

CHLOROBENZENE**(C₆H₅Cl) CAS # 108-90-7 (Volatile Organic Compound)****Synonyms include monochlorobenzene, benzene chloride, MCB, chlorobenzol****SOURCE/USE**

Chlorobenzene is produced commercially by the chlorination of benzene in the presence of a catalyst (e.g. ferric chloride, aluminum chloride, stannic chloride). The primary uses of chlorobenzene are as a solvent for pesticide formulations, diisocyanate manufacture, degreasing automobile parts, and for the production of nitrochlorobenzene. Solvent uses account for 37% of chlorobenzene consumption. It is also used in diphenyl oxide and phenylphenol production. It is also used in silicone resin production and as an intermediate in the synthesis of other halogenated organics. The past major use of chlorobenzene was an intermediate in phenol and DDT production.

ROUTES OF EXPOSURE

Most exposures to chlorobenzene occur by inhalation. Although the risk of off-post acute exposure to chlorobenzene as a result of remediation at the Rocky Mountain Arsenal is very small, any such exposure would very likely be via inhalation. Also, the concentrations resulting in acute clinical effects discussed in this document reflect exposures when used as anaesthesia, in animal studies or from occupational scenarios. These exposures are much higher than those likely to be encountered at the fence line during remediation at the RMA. Chlorobenzene is heavier than air and may cause asphyxiation in enclosed, poorly ventilated, or low-lying areas. Other routes of exposure include dermal/ocular contact and ingestion.

APPLICABLE STANDARDS AND LIMITS	
ATSDR MRL	Not available
OSHA PEL TWA	345 mg/m ³
ACGIH TLV TWA	345 mg/m ³
Odor threshold	6 mg/m ³
RMA acute fence line criteria	ARC - ???mg/m ³ MARC - ???mg/m ³
RMA chronic fence line criteria	Cancer - NA Noncancer - 18.0 µg/m ³

NA - Not applicable. Cancer criteria were not derived for this chemical because it is not considered a carcinogen or because a cancer slope factor is not available.

The goal of the remediation is exposure prevention through remedial design, environmental monitoring, and modeling. Failure of prevention could result in acute and/or chronic exposures. Following is an overview of the types of health effects associated with chlorobenzene exposure.

ACUTE HEALTH EFFECTS

Generally, symptoms of CNS toxicity from chlorobenzene exposure include numbness, cyanosis (from depression of respiratory center), hyperesthesia, and muscle spasms.

No studies were located regarding the respiratory effects in humans after inhalation exposure to chlorobenzene.

No studies were located regarding the cardiovascular effects in humans after inhalation exposure to chlorobenzene.

Slight irritation to skin may occur from exposure to chlorobenzene.

Chlorobenzene vapor may irritate or burn eyes and nasal passages.

No data were found that severe liver damage results from acute exposure to chlorobenzene vapor. Liver hypertrophy and increased liver weights were found in rats exposed by inhalation.

Tubular dilation, interstitial nephritis and foci of regenerative epithelium are shown in male rats exposed to chlorobenzene vapor.

CHRONIC HEALTH EFFECTS

Chlorobenzene is not classified as a human carcinogen by the EPA. There is no available data on the developmental and reproductive effects of chlorobenzene after inhalation exposure.