



Weekly Safety Meeting

Your Safety Is Our Business®

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Benzene Safety

Benzene is a clear, colorless, flammable liquid that is extracted from crude oil. It is also called Benzol, coal naphtha, cyclohexatriene, phene, phenyl hydride, and pyrobenzol. Benzene is widely used to produce many other chemical compounds.

Styrene and cyclohexane are major products of benzene as well as detergents, dyes, insecticides, pharmaceuticals, varnishes, and plastics. It is also an excellent solvent, although it should never be used as such due to its extreme flammability.

Because it forms explosive mixtures with air, benzene may be used as a fuel component for internal combustion engines and it is an excellent octane enhancer.

Benzene is often present at levels from 1/2 percent to 5 percent in gasoline, diesel fuel, and aviation gas as a by-product of the refining process. What a useful chemical—but it has drawbacks.

Physical hazards:

- Flammability is a prime concern.
 - Vapors can form explosive mixtures.
- Benzene is incompatible with oxidizers (nitric acid, oxygen, etc.).

Health hazards:

- Inhalation, in industry, the primary route of exposure: Poisonous;
- Eye exposure: Severe irritant;
- Skin exposure: Contact is moderately irritating (can lead to burns and blistering in extreme cases) and poisonous;
- Ingestion (swallowing): Moderately toxic; and
- Described as a narcotic.

Benzene is primarily an inhalation hazard. Inhalation of high concentrations can affect central nervous system function. Aspiration of small amounts of liquid benzene immediately causes pulmonary edema and hemorrhage of pulmonary tissue.

Benzene is harmful, especially to the tissues that form blood cells. Brief exposure of 5-10 minutes to benzene in air at very high levels can cause death.

Exposure to benzene happens mostly from breathing contaminated air from industry, automobile exhaust (20% of exposure), tobacco smoke (50% of exposure), or gasoline fumes.

Effects of exposure

Benzene is acutely toxic if absorbed through the skin or if the vapors are inhaled.

High levels of benzene can cause drowsiness, dizziness, rapid heart rate, headache, tremors, confusion, and unconsciousness.



Breathing lower levels over a long period of time can harm blood cells and bone marrow and cause cancer.

Eating or drinking high levels of benzene can cause vomiting or irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, coma, and death.

With exposures from less than five years to more than 30 years, individuals have developed, and died from, leukemia.

Communication of benzene hazards

Labels or other appropriate forms of warning shall be provided for containers of benzene within the work environment.

Signs will be posted in and around regulated areas as well as entrance and access points.

A regulated area is any area where airborne concentrations of benzene exceed, or can reasonably be expected to exceed, the PELs.

The signs must read:

- DANGER
- BENZENE
- CANCER HAZARD
- FLAMMABLE – NO SMOKING
- AUTHORIZED PERSONNEL

First-aid procedures

Listed below are suggested actions to take in situations involving benzene exposure:

- Eye – Flush immediately with large amounts of water for 15 minutes. Seek medical attention.
- Skin – Promptly wash with soap and water, removing any contaminated clothing. Seek medical attention.
- Inhalation – Respiratory support. Seek medical attention.
- Ingestion – Seek medical attention immediately.

Be Aware...Always Handle Chemicals With Care!!

