

Great Western Painting Butadiene Awareness

BUTADIENE AWARENESS 1910.1051, Appendix A

While about 90% of the annual production of Butadiene is used to manufacture styrene-butadiene rubber and Polybutadiene rubber, it is also present at **refineries and petrochemical** plants. As a point of interest, butadiene is used in production of styrene-butadiene rubber and polybutadiene rubber for the tire industry. Other uses include copolymer latexes for carpet backing and paper coating, as well as resins and polymers for pipes and automobile and appliance parts. Butadiene is also used as an intermediate in the production of such chemicals as fungicides.

As part of process safety management of highly hazardous chemicals, prior to actual work in the petrochemical industry, our employees will be given training on negating the hazards relating to possible chemical exposures in the areas in which we will be working. Documented initial and annual butadiene awareness training will be given by a qualified person. Training will also address any special butadiene use or handling requirements.

Our employees will be made aware of the host facility evacuation and emergency/contingency plans and provisions which would include identification of the various hazardous chemicals (including butadiene and where it is used), their location, specific actions to take should there be an inadvertent spill, leak, or release of hazardous chemicals. Also during this pre-work training/orientation, all facility safety rules would be explained.

Prior to work in or at any facility where possible exposure to butadiene exists, employees will be given butadiene awareness training. All employees will have access to 29 CFR 1910.1051, *Substance Safety Data Sheet For 1,3-Butadiene (Non-Mandatory)*.

Characteristics of Butadiene:

Butadiene is a colorless, non-corrosive, flammable gas with a mild aromatic odor at standard ambient temperature and pressure. Butadiene may also exist as a cryogenic liquid. Butadiene is insoluble in water, stable, and reacts with oxidizers.

Health Hazards of Butadiene:

1. Butadiene can affect the body if the gas is inhaled or if the liquid form, which is very cold (cryogenic), comes in contact with the eyes or skin.
2. Effects of overexposure:

Breathing very high levels of butadiene for a short time can cause central nervous system effects, blurred vision, nausea, fatigue, headache, decreased blood pressure and pulse rate, and

unconsciousness. There are no recorded cases of accidental exposures at high levels that have caused death in humans, but this could occur. Breathing lower levels of butadiene may cause irritation of the eyes, nose, and throat. Skin contact with liquefied butadiene can cause irritation and frostbite.

3. Long-term (chronic) exposure:

Butadiene has been found to be a potent carcinogen in rodents, inducing neoplastic lesions at multiple target sites in mice and rats. A recent study of butadiene-exposed workers showed that exposed workers have an increased risk of developing leukemia. The risk of leukemia increases with increased exposure to butadiene. OSHA has concluded that there is strong evidence that workplace exposure to butadiene poses an increased risk of death from cancers of the lymphohematopoietic system.

4. Reporting signs and symptoms:

Employees should report to their supervisor if they develop any of the above signs or symptoms and suspect that they are caused by exposure to butadiene.

Requirements for Employees with Possible Exposure to Butadiene:

1. Smoking is prohibited in areas where butadiene is present or where butadiene may be released.
2. Fire extinguishers must be readily available where butadiene is present or where butadiene may be released.
3. Personal Protective Equipment (PPE)
 - a. Eye and skin protection must be worn where exposures to liquid butadiene may occur. This would include impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent the skin from becoming frozen by contact with liquefied butadiene.
 - b. Contact lenses may not be worn when working with butadiene.
 - c. Respirators will be required where exposures are above the permissible exposure limit. Emergency respirators may be required where release of butadiene occurs.

Note: PEL for butadiene: Exposure may not exceed 1 part butadiene per million parts of air averaged over the 8-hour workday, nor may short-term exposure exceed 5 parts of butadiene per million parts of air averaged over any 15-minute period in the 8-hour workday.

Note: At exposure below 5 ppm butadiene, a cartridge (or canister) respirator, either full or half face, may be used, but the cartridge must be replaced at least every 4 hours, and it must be replaced every 3 hours when the exposure is between 5 and 10 ppm.