Benzene Safety

What’s at Stake?

Benzene is a highly flammable, colorless or light yellow, sweet smelling liquid that evaporates quickly into the air. Since its vapor is heavier than air it can sink into the low-lying areas. It is found in products made from coal and petroleum. Lubricants, plastics, rubber, dyes, and other chemicals can be produced with benzene.

What’s the Danger?

Benzene works by causing cells not to work correctly. For example, it can cause bone marrow not to produce enough red blood cells, which can lead to anemia. Also, it can damage the immune system by changing blood levels of antibodies and causing the loss of white blood cells. Benzene is also harmful to the eyes, skin, airway, nervous system, and lungs and can cause blood cancers like leukemia. The seriousness of poisoning caused by benzene depends on the level of exposure and the age and overall health of the exposed person. The level of exposure depends upon the dose, duration, and work being done. Some examples of workers at risk of benzene exposure include the following:

- Factory workers where steel or rubber is made or processed.
- Workers in the printing industry or who work around printing inks.
- Fire fighters exposed to toxic smoke.
- Workers in gas stations, shoe making or repair, and who work in laboratories.

How to Protect Yourself

Read the Safety Data Sheet

Prior to working with benzene or any other chemical, take time to read the safety data sheet. Learn the signs and symptoms of exposure, safe use, what PPE to wear, and what to do if you’ve been (or think you’ve been) exposed.

Protect with PPE

- Wear chemical safety goggles and a face shield must be worn when contact/splash is possible.
    - Remove contact lenses prior to working with benzene.
- Use chemical protective clothing including, gloves, aprons, and boots. Safety

equipment manufacturers recommend the following as protective materials:
    - Polyvinyl alcohol, Viton, Barrier PE/PA/PE
    - Silver Shield – PE/EVAL/
    - Tychem BR/LV, Tychem Respsonder CSM, Tychem TK
- Respiratory Protection
    - NIOSH recommends
        - Over .5 ppm – NIOSH approved full facepiece with organic cartridge.
        - 5 ppm – NIOSH approved supplied air with full facepiece in pressure demand/positive-pressure mode.
        - 500 ppm is immediately dangerous to life and health.
        - If there is a potential for 500 ppm, a NIOSH approved self-contained breathing apparatus – SCUBA – with a full facepiece in pressure-demand/ positive-pressure mode with emergency escape air cylinder.
    - Check with federal, state, and provincial exposure guidelines.

Signs of Overexposure

Benzene is extremely hazardous if inhaled, ingested, or absorbed through your skin. Symptoms can start to develop within a few minutes to several hours after exposure:

- Drowsiness, dizziness, or tremors.
- Rapid or irregular heartbeat.
- Headaches, confusion, unconsciousness.
- Vomiting or irritation of the stomach.
- Convulsions, rapid or irregular heartbeat.

First Aid

Route of Entry	First Aid
Inhalation	If safe, wear PPE and move victim to fresh air. Call 911. Loosen tight clothing. Administer oxygen if available and you're trained. Perform CPR if victim is not breathing.
Ingestion	Call poison control or EMS. Do not induce vomiting unless told to do so by medical personnel. Never try to give an unconscious person food or drink.
Eye Contact	Remove contact lenses. Immediately begin to flush eyes with clean water for at least 1520 minutes. Call for emergency help.
Skin Contact/ Absorption	Flush skin with lukewarm water ASAP – for 15-20 minutes. While doing this remove contaminated clothing and shoes. Follow up with a doctor for any pain or irritation. Double bag, seal, label, and leave clothing, shoes, and leather goods at the scene for safe disposal.

Final Word

Benzene is a cancer-causing chemical and its exposure is regulated by strict safety regulations. Educate yourself on the hazards and protective measures and talk to your supervisor or safety contact if you have questions or concerns.