

3. CHEMICAL AND PHYSICAL INFORMATION

3.1 CHEMICAL IDENTITY

The chemical identity of vinyl acetate is shown in Table 3-1.

3.2 PHYSICAL AND CHEMICAL PROPERTIES

The physical and chemical properties of vinyl acetate are shown in Table 3-2.

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TABLE 3-1. Chemical Identity of Vinyl Acetate

Characteristic	Information	Reference
Chemical name	Vinyl acetate	Windholz 1983
Synonyms	Acetic acid, ethenyl ester; acetic acid, ethylene ester; acetic acid, vinyl ester; 1-acetoxyethylene; ethanoic acid; ethenyl ester; ethenyl acetate; ethenyl ethanoate; vinyl A monomer; vinyl ethanoate	RTECS 1989
Trade names	VAC; vinyl acetate HQ; VYAC; ZESSET T	RTECS 1989
Chemical formula	$C_4H_6O_2$	Windholz 1983
Chemical structure		IARC 1979
Identification numbers:		
CAS registry	108-05-4	HSDB 1987
NIOSH RTECS	AK0875000	HSDB 1987
EPA hazardous waste	No data	
OHM/TADS	7216946	HSDB 1987
DOT/UN/NA/IMCO shipping	Vinyl acetate (DOT); Vinyl acetate, inhibited (DOT) UN 1301, vinyl acetate; IMCO 3.2, vinyl acetate	RTECS 1989 HSDB 1987

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Table 3-1 (Continued)

Characteristic	Information	Reference
HSDB	190	HSDB 1987
NCI	No data	

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 Chemical Substances

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TABLE 3-2. Physical and Chemical Properties of Vinyl Acetate

Property	Information	Reference
Molecular weight	86.09	Windholz 1983
Color	Colorless	U.S. Coast Guard 1978
Physical state	Liquid (polymerizes in light to a colorless, transparent mass)	Windholz 1983
Melting point	-93.2°C	Weast 1986
Boiling point	72°-73°C	Windholz 1983
Density/specific gravity	0.932 (20/4°C)	Windholz 1983
Odor	Sweet smell in small quantities, pleasant fruity characteristic	U.S. Coast Guard 1978
Odor threshold:		
Water	0.088 ppm (w/v) ^a	Amoore and Hautala 1983
	0.25 ppm	Goeva 1966
Air	0.5 ppm (v/v) ^b	Amoore and Hautala 1983
	0.12 ppm	US Coast Guard 1978
Solubility:		
Water at 20°C	2 g/100 mL	Windholz 1983
Organic solvents	Soluble in alcohol, ether, acetone, benzene, and chloroform	Weast 1986
Partition coefficients:		
Log K _{ow}	0.21-0.73	Fujisawa and Masuhara 1981; Howard 1989
Log K _{oc}	No data	
Vapor pressure at 20°C	83 mmHg	Verschueren 1983
at 25°C	115 mmHg	Verschueren 1983
at 30°C	140 mmHg	Verschueren 1983
Henry's law constant;	4.81x10 ⁻⁴ atm-m ³ mol ⁻¹	Howard 1989
Autoignition temperature	402°C	NFPA 1978
	426.6°C	Hawley 1981
Flashpoint	-8°C (closed cup)	Windholz 1983
	-1.1°C (Tag open cup)	Hawley 1981

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Table 3-2 (Continued)

Property	Information	Reference
Flammability limits	2.6%-13.4%	NFPA 1978
Conversion factors	1 mg/m ³ = 0.28 ppm; 1 ppm = 3.52 mg/m ³	
Explosive limits	2.6%-13.4%	HSDB 1987

^aw/v - Percent "weight in volume" (Windholz 1983)

^bv/v - Percent "volume in volume" (Windholz 1983)

