

## **4. CHEMICAL AND PHYSICAL INFORMATION**

### **4.1 CHEMICAL IDENTITY**

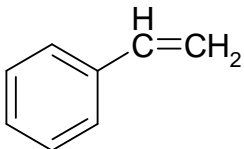
Information regarding the chemical identity of styrene is located in Table 4-1.

### **4.2 PHYSICAL AND CHEMICAL PROPERTIES**

Information regarding the physical and chemical properties of styrene is located in Table 4-2.

## 4. CHEMICAL AND PHYSICAL INFORMATION

**Table 4-1. Chemical Identity of Styrene**

Characteristic	Information	Reference
Chemical name	Styrene	Verschuereen 1983
Synonym(s)	cinnamene; cinnamol; ethenylbenzene; phenylethylene; styrol; vinylbenzene;	Verschuereen 1983; HSDB 2007
Registered trade name(s)	No data	
Chemical formula	C <sub>8</sub> H <sub>8</sub>	Windholz 1983
Chemical structure		IARC 1994
Identification numbers:		
CAS registry	100-42-5	Sax and Lewis 1987
NIOSH RTECS	WL3675000	HSDB 2007
EPA hazardous waste	No data	
EINICS	202-851-5	ESIS 2007
OHM/TADS	7216911	HSDB 2007
DOT/UN/NA/IMDG shipping	IMDG 3.3	HSDB 2007
	UN 2055	NLM 1989
HSDB	171	HSDB 2007
NCI	C0220	NLM 1989

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

## 4. CHEMICAL AND PHYSICAL INFORMATION

**Table 4-2. Physical and Chemical Properties of Styrene**

Property	Information	Reference
Molecular weight	104.15	O'Neil et al. 2001 Lide 2005
Color	Colorless to yellowish	Windholz 1983
Physical state	Liquid	Sax and Lewis 1987
Melting point	-30.6 °C	O'Neil et al. 2001
Boiling point	145.2 °C	Verschueren 2001; Weast 1985
Density at 20 °C	0.9059	O'Neil et al. 2001
Odor	If pure, sweet and pleasant; commonly contains aldehydes which provide it with a penetrating, sharp, and unpleasant smell	Verschueren 2001
Odor threshold:		
Water	0.73 mg/L 0.011 mg/L	HSDB 2007 Amoore and Hautala 1983
Air	1.36 mg/m <sup>3</sup>	Amoore and Hautala 1983
Solubility:		
Water at 15 °C	280 mg/L	Verschueren 2001
Water at 20 °C	300 mg/L	
Water at 40 °C	400 mg/L	
Organic solvents	Soluble in alcohol, ether, acetone, carbon disulfide	Windholz 1983
Partition coefficients:		
Log K <sub>ow</sub>	2.95	Hansch et al. 1995; EPA 1984a
Log K <sub>oc</sub>	2.96	Sabljić et al. 1995
Vapor pressure at 20 °C	5 mmHg	Verschueren 2001
Henry's law constant at 25 °C	2.61x10 <sup>-3</sup> atm-m <sup>3</sup> /mol (calculated)	EPA 1981
Autoignition temperature	914 °F (490 °C)	Sax and Lewis 1987
Flashpoint	87 °F (31 °C) (closed cup) 34.4°C (Tag open cup)	O'Neil et al. 2001; Kirk-Othmer 2001
Flammability limits	No data 0.9 (lower); 6.8 (higher) 1.1 (lower); 6.1 (higher)	CEFIC 2002; Kirk-Othmer 2001
Conversion factors	1 mg/m <sup>3</sup> =0.23 ppm; 1 ppm=4.33 mg/m <sup>3</sup>	Verschueren 2001