

4 Hazards of Dangerous Atmospheres

Get familiar with the main dangerous atmospheres you face, so you can be prepared to deal with them.

Combustible Atmospheres

Caused by:

- Decomposed organic matter
- Evaporated flammable liquids
- Chemical dusts
- Pesticides
- Wood
- Rubber
- Small particle textiles

Combustible atmospheres contain substances or mixtures in air that **ignite or explode** if they're the right size and concentration. To combust, the atmosphere needs:

- Enough **oxygen** to maintain combustion
- Enough **heat** to raise the material to its ignition temperature
- A combustible **fuel** source
- A **chemical reaction**



Oxygen-deficient Atmospheres

Caused by:

- Inert gases used to displace oxygen
- Rusting metals
- Drying paint
- Combustion
- Bacteria

Oxygen deficient atmospheres are a leading cause of incidents and fatalities in confined spaces. Normal atmospheres contain 20.9-21% oxygen. Oxygen deficient atmospheres contain less than 19.5% oxygen. Low oxygen causes physiological symptoms and can lead to death within minutes.

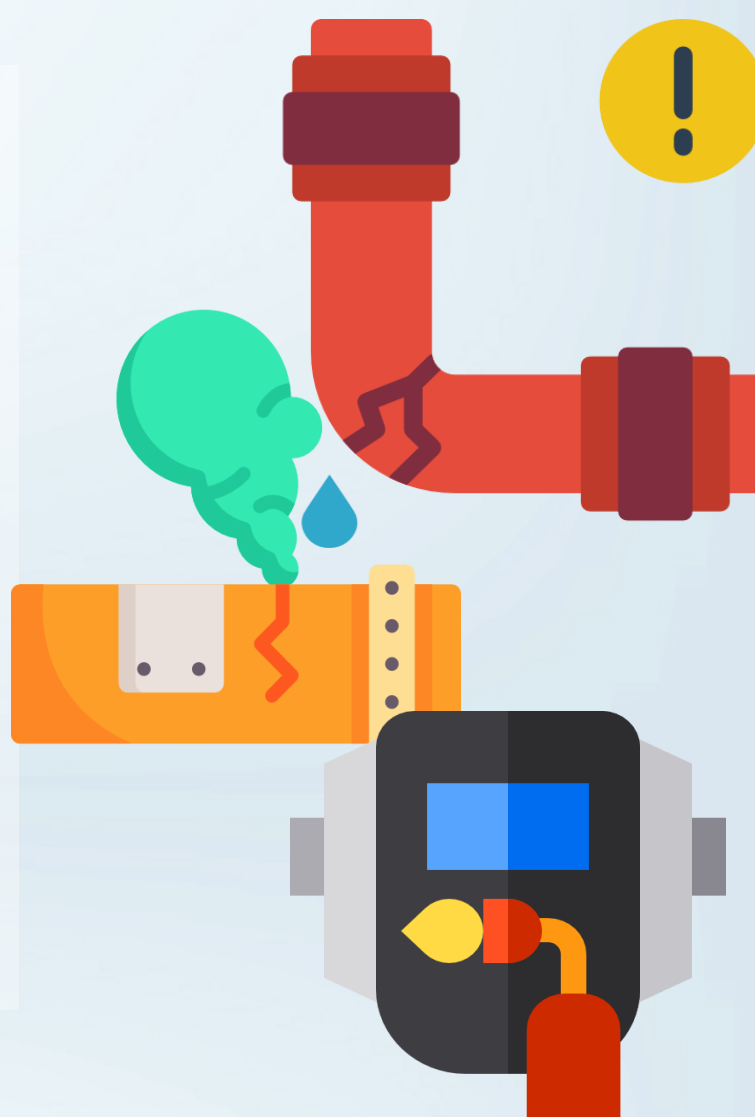


Oxygen-enriched Atmospheres

Caused by:

- Leaking pipes, connections, and flanges when there's inadequate ventilation
- Oxygen use in cutting and welding processes
- Liquid oxygen spills or evaporation of liquid oxygen
- Areas where oxygen vents are located

Oxygen enriched atmospheres contain more than 22% oxygen. These atmospheres present serious **fire and explosion** risks. Oxygen itself doesn't burn, but it does support the combustion of other substances, and is capable of reacting with organic materials and metals.



Toxic Atmospheres

Caused by:

- The type of work being performed in the space
- The types of products stored or used in the space

Toxic effects include:

- Tissue damage
- Nervous system impairment
- Severe illness
- Death

The toxic effects of gases range from harmless to **extremely toxic**. Some are **life-threatening** at even short, **low-level exposures**, while others are hazardous only after **multiple exposures** at higher concentrations.



Always be aware of the atmospheric hazards you might face, and use detection equipment accordingly.