



EMPIRE
PACIFIC

Risk Management, Inc.

HAZARDOUS ATMOSPHERES IN CONFINED SPACES

Company Name _____ Job Name _____

Employees in many industries enter a variety of confined spaces for inspections, testing, repair or cleaning. A confined space is any area that: (a) has limited openings for entry and exit; (b) may contain or produce toxic air contaminants; (c) has a high concentration of an inert gas; (d) is not intended for continuous occupancy; and (e) may have an oxygen-deficient atmosphere. All such spaces must be analyzed and tested before entry. Workers should also be trained to understand the hazards that may be found in these spaces. A few of the potentially hazardous gases are:

Freon® - This is a non-flammable liquid used primarily as a solvent for flushing a space or can be found as a gas in refrigeration systems. To prevent release, all refrigeration and transfer systems must be leak free. When working with Freon, there must be an alarm device in the area to warn of dangerous airborne concentrations. Since Freon is heavier than air, vapors will settle along the floor. Because of this, if the Freon alarm sounds or if you discover a leak, stand upright as you leave the area.

Carbon monoxide - This gas is usually produced by the exhaust of an engine or heater. It is colorless, odorless, tasteless, and deadly. If the air you breathe contains carbon monoxide, the gas interferes with your body's ability to utilize the oxygen that is in your lungs. In other words, you can still breathe, but it does not do you any good. Unconsciousness, and often death, comes very quickly. Keep any fuel burning devices out of, and away from, confined and enclosed spaces.

Hydrogen sulfide - This is the colorless gas with a rotten egg smell. You may think that the smell alone would give you plenty of warning that the gas is present. Beware--it doesn't! After a whiff or two, in higher concentrations, the gas can desensitize your sense of smell, depending on the concentration, so you no longer detect the warning odor. Hydrogen sulfide is released during the decay of organic matter found in mud, sewage, etc., and is often prevalent during oil & gas drilling. It is heavier than air, so stay high if you suspect a problem and are trying to escape. Keep an eye out for blackened brass or copper pipes and fittings. Such indications could indicate that hydrogen sulfide gas is now present, or may have been in the past.

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Carbon dioxide - Decaying animal or vegetable matter can create this gas, the gas may have been used to inert a space, or it may have leaked from a fire suppression system. The gas is odorless, colorless, and displaces the oxygen within the space, which can be fatal.

Ammonia -- This gas has good warning properties because it is extremely irritating to the eyes, nose, and moist skin. When exposure is gradual, most people are driven from the area before injury can occur. However, if the exposure is extensive or prolonged, severe irritation to the respiratory tract can result in respiratory arrest and death. If the odor of ammonia is strong, it is a sign that a leak exists, and must have attention before the space is entered.

Welding gases - Acetylene, oxygen, argon, and helium are all gases used in welding that might find their way into a confined space and threaten your life. These all have different properties and dangers but they most often enter a confined space due to a simple error, such as leaving an unused welding hose in the space. Never leave a welding gas hose in a confined space--even if it's turned off. It is too easy for someone to turn a wrong valve by mistake, and release gas that becomes a killer.

Safety Recommendations: _____

Job Specific Topics: _____

M.S.D.S Reviewed: _____

List of Attendees

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