

Benzene

Benzene is mainly used by the chemical industry in Australia and can be found in process streams at petroleum refineries and coke oven plants. Benzene is also produced during burning processes and can be found in vehicle exhaust emissions and cigarette smoke. NICNAS has assessed benzene and the report was published in September 2001. Following are the main occupational health and safety findings of this assessment.

Benzene is an established human carcinogen and chronic exposures can affect bone marrow and can cause leukaemia.

The risk of leukaemia increases with repeated exposure.

The most common route of exposure is inhalation, but the chemical can also enter the body through skin contact and by swallowing. Inhaling benzene vapours can cause irritation of the skin, eyes and respiratory system and in high concentrations, dizziness, headache, drowsiness and loss of consciousness.

RECOMMENDATIONS

- If a safer chemical or process can be substituted for one involving benzene, this should be done.
- Employ engineering control techniques to reduce fugitive emissions during transfers between closed systems.
- Eliminate the need to break open closed systems.
- Where benzene is not used in a closed system (such as laboratories) or is present as a contaminant of workplace air (such as car repair shops), good local exhaust ventilation should be ensured.
- Avoid skin contact by wearing benzene-resistant gloves and other personal protective equipment.
- Personal exposure monitoring and health surveillance should be conducted at workplaces assessed as posing a significant risk to the health of workers.
- The current national exposure standard is an eight-hour time-weighted average of 5 ppm. However, the report recommends to the National Occupational Health and Safety Commission (NOHSC) that the standard be lowered to 0.5 ppm and that industry adopt an interim standard of 1.0 ppm.

Benzene is a hazardous substance and is listed in the NOHSC *List of Designated Hazardous Substances*. It is classified as a Schedule 7 poison under the Standard for the Uniform Scheduling of Drugs and Poisons. It is classified in Class 3, flammable liquids, under the Australian Dangerous Goods Code with UN Number 1114 .

More information can be found in the Material Safety Data Sheet available from the supplier. A comprehensive source of information is the detailed assessment of benzene published by the National Industrial Chemicals Notification and Assessment Scheme (NICNAS). This is available free of charge on the NICNAS web site or by calling 1800 638 528. More information on the use of industrial chemicals can be found at the NICNAS web site: www.nicnas.gov.au