

Great Western Painting

Benzene Awareness

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NIOSH Pocket Guide to Chemical Hazards - Benzene

When working in the petrochemical industry, there are locations where our employees may be exposed to benzene while performing their job functions. These locations include, but are not limited to:

1. petroleum refining sites
2. tank gauging (tanks at producing, pipeline & refining operations)
3. field maintenance

Characteristics of Benzene

Benzene is a toxic, **flammable**, colorless liquid or gas that has an aromatic odor. It is not soluble in water.

Note: **Because benzene liquid is highly flammable and vapors may form explosive mixtures in air, no smoking is allowed in areas where benzene is used or stored. Additionally, fire extinguishers must be readily available in areas where benzene is used or stored.**

Health Effects of Benzene

Short term health effects of overexposure to benzene include irritation of the eyes, nose and skin; euphoria, headache, dizziness, and nausea. More acute effects would include vertigo and **depression** of the central nervous system. Chronic (long term) health effects include blood disorders, such as leukemia and anemia, and **damage** to the central nervous system.

Personal Protective Equipment (PPE)

Necessary PPE to address benzene exposure would include eye and face protection, boots, gloves, sleeves, aprons, etc..

The competent person on site will require that all employees that are in an area with benzene must use any and all appropriate PPE at all times.

Exposure Limits

Employees must be aware of the exposure limits to benzene and they differ depending where the exposure occurs. Refer to the note, below:

1. Time-weighted average limit (TWA): an airborne concentration of benzene in excess of one part of benzene per million parts of air (1 ppm) as an 8-hour time-weighted average.
2. Short-term exposure limit (STEL): an airborne concentration of benzene in excess of five (5) ppm as averaged over any 15 minute period.

Note: The benzene standard (1910.1028) applies to all occupational exposures to benzene except some subsegments of industry where exposures are consistently under the Action Level (i.e. distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures).

For the above excepted subsegments, the benzene limits in 29 CFR 1910.1000 Table Z-2 apply, specifically, 10 ppm TWA. Also, exposures shall not exceed 25 ppm (ceiling) with the following exception: exposures may exceed 25 ppm, but not more than 50 ppm (peak), for a single time period up to 10 minutes for an 8-hour shift.

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.

Our employees will be made aware of the owner's contingency/emergency plans and provisions which would include identification of the various hazardous chemicals (including **benzene** 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.