NEW YORK STATE
- HUMAN HEALTH FACT SHEET -

Ambient Water Quality Value for Protection of Sources of Potable Water

**SUBSTANCES:**  
- o-Xylene
- m-Xylene
- p-Xylene

**CAS REGISTRY NUMBERS:**  
- o-Xylene: 95-47-6  
- m-Xylene: 108-38-3  
- p-Xylene: 106-42-3

**AMBIENT WATER QUALITY VALUE:**  5 ug/L*  

Remarks: *Applies to each isomer individually.

**BASIS:**  
- **Surface Water:** Principal Organic Contaminant Classes  
- **Groundwater:** Former Reference to 10 NYCRR Subpart 5-1 Principal Organic Contaminant (POC) General Maximum Contaminant Level (MCL)

**SUMMARY OF INFORMATION**

New York State developed a guidance value for the sum of isomers of xylene in water of 50 ug/L based on a review of literature up to 1984 (NYS, 1985). This was based on subdivision 701.15(e) of 6 NYCRR that describes a general value of 50 ug/L when the database is inadequate to derive a specific value. Recent assessments (1983-1989) of health effects have been reviewed (Becker, J.M. et al., 1987; Condie et al., 1988; USEPA, 1988).

Only a small number of studies have been done to differentiate the relative toxicities of the isomers separately and comparatively in parallel studies (Condie et al., 1988; Ungvary et al., 1980; Becker et al., 1987). Condie et al. (1988) found similar hepatic effects as a result of oral exposure to the same concentrations of o-, m- and p- isomers in a short-term study. Ungvary et al. (1980) found somewhat more fetal toxicity associated with maternal Xylene (o-, m-, p-) (Water Source) [Page 1 of 3]
exposure to o-xylene than to m- or p-xylene. Effects on the nervous system and lungs are usually reported after acute mixed xylene exposure, while hepatic effects are associated with long-term exposure (Becker et al., 1987). These are short term studies and are not suitable for setting individual standards by established methods.

The only chronic long-term data available are an NTP bioassay (1986) with mixed xylenes (60% m-, 14% p-, 9% o-xylene, 17% ethylbenzene). NTP concluded that there was no evidence of carcinogenicity of mixed xylenes in rats or mice. The Office of Drinking Water (USEPA, 1988) set an RfD of 1.79 mg/kg/day based on decreased body weight and increased mortality in male rats in the NTP bioassay.

DERIVATION OF VALUE

Surface Water

Regulations [6 NYCRR 702.2(b)] require that the value be the most stringent of the values derived using the procedures found in sections 702.3 through 702.7. The principal organic contaminant class value of 5 ug/L (702.3(b)) represents the most stringent value that can be derived for each of o-, m- and p-xylene. Therefore, the ambient surface water quality value for each of o-, m- and p-xylene is 5 ug/L.

Groundwater

The principal organic contaminant (POC) groundwater standard of 5 ug/L (6 NYCRR 703.5) applies to each of o-, m- and p-xylene individually. This standard became effective on January 9, 1989 by inclusion by reference to 10 NYCRR Subpart 5-1 standards. The basis and derivation of the POC standard are described in a separate fact sheet.

REFERENCES


NTP (1986). Toxicology and carcinogenesis studies of xylene (mixed) (CAS 1330-20-7) in F344/N Rats and B6C3F1 mice. National Toxicology Program, Research Triangle Park, NC. PB87-189684.

6NYCRR, Chapter X, Parts 700-705. Water Quality Regulations. Surface Waters and Xylene (o-, m-, p-) (Water Source) [Page 2 of 3]
Groundwater Classifications and Standards.

10NYCRR, Chapter I, Part 5, Subpart 5-1. Public Water Supplies.


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Division of Water
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