Benzene Dangers in the Workplace Meeting Kit



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

HOW BENZENE WORKS

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.

EATING FOODS OR DRINKING BEVERAGES CONTAINING HIGH LEVELS OF BENZENE CAN CAUSE THE FOLLOWING SYMPTOMS WITHIN MINUTES TO SEVERAL HOURS: Vomiting, Irritation of the stomach, Dizziness, Sleepiness, Convulsions, Rapid or irregular heartbeat, Death (at very high levels).

HOW YOU COULD BE EXPOSED TO BENZENE

- Outdoor air contains low levels of benzene from tobacco smoke, gas stations, motor vehicle exhaust, and industrial emissions.
- Indoor air generally contains levels of benzene higher than those in outdoor air. The benzene in indoor air comes from products that contain benzene such as glues, paints, furniture wax, and detergents.
- The air around hazardous waste sites or gas stations can contain higher levels of benzene than in other areas.
- Benzene leaks from underground storage tanks or from hazardous waste sites

containing benzene can contaminate well water.
- People working in industries that make or use benzene may be exposed to the highest levels of it.

Long-term health effects of exposure to benzene

The major effect of benzene from long-term exposure is on the blood. (Long-term exposure means exposure of a year or more.) Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection.

HOW TO PROTECT YOURSELF

WHAT TO DO IF EXPOSED TO BENZENE

- If the benzene was released into the air, get fresh air by leaving the area where the benzene was released. Moving to an area with fresh air is a good way to reduce the possibility of death from exposure to benzene in the air.
- If the benzene release was outside, move away from the area where the benzene was released.
- If the benzene release was indoors, get out of the building.
- If you are near a release of benzene, emergency coordinators may tell you to either evacuate the area or to “shelter in place” inside a building to avoid being exposed to the chemical.

BEST PRACTICES TO REDUCE EXPOSURE TO BENZENE

OSHA has set the exposure limit to 1ppm for an 8 hour work day and 5ppm exposure limit for a 15 minute frame. For most people the exposure to benzene is by gasoline and its vapors, however some individuals may be exposed to it elsewhere. Some best practices to reduce your chances of being overexposed to benzene are:

- Do not breathe in the vapors of gasoline.
- Fuel in a well-ventilated area.
- Avoid areas with excessive automobile exhaust as much as possible.
- Avoid any water that could possibly be contaminated with benzene.
- Do not smoke cigarettes and do not be in areas where you could be exposed to second hand smoke.
- Practice good hygiene and protect your skin. Washing your hands prior to eating can reduce the chance of exposure through ingestion and limiting skin exposure can reduce absorption of benzene through the skin.
- At work use engineering controls to reduce or eliminate the exposure to benzene. If exposure is still over the limit, respirators must be worn that are sufficient enough to protect individuals of overexposure.

LIMIT EXPOSURE TO BENZENE

1. Stay away from cigarette smoke. If you are a smoker, try to quit. Cigarette smoke is a major source of benzene exposure.
2. Try to limit gasoline fumes by pumping gas carefully and using gas stations with vapor recovery systems that capture the fumes. Avoid skin contact with gasoline.

3. When possible, limiting the time you spend near idling car engines can help lower your exposure to exhaust fumes, which contain benzene (as well as other potentially harmful chemicals).
4. Use common sense around any chemicals that might contain benzene. Limit or avoid exposure to fumes from solvents, paints, and art supplies, especially in unventilated spaces.
5. If you are exposed at your workplace, talk to your employer about limiting your exposure through process changes (such as replacing the benzene with another solvent or enclosing the benzene source).

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