3. CHEMICAL AND PHYSICAL INFORMATION

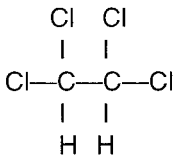
3.1 CHEMICAL IDENTITY

Information regarding the chemical identity of 1,1,2,2-tetrachloroethane is located in Table 3.1

PHYSICAL AND CHEMICAL PROPERTIES

Information regarding the physical and chemical properties of 1,1,2,2-tetrachloroethane is located in Table 3-2.

Table 3-1. Chemical Identity of 1,1,2,2-Tetrachloroethane

Characteristic	Information	Reference
Chemical name	1,1,2,2-Tetrachloroethane	CAS 1994; HSDB 1995
Synonym(s)	Acetylene tetrachloride; sym-Tetrachloroethane; s-Tetrachloroethane; Tetrachloroethane; 1,1-Dichloro-2,2-dichloroethane	CAS 1994; SANSS 1994
Registered trade name(s)	Bonoform; Cellon; Westron	CAS 1994; RTECS 1994; HSDB 1995
Chemical formula	$C_2H_2Cl_4$	CAS 1994
Chemical structure		SANSS 1994
Identification numbers:		
CAS registry	79-34-5	CAS 1994; HSDB 1995
NIOSH RTECS	KI8575000	HSDB 1995
EPA hazardous waste	U209	RTECS 1994; HSDB 1995
OHM-TADS	8100014	HSDB 1995
DOT/UN/NA/IMCO shipping	1,1,2,2-Tetrachloroethane; UN 1702; IMO Class 6.1, poisons 6.1	NLM 1994
HSDB	123	HSDB 1995
NCI	CO3554	RTECS 1994

CAS = Chemical Abstracts Service; DOT/UN/NA/IMCO = Department of Transportation/United Nations/North America/International Maritime Dangerous Goods Code; HSDB = Hazardous Substances Data Bank from National Library of Medicine; NCI = National Cancer Institute; NIOSH = National Institute for Occupational Safety and Health; NLM = National Library of Medicine; OHM-TADS = Oil and Hazardous Materials/Technical Assistance Data System; RTECS = Registry of Toxic Effects of Chemical Substances; SANSS = Structure and Nomenclature Search System

Table 3-2. Physical and Chemical Properties of 1,1,2,2-Tetrachloroethane

Property	Information	Reference
Molecular weight	167.85	Riddick et al. 1986; Lide 1993
Color	Colorless	Hawley 1981
Physical state	Liquid	Hawley 1981
Freezing point	-43.8 °C -36 °C	Riddick et al. 1986 Lide 1993
Boiling point	145.1 °C 146.2 °C 146.5 °C	Riddick et al. 1986 Lide 1993 Merck 1989
Density at 20 °C	1.594 1.595	Riddick et al. 1986 Lidde 1993
Odor	Sweetish, suffocating, chloroform-like; pungent	Hawley 1981; HSDB 1995; Merck 1989
Odor threshold:		
Water	0.50 ppm	Amoore and Hautala 1983; HSDB 1995
Air	1.5 ppm 3–5 ppm (21–35 mg/m^3)	Amoore and Hautala 1983 HSDB 1995
Solubility:		
Water	2.87 g/L (20 °C) 2.86 g/L (25 °C)	Riddick et al. 1986 Merck 1989
Organic solvent(s)	Miscible with ethanol, methanol, ether, acetone, benzene, petroleum, carbon tetrachloride, chloroform, carbon disulfide, dimethyl formamide, oils	Hawley 1981; HSDB 1995; Merck 1989
Partition coefficients:		
Log K_{ow}	2.39	Hansch and Leo 1985
Log K_{oc}	1.66 2.78	Chiou et al. 1979 ASTER 1995
Vapor pressure	5.95 mm Hg (25 °C) 9 mm Hg (30 °C)	Riddick et al. 1986 HSDB 1995; Flick 1985
Henry's law constant	4.7×10^{-4} atm-m^3/mol 4.55×10^{-4} atm-m^3/mol 1.80×10^{-3} atm-m^3/mol	Mackay and Shiu 1981 HSDB 1995 ASTER 1995
Autoignition temperature	No data	
Flash point	None, nonflammable	Hawley 1981; HSDB 1995
Flammability limits	Nonflammable	HSDB 1995

Table 3-2. Physical and Chemical Properties of 1,1,2,2-Tetrachloroethane (continued)

Property	Information	Reference
Conversion factors		
ppm to mg/m^3 in air (20 °C)	1 ppm = 6.98 mg/m^3	calculated
mg/m^3 to ppm in air (20 °C)	1 mg/m^3 = 0.14 ppm	calculated
Explosive limits	No data	

HSDB = Hazardous Substance Data Bank