

4. CHEMICAL AND PHYSICAL INFORMATION

4.1 CHEMICAL IDENTITY

Information regarding the chemical identity of vinyl chloride is located in Table 4-1. This information includes synonyms, chemical formula and structure, and identification numbers.

4.2 PHYSICAL AND CHEMICAL PROPERTIES

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

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Table 4-1. Chemical Identity of Vinyl Chloride

Characteristic	Information	Reference
Chemical name	Vinyl chloride	HSDB 2004
Synonym(s)	Chloroethene; chloroethylene; 1-chloroethylene; Fire 1986; HSDB 2004 ethylene monochloride; monovinyl chloride; monochloroethene; monochloroethylene; MVCs; Trovidur; VC; VCM; vinyl chloride monomer	
Registered trade name(s)	No data	
Chemical formula	C ₂ H ₃ Cl	HSDB 2004
Chemical structure	$\begin{array}{c} \text{H} & \text{H} \\ & \diagdown \\ \text{C} = \text{C} \\ & \diagup \\ \text{H} & \text{Cl} \end{array}$	HSDB 2004
Identification numbers:		
CAS registry	75-01-4	HSDB 2004
NIOSH/RTECS	KU9625000	HSDB 2004
EPA hazardous waste	U043	HSDB 2004
OHM/TADS	7216947	HSDB 2004
DOT/UN/NA/IMCO shipping	1086	HSDB 2004
HSDB	169	HSDB 2004
NCI	No data	HSDB 2004

CAS = Chemical Abstract Services; DOT/UN/NA/IMCO = Department of Transportation/United Nations/North America/International Maritime Dangerous Goods Code; EPA = Environmental Protection Agency; HSDB = Hazardous Substance 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

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Table 4-2. Physical and Chemical Properties of Vinyl Chloride

Property	Information	Reference
Molecular weight	62.5	Lewis 1996
Color	Colorless	Budavari 1989
Physical state	Gas	Budavari 1989
Melting point	-153.8 °C	Budavari 1989
Boiling point	-13.37 °C	Budavari 1989
Density:		
at -14.2 °C	0.969 g/cm ³	Cowfer and Magistro 1983
at 15 °C	0.9195 g/cm ³	Lewis 1996
at 20 °C	0.9106 g/cm ³	NIOSH 1986
Vapor density	2.16	Fire 1986
Odor	Sweet	HSDB 1996
Odor threshold:		
Water	3.4 ppm	Amoore and Hautala 1983
Air	3,000 ppm	Amoore and Hautala 1983
Solubility:		
Water at 25 °C	2,763 mg/L 1,100 mg/L	EPA 1985b Cowfer and Magistro 1983
Organic solvent(s)	Soluble in hydrocarbons, oil, alcohol, chlorinated solvents, and most common organic liquids	Cowfer and Magistro 1983
Partition coefficients:		
Log K _{ow}	1.36	NIOSH 1986
Log K _{oc}	1.99	Lyman et al. 1982
Vapor pressure:		
at 20 °C	2,530 mmHg	Budavari 1989
at 25 °C	2,600 mmHg	Lewis 1996
Henry's law constant:		
10.3 °C	0.0147 (atm-m ³)/mol	Gossett 1987
17.5 °C	0.0193 (atm-m ³)/mol	Gossett 1987
24.8 °C	0.0278 (atm-m ³)/mol	Gossett 1987
34.6 °C	0.0358 (atm-m ³)/mol	Gossett 1987
Autoignition temperature	472 °C	Lewis 1996
Flashpoint	-78 °C (closed cup)	Budavari 1989
Flammability limits	3.6–33 volume %	NIOSH 1986
Conversion factors:		
ppm to mg/m ³ in air	1 ppm=2.6 mg/m ³	NIOSH 1990
mg/m ³ to ppm in air	1 mg/m ³ =0.38 ppm	NIOSH 1990
Explosive limits	4–22 volume %	Lewis 1996