ASSESSING ATMOSPHERIC HAZARDS

It is important to know something about the different kinds of hazardous atmospheres when determining the need for a respirator.

Gaseous Contaminants
- Gaseous contaminants are generally colorless and can combine with the air that we breathe.
- They are generally two types:
  1. Gases such as carbon dioxide are solids at low temperatures or liquids at higher pressures or a liquid in a pressurized tank.
  2. Vapors are like gases. They are formed by vaporization of liquid substances such as ammonia.

Particulate Contaminants
- Particulate contaminants are made up of tiny particles of a substance.
- These particles are often so small that they are easily inhaled. There are three types of particulates:
  1. Dust: Solid particles produced by grinding, crushing, sanding and mixing powder compounds.
  2. Mists: Tiny liquid droplets given off when a liquid is sprayed, mixed, or agitated.
  3. Fumes: Solid condensation particles of extremely small size, such as from welding.

Combination of Contaminants
- Gaseous and particulate contaminants can often occur together.

Oxygen Deficient Atmospheres
- Oxygen deficient atmospheres are classified as immediately dangerous to life or health (IDLH).
- Examples of potential oxygen deficient locations or situations are chemical tanks, confined spaces and other poorly ventilated areas.
- An oxygen deficient atmosphere can happen in two ways:
  1. The oxygen is “used up” by a chemical reaction, such as what happens in a fire or when metal inside a tank uses up the oxygen in the process of rusting.
  2. The oxygen can be replaced by another gas filling up the space.
Immediately Dangerous to Life or Health

- IDLH atmospheres are any atmospheric concentration of any toxic, corrosive or asphyxiate substance that
  1. Poses an immediate or delayed threat to life, or
  2. Would cause irreversible adverse effects on health, or
  3. Would interfere with an individual’s ability to escape from a dangerous atmosphere.

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