3. CHEMICAL AND PHYSICAL INFORMATION

3.1 CHEMICAL IDENTITY

The chemical formula, structure, synonyms, and identification numbers for trichloroethylene are listed in Table 3-l.

3.2 PHYSICAL AND CHEMICAL PROPERTIES

Important physical and chemical properties of trichloroethylene are listed in Table 3-2.

TABLE 3-1. Chemical Identity of Trichloroethylene

Characteristic	Information	Reference
Chemical name	Trichloroethylene	
Synonym(s)	Acetylene trichloride; 1-chloro-2,2-dichloroethylene; 1,1-dichloro-2-chloroethylene; ethylene trichloride; trichlororide; TCE; 1,1,2-trichloro-ethylene; trichloroethene	IARC 1979
Registered trade name(s)	Algylen; Anamenth; Benzinol; Blacosolv; Blancosolv; Cecolene; Chlorilen; Chlorylea; Chlorylen; Chorylen; Cicosolv; Crawhaspol; Densinfluat; Dow-Tri; Dukeron; Fleck-Flip; Flock Flip; Fluate; Gumalgene; Germalgene; HI-TRI; Lanadin; Lethurin; Narcogen; Narkogen; Narkosoid; NEU-TRI; Nialk; Perma-A-Chlor; Perma-A-Clor; Petzinol; Philex; Threthylen; Threthylene; Tretylene; Triad; Trial; Triasol; Trichloran; Trichloren; Triclene; Tri-Clene; Trielene; Trielin; Triklone; Trilen; Trilene; Triline; Trimar; Triol; TRI-plus; TRI-plus M; Vestrol; Vitran; Westrosol	IARC 1979
Chemical formula	C_2HCl_3	SANSS 1990
Chemical structure	H Cl \ / C = C / \ Cl Cl	
Identification numbers:		
CAS registry	79-01-6	SANSS 1990
NIOSH RTECS	KX4550000	SANSS 1990
EPA hazardous waste	U228	HSDB 1994
OHM/TADS	7216931	HSDB 1994
DOT/UN/NA/IMCO shipping	UN1710	HSDB 1994
HSDB	133	HSDB 1994
NCI	NCI-C04546	HSDB 1994

TABLE 3-1 (*continued*)

Characteristic	Information	Reference

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; OHM/TADS = Oil and Hazardous Materials/Technical Assistance Data System; RTECS = Registry of Toxic Effects of Chemicals Substances

TABLE 3-2. Physical and Chemical Identity of Trichloroethylene

Property	Information	Reference
Molecular weight	131.40	HSDB 1994
Color	Clear, colorless	HSDB 1994
Physical state	Liquid (at room temperature)	HSDB 1994
Melting point	-87.1°C	McNeill 1979
Boiling point	86.7°C	McNeill 1979
Density:		
at 20°C	1.465 g/mL	McNeill 1979
Odor	Ethereal; chloroform-like; sweet	HSDB 1994
Odor threshold:		
Water	No data	
Air	100 ppm	HSDB 1994
Solubility:		
Water at 20°C	1.070 g/L	McNeill 1979
at 25°C	1.366 g/L	Tewari et al. 1982
Organic solvent(s)	Miscible with many common organic solvents (such as ether, alcohol, and chloroform)	McNeill 1979; Windholz 1983
Partition coefficients:		
Log K_{ow}	2.42	Hansch and Leo 1985
Log K_{oc}	2.03–2.66	Garbarini and Lion 1986
Vapor pressure at 25°C	74 mmHg	Mackay and Shiu 1981
Henry's law constant:		
at 20°C	0.020 atm-m^3/mol	Mackay and Shiu 1981
at 25°C	0.011 atm-m^3/mol	Hine and Mookerjee 1975
Autoignition temperature	None	McNeill 1979
Flashpoint	None	McNeill 1979
Flammability limits at 25°C (explosive limits) (volume % in air)	8.0–10.5	McNeill 1979
Conversion factors	-	Verschueren 1983
Air at 20°C	1 mg/m^3 = 0.18 ppm; 1 ppm = 5.46 mg/m^3	-
Water	1 ppm (weight per volume) = 1 mg/L	
Explosive limits	No data	