

Laboratory Safety Bulletin

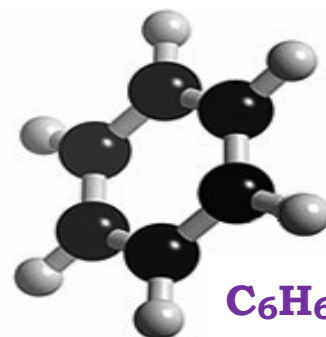
Phone: 519-253-3000 Ext. 3523 • E-mail: ccc@uwindsor.ca • Web: www.uwindsor.ca/ccc

Location: Essex Hall / B-37 • Hours: 8:30 am to 4:30 pm (M-F)

DESIGNATED SUBSTANCE: **BENZENE**

What is so hazardous about **Benzene**?

Benzene is an extremely flammable, colourless liquid with a sweet odor. Benzene is a natural constituent of crude oil, and may be synthesized from other compounds present in petroleum. It is also produced in volcanoes and forest fires, and is a component of cigarette smoke. Did you know that benzene attacks some forms of plastic, rubbers, or coatings? Benzene is harmful if inhaled or swallowed and is considered to be a mutagen and thereby may cause genetic damage. Benzene is also a known carcinogen with long term exposure leading to a form of leukemia. To aquatic organisms, benzene is very toxic.

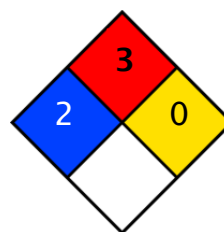


Hazard Classification – **Benzene**

WHMIS



NFPA



Health: 2
Flammability: 3
Reactivity: 0
Specific:

How can **Benzene** affect your body?

Blood	Nervous System	Reproductive System	Skin
Leukemia	Nausea	Birth defects	Mild to severe irritation
Kidney and liver damage	Loss of coordination	Fetotoxicity	Dermatitis
Damage to bone marrow	Coma in extreme conditions	Angulated ribs and dilated brain ventricles	Chemical blistering

What are the proper handling procedures for **Benzene**?

As an extremely flammable liquid, benzene must be kept away from any heat sources, sparks and/or open flames. Benzene has the ability to collect and retain static charge. The static charge may escape benzene in the form of a spark and may ignite benzene vapours contained with air. To remove static charge, all containers of benzene should be grounded, including any experimental equipment. All oxidizing agents, acids and halogens can react violently with benzene.

While working with benzene, as either the chemical reagent or as a solvent, you have to protect yourself from the harmful effects of its vapours. This is best achieved by working within a certified chemical fume hood. Always keep containers with benzene closed when not in use and always use the smallest amount as possible.

At all times the following should be worn: a laboratory coat, safety goggles and polyvinyl alcohol (PVA) gloves. Viton gloves are required for handling large amounts of benzene or in case of a possibility of direct contact with skin.

First Aid Procedures:

Eye Contact: If wearing, immediately and safely remove contact lenses. Flush eyes with water at an eye wash station for at least 20 minutes. Seek medical attention if symptoms develop or persist.

Skin Contact: Under running water, remove any contaminated items. Immediately wash skin with lukewarm water for 20 minutes or until the chemical is removed. Seek medical attention if symptoms develop or persist.

Inhalation: Remove victim to fresh air. If breathing has stopped a trained personnel should begin artificial respiration or CPR if the heart has stopped. Seek medical attention if symptoms develop or persist.

Ingestion: Loosen any tight clothing; collar shirt, belt or tie. **NEVER INDUCE VOMITTING.** Have the victim clean mouth with water and drink plenty of water afterwards to dilute the chemical. Seek medical attention immediately.

Where do you store Benzene and its empty containers?

Benzene must be stored in a cool, dry, well-ventilated area out of direct sunlight and away from heat and ignition. Keep containers tightly closed when not in use and when empty. Store in flammables cabinet away from oxidizers and corrosives and other incompatible materials such as peroxides. The storage area should be equipped with appropriate fire extinguishers, such as dry chemical, foam or carbon dioxide. Empty containers retain product residue, including liquid and/or vapor, and can be dangerous. The empty container should be returned to the Chemical Control Centre (CCC) for disposal.

What happens if Benzene is spilled?

Only minor benzene spills occurring within a fume hood and of a volume less than 25 ml can be safely handled on your own. Spill kits with instructions, adsorbents and protective equipment must be used. Any benzene spill larger than 25mL, or any spill that occurs outside of the fume hood is considered major and the area must be evacuated immediately. After evacuating all persons from the area, contact Campus Community Police by dialing 911 from a campus phone. Prevent material from entering sewers or confined spaces and stop or reduce leak if safe to do so. Close door and do not allow anyone to enter while waiting for assistance.

This lab safety bulletin is not a complete source on the safe handling of benzene at the University of Windsor. You should always check the SDS of benzene at www.uwindsor.ca/msds before you work.

For more information on benzene please, visit the Chemical Control Centre's University of Windsor Designated Substance Program at www.uwindsor.ca/ccc or contact the CCC by phone (ext. 3523).

For more information on spills please see the University of Windsor's Spill Response Manual at www.uwindsor.ca/ccc.

References:

1. *Benzene*, Material Safety Data Sheet, Sigma-Aldrich, Aldrich – 270709, Oakville ON 2007.
2. Cheminfo (2007), *Chemical Profile – Benzene*, Canadian Centre for Occupational Health and Safety, Retrieved April 20, 2007 from <http://ccinfoweb2.ccohs.ca/cheminfo/Action.lasso?...il.html&-op=eq&CHEMINFO+RECORD+NUMBER=179E&-search>
3. *Benzene*, Material Safety Data Sheet, Nova Chemicals, NOVA-0011, Calgary AB 2008.



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