4. CHEMICAL AND PHYSICAL INFORMATION

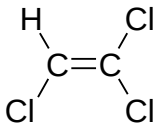
4.1 CHEMICAL IDENTITY

The chemical formula, structure, synonyms, and identification numbers for trichloroethylene are listed in Table 4-1.

4.2 PHYSICAL AND CHEMICAL PROPERTIES

Important physical and chemical properties of trichloroethylene are listed in Table 4-2.

Table 4-1. Chemical Identity of Trichloroethylene

Characteristic	Information	
Chemical name	Trichloroethylene	
Synonym(s)	Acetylene trichloride; 1-chloro-2,2-dichloroethylene; 1,1-dichloro-2-chloroethylene; ethylene trichloride; TCE; 1,1,2-trichloroethylene; trichloroethene	CAS 2011; ChemIDplus 2013
Registered trade name(s)	Algylen; Anamenth; Benzinol; Blancosolv; Cecolene; Chlorilen; Chlorylen; Densinfluat; Dow-tri; Fleck-flip; Flock FLIP; Fluate; Germalgene; Lanadin; Lethurin; Narcogen; Narkosoid; Nialk; Perm-A-chlor; Petzinol; Philex; Threthylen; Threthylene; Trethylene; Tri; Triasol; Trichloran; Trichloren; Triclene; Trielene; Trielin; Trieline; Trilen; Trilene; Trimar; Vestrol; Vitran; Westrosol	ChemIDplus 2013; IARC 1995
Chemical formula	C_2HCl_3	ChemIDplus 2013
Chemical structure		ChemIDplus 2013
Identification numbers:		
CAS registry	79-01-6	ChemIDplus 2013
NIOSH RTECS	KX4550000	NIOSH 2011
EPA hazardous waste	U228; F002; D040	HSDB 2013
DOT/UN/NA/IMDG shipping	UN1710; IMO6.1	HSDB 2013
HSDB	133	HSDB 2013
NCI	NCI-C04546	HSDB 2013

CAS = Chemical Abstracts Service; DOT/UN/NA/IMDG = 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; RTECS = Registry of Toxic Effects of Chemical Substances

Table 4-2. Physical and Chemical Properties of Trichloroethylene[a]

Property	Information
Molecular weight	131.39
Color	Clear, colorless
Physical state	Liquid
Melting point	-84.7°C
Boiling point	87.2°C
Density at 20°C	1.4642 g/cm^3
Vapor density (air=1)	4.53
Odor	Ethereal; chloroform-like; sweet
Odor threshold:	
Water	No data
Air	21.4 ppm
Solubility:	
Water at 25°C	1,280 mg/L[b]
Organic solvents	Soluble in ethanol, diethyl ether, acetone, and chloroform
Partition coefficients:	
Log K_{ow}	2.61
Log K_{oc}	49–460[c]
Vapor pressure at 20°C	69 mm Hg at 25°C[d]
Henry's law constant at 25°C	9.85x10^{-3} atm-m^3/mol at 25°C[e]
Autoignition temperature	420°C
Flashpoint	No data
Flammability limits	8.0–10.5%
Conversion factors	1 mg/m^3=0.18 ppm[f] 1 ppm=5.46 mg/m^3 [f]
Explosive limits	No data

[a]All information obtained from HSDB 2013, except where noted.
[b]Horvath et al. 1999.
[c]Brigmon et al. 1998; Chiou and Kile 1998; Garbarini and Lion 1986; Mouvet 1993; Rathbun 1998; Sahoo and Smith 1997.
[d]Boublik et al. 1984.
[e]Leighton and Calo 1981.
[f]Calculated based on molecular weight.