

US EPA ARCHIVE DOCUMENT

# Consumer Factsheet on: TOLUENE

## [List of Contaminants](#)

As part of the Drinking Water and Health pages, this fact sheet is part of a larger publication:  
**National Primary Drinking Water Regulations**

This is a factsheet about a chemical that may be found in some public or private drinking water supplies. It may cause health problems if found in amounts greater than the health standard set by the United States Environmental Protection Agency (EPA).

### **What is Toluene and how is it used?**

Toluene is an organic liquid with a sweet, benzene-like odor. The largest chemical use for toluene is to make benzene and urethane.

The list of trade names given below may help you find out whether you are using this chemical at home or work.

### **Trade Names and Synonyms:**

Methylbenzene  
Methacide  
Phenylmethane  
Toluol  
Antisal 1A

### **Why is Toluene being Regulated?**

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for toluene has been set at 1 parts per million (ppm) because EPA believes this level of protection would not cause any of the potential health problems described below.

Based on this MCLG, EPA has set an enforceable standard called a Maximum Contaminant Level (MCL). MCLs are set as close to the MCLGs as possible, considering the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

The MCL has also been set at 1 ppm because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to remove this contaminant should it occur in drinking water.

These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

### **What are the Health Effects?**

Short-term: EPA has found toluene to potentially cause the following health effects when people are exposed to it at levels above the MCL for relatively short periods of time: minor nervous system disorders such as fatigue, nausea, weakness, confusion.

Long-term: Toluene has the potential to cause the following effects from a lifetime exposure at levels above the MCL: more pronounced nervous disorders such as spasms, tremors, impairment of speech, hearing, vision, memory, coordination; liver and kidney damage.

**How much Toluene is produced and released to the environment?**

Production of toluene was 6.4 billion lbs in 1993. It is released into the atmosphere principally from the volatilization of petroleum fuels and toluene-based solvents and thinners and from motor vehicle exhaust. It is also released in wastewaters or by spills on land during the storage, transport and disposal of fuels and oils.

From 1987 to 1993, according to EPA's Toxic Chemical Release Inventory, toluene releases to land and water totalled over 4 million lbs., primarily from petroleum refining industries. The largest releases occurred in Texas and California. The largest releases directly to water occurred in Connecticut and West Virginia.

**What happens to Toluene when it is released to the environment?**

Toluene released to soil will be lost by evaporation from near-surface soil and by leaching to the groundwater. Its breakdown by soil microbes is slow. Toluene evaporates within a few hours when released to water, and it has little tendency to accumulate in aquatic life.

**How will Toluene be Detected in and Removed from My Drinking Water?**

The regulation for toluene became effective in 1992. Between 1993 and 1995, EPA required your water supplier to collect water samples every 3 months for one year and analyze them to find out if toluene is present above 0.5 ppb. If it is present above this level, the system must continue to monitor this contaminant.

If contaminant levels are found to be consistently above the MCL, your water supplier must take steps to reduce the amount of toluene so that it is consistently below that level. The following treatment methods have been approved by EPA for removing toluene: Granular activated charcoal in combination with Packed Tower Aeration.

**How will I know if Toluene is in my drinking water?**

If the levels of toluene exceed the MCL, 1 ppm, the system must notify the public via newspapers, radio, TV and other means. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

**Drinking Water Standards:**

Mclg: 1 ppm

Mcl: 1 ppm

**Toluene Releases to Water and Land, 1987 to 1993 (in pounds):**

	Water	Land
<b>TOTALS* (in pounds)</b>	<b>732,310</b>	<b>3,672,041</b>
<b>Top Ten States*</b>		
TX	16,285	969,210
CA	0	930,000
CT	316,068	0

OK	0	287,000
VA	27,500	216,000
VI	2,970	191,504
IL	56	180,824
MI	0	129,226
WV	117,523	1,377
SC	6,000	89,578
<b>Major Industries*</b>		
Petroleum refining	227,196	2,580,941
Medicinals, botanicals	301,585	1,108
Petroleum/coal prods.	38,856	287,000
Misc Ind. Chemicals	179,576	107,159
Gaskets, sealing devices	4,002	216,000
Wood office furniture	0	129,226
Plastics, resins	57,661	39,139
Wood home furniture	30,000	65,444
Paints, allied products	5,927	88,024

\* Water/Land totals only include facilities with releases greater than 10,000 lbs.

### Learn more about your drinking water!

EPA strongly encourages people to learn more about their drinking water, and to support local efforts to protect and upgrade the supply of safe drinking water. Your water bill or telephone books government listings are a good starting point.

Your local water supplier can give you a list of the chemicals they test for in your water, as well as how your water is treated.

Your state Department of Health/Environment is also a valuable source of information.

For help in locating these agencies or for information on drinking water in general, call: EPAs Safe Drinking Water Hotline: (800) 426-4791.

For additional information on the uses and releases of chemicals in your state, contact the: Community Right-to-Know Hotline: (800) 424-9346.