

### **3. CHEMICAL AND PHYSICAL INFORMATION**

#### **3.1 CHEMICAL IDENTITY**

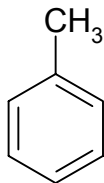
Information regarding the chemical identity of toluene is located in Table 3-1.

#### **3.2 PHYSICAL AND CHEMICAL PROPERTIES**

Information regarding the physical and chemical properties of toluene is located in Table 3-2.

## 3. CHEMICAL AND PHYSICAL INFORMATION

**Table 3-1. Chemical Identity of Toluene**

Characteristic	Information	Reference
Chemical name	Toluene	Weast 1989
Synonym(s)	Methylbenzene; phenylmethane; benzene, methyl-; toluol; methylbenzol	Weast 1989; Budavari et al. 1989; RTECS 1998; HSDB 1998
Registered trade name(s)	Methacide	WHO 1985
Chemical formula	$C_6H_5CH_3$	Weast 1989
Chemical structure		EPA 1983b
Identification numbers:		
CAS registry	108-88-3	RTECS 1998
NIOSH RTECS	XS5250000	RTECS 1998
EPA hazardous waste	U220	HSDB 1998
OHM/TADS	7216928	NFPA 1994
DOT/UN/NA/IMCO shipping	UN 1294	HSDB 1998
IMCO	3.2	HSDB 1998
HSDB	131	HSDB 1998
NCI	CO7272	HSDB 1998

CAS = Chemical Abstracts Services; DOT/UN/NA/IMCO = Department of Transportation/United Nations/North America/International Maritime Dangerous Goods Code; EPA = Environmental Protection Agency; HSDB = Hazardous Substances Data Bank; NCI = National Cancer Institute; NIOSH = National Institute for Occupational Safety and Health; NFPA = National Fire Protection Association; OHM/TADS = Oil and Hazardous Materials/Technical Assistance Data System; RTECS = Registry of Toxic Effects of Chemical Substances

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**Table 3-2. Physical and Chemical Properties of Toluene**

Property	Information	Reference
Molecular weight	92.14	Weast 1989
Color	Colorless	NFPA 1994
Physical state	Liquid	NFPA 1994
Melting point	-95 EC	Weast 1989
Boiling point	110.6 EC	Weast 1989
Density: at 20 EC	0.8669 g/mL	Weast 1989
Vapor density	3.2 (air=1)	HSDB 1999
Odor	Benzene-like	NFPA 1994
Odor threshold: Water	0.04–1 ppm	EPA 1987a
Air	8 ppm	HSDB 1998
Solubility: Water at 25 EC	534.8 mg/L	Howard 1990
Organic solvent(s)	Miscible	Budavari et al. 1989
Partition coefficients: Log $K_{ow}$	2.72	Howard 1990
Log $K_{oc}$	1.57–2.25	Howard 1990
Vapor pressure at 25 EC	28.4 mm/Hg	Howard 1990
Henry's law constant:	$5.94 \times 10^{-3}$ atm-m <sup>3</sup> /mol	Howard 1990
Autoignition temperature	480 EC (896 EF)	NFPA 1994
Flashpoint	4 EC (40 EF)	NFPA 1994
Flammability limits	1.2–7.1%	NFPA 1994
Conversion factors ppm (v/v) to mg/m <sup>3</sup> in air (20 EC)	1 ppm=3.75 mg/m <sup>3</sup>	NIOSH 1986
Explosive limits	1.3% lower limit	Sax and Lewis 1989

v/v = volume for volume

