards related to entering bins, hoppers, silos, tanks, and surge piles. A best practice is to conduct a hazard assessment and implement a permitting system as part of a safe entry standard operating procedure (SOP).

Best Practices

- Identify all possible confined spaces at a mine and associated hazards.
- Inform miners by posting danger signs “Confined Space Do Not Enter Permit Required” - Do not allow unauthorized entry.
- Plan - Establish a written SOP that includes a permit to work and enter system, communication and emergency plan and train miners on the plan.
- Identify authorized entrants.
- Isolate the space. Assure energy sources are deenergized (lockout & tag out).
- Conduct pre-entry testing. Test the internal atmosphere for oxygen content, flammable gases and vapor, and potential toxic air contaminants.
- Monitor the atmosphere. Continuously monitor conditions in areas where authorized entrants are working. Provide an early-warning system. Assure that monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space.
- Do not enter an area that has less than 19.5% oxygen.
- Assign an “attendant” – someone to maintain contact with the entrant while they are in the confined space.
- **Do NOT enter a confined space in an attempt to rescue a downed employee or co-worker if you don't know the atmospheric condition or have special lifesaving equipment. Rescue attempts in a toxic atmosphere by untrained personnel are extremely dangerous and can lead to multiple deaths.**



MSHA standards related to hazards of entering bins, hoppers, silos, tanks, and surge piles

- CFR Parts 56/57.16002 - Bins, hoppers, silos, tanks, and surge piles have to be equipped with mechanical devices or other effective means of handling material to assure that miners are not required to enter or work in areas where they are subject to being entrapped by either caving or sliding materials during normal mine operations. If miners have to enter areas to perform maintenance or inspection work, ladders, platforms, or staging equipment has to be provided. No miner is permitted to enter a facility until the supply and discharge of materials has ceased and the supply and discharge equipment is locked out. Miners entering the area shall wear a safety belt or harness equipped with a lifeline properly fastened. A second person, similarly equipped, has to be stationed near the lifeline fastening and constantly adjust the lifeline to assure minimum slack.
- CFR Part 56/57.14105 – Repair and maintenance is performed only when machinery or equipment is powered off and miners are protected against hazardous motion.
- CFR Parts 56/57.15006 & .5005 - Protective equipment and clothing and proper respiratory protection has to be available and in reliable condition whenever hazards or irritants exist. Assure monitors are properly calibrated.
- CFR Parts 56/57.5001 & .5002 - Measurement of airborne exposure limits and monitoring of dust, gas, and fumes has to be conducted to determine the adequacy of control measures.
- CFR Part 57.5015 – A minimum 19.5% volume of oxygen content has to be maintained in active underground work areas.
- CFR Parts 46 & 48 - Miners must be trained and retrained.



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