Confined Space Atmosphere: The Invisible Killer

Danger is usually something we can see with our eyes, or hear with our ears. The serious dangers associated with confined spaces, however, are *invisible* and *silent*.

Entering a tank, vault, boiler or manhole, for example, can be a hazardous journey for anyone who doesn't respect the unknown, potential killers that may lurk inside. A variety of conditions make working in a confined space uncomfortable, such as minimal room, abnormal temperatures or difficult entries. However, the *life-threatening condition* is simply the *quality of air* that exists in the space. The laws of human physiology are unbending about what must be done before entering a confined space, and well-trained workers know and follow prescribed steps. Even so, tragedies continue to occur when individuals disregard these critical steps and assume, "What you can't see can't hurt you!"

What Is a Confined Space?

OSHA defines a confined space as any space which, by design:

- Is large enough and so configured that an employee can bodily enter and perform assigned work
- Has limited or restricted means for entry or exit
- Has unfavorable natural ventilation which could allow or produce dangerous atmospheric contaminants
- Is a space which is not intended for continuous occupancy
- Examples include tanks, vessels, silos, storage bins, hoppers, vaults and pits

What Are the Atmospheric Hazards of a Confined Space?

Let's focus on the major atmospheric hazards associated with confined spaces: oxygen deficiency, toxic vapors or gases, and flammable vapors or gases.

- Oxygen Deficient Atmospheres are those that contain less than 19.5% oxygen.
- Toxic vapors and gases that exceed their Permissible Exposure Limit (PEL) should be considered Immediately Dangerous to Life or Health (IDLH).
- Flammable or combustible atmospheres are those in which flammable or combustible vapors/gases are equal to or greater than 10% Lower Exposure Limit (LEL). Remember to always check both the LEL and PEL of a suspected substance in the air!

How Can You Be Sure a Confined Space is "Safe for Workers"?

A *trained person* must always test the atmosphere of a confined space before anyone enters. If low oxygen, or elevated toxicity, or flammability is found when tested, the space is not safe for entry!

When entering a confined space you must follow strict safety procedures. Many people have died because they did not do this, or were not fully prepared for the serious hazards involved. ALWAYS remind yourself of the possible dangers involved in entering confined spaces and take the necessary precautions.

WHEN IN DOUBT, STAY OUT!

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