Fact Sheet Date: March 12, 1998

NEW YORK STATE
- HUMAN HEALTH FACT SHEET -

Ambient Water Quality Value for Protection of Sources of Potable Water

SUBSTANCES:	o-Xylene	**CAS REGISTRY NUMBERS:**	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

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

Becker, J.M. et al. (1987). Drinking Water Criteria Document for Xylene (final). Environmental Protection Agency. Environmental Criteria and Assessment Office. Cincinnati, OH. PB89-192314.

Condie, L.W., J.R. Hill, J.F. Borzellaca. 1988. Oral toxicology studies with xylene isomers and mixed xylenes. SRI International for Health Effects Research Lab. Cincinnati, OH PB89-206759.

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

Groundwater Classifications and Standards.

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

NYS, New York State, 1985. Ambient Surface Water Quality Standards Documentation. Xylenes. September 6, 1985 (Fact Sheet Revised). Albany, N.Y.

Ungvary, G., E. Tatrai, G. Barcza and M. Lorincz. 1980. Studies on the embryotoxic effects of ortho-, meta- and para-xylene. Toxicology 18:61-74.

U.S. EPA. 1988. Office of Drinking Water Health Advisories. Rev. Environ. Contam. and Tox. 106:213.

New York State Department of Environmental Conservation
Division of Water
AS
February 5, 1991