

Toxicity Values for the TEACH Chemical Summary

Chemical Name: Benzene

Tox Value	Link	Date Last Revised	Value	Critical Effect(s)	Children's Studies?	Uncertainty Factors and Other Info
RfD	www.epa.gov/iris/su/bst/0276.htm	04/17/2003	4.0×10^{-3} mg/kg/day	Decreased lymphocyte count	None	UF=300 for the BMCL-oral-equivalent from the Rothman et al. (1996) study; MF=1
RfC	www.epa.gov/iris/su/bst/0276.htm	04/17/2003	3.0×10^{-2} mg/m ³	Decreased lymphocyte count	None	UF=300 for the BMCL-oral-equivalent from the Rothman et al. (1996) study; MF=1
Cancer Oral Slope Factor	www.epa.gov/iris/su/bst/0276.htm	01/19/2000	1.5×10^{-2} to 5.5×10^{-2} per (mg/kg)/day	Leukemia	None	Classification -- A; known human carcinogen
Cancer Drinking Water Unit Risk	www.epa.gov/iris/su/bst/0276.htm	11/01/1994	4.4×10^{-4} to 1.6×10^{-3} per 1.0 mg/L			Extrapolation Method -- Linear extrapolation of human occupational data
Drinking Water Concentrations at Specified Risk Levels	www.epa.gov/iris/su/bst/0276.htm	11/01/1994	E-4 (1 in 10 ⁴) 10 ² to 10 ³ µg/L E-5 (1 in 10 ⁵) 10 ¹ to 10 ² µg/L E-6 (1 in 10 ⁶) 10 ⁰ to 10 ¹ µg/L			
Inhalation Exposure-Air Unit Risk	www.epa.gov/iris/su/bst/0276.htm	01/19/2000	A range of 2.2×10^{-6} to 7.8×10^{-6} per 1.0 µg/m ³ benzene in air.			Extrapolation Method – Low-dose linearity utilizing maximum likelihood estimates (Crump, 1992, 1994)
Air Concentrations at Specified Risk Levels	www.epa.gov/iris/su/bst/0276.htm	11/01/1994	E-4 (1 in 10 ⁴) 13.0 to 45.0 µg/m ³ E-5 (1 in 10 ⁵) 1.3 to 4.5 µg/m ³ E-6 (1 in 10 ⁶) 0.13 to 0.45 µg/m ³			
MRL	www.atsdr.cdc.gov/mrls.html	09/97	Inhal. Acute = 0.05 ppm	Immunological		Factor = 300
			Inhal. Int = 0.004 ppm	Neurological		Factor = 90

MCL (drinking water)	www.epa.gov/safewater/mcl.html#mcls	July 2002	0.005 mg/L	Anemia; decrease in blood platelets; increased cancer risk		Sources: Discharge from factories; leaching from gas storage tanks and landfills
MCLG (drinking water)	same as MCL	July 2002	Zero			
Drinking Water Advisories (10-kg child)	www.epa.gov/ost/drinking/standards/dwstandards.pdf	Winter 2004	1 day - 0.2 mg/L 10 day- 0.2 mg/L			