

CHAPTER 4. CHEMICAL AND PHYSICAL INFORMATION

4.1 CHEMICAL IDENTITY

Table 4-1 lists common synonyms, trade names and other pertinent identification information for BCEE.

Table 4-1. Chemical Identity of Bis(2-Chloroethyl)Ether

Characteristic	Information	Reference
Chemical name	Bis(2-chloroethyl) ether	IARC 1975
Synonym(s) and registered trade name(s)	1,1'-Oxybis(2-chloro) ethane; bis(chloroethyl) ether; bis(β -chloroethyl)ether; sym-dichloroethylether; 2,2'-dichloro-diethyl ether; 2-dichloroethyl ether; dichloroethyl ether; dichloroethyl oxide; DCEE; Chlorex	IARC 1975
Chemical formula	C ₄ H ₈ Cl ₂ O	Weast 1985
Chemical structure	$\begin{array}{ccccccc} & \text{H} & \text{H} & & \text{H} & \text{H} & \\ & & & & & & \\ \text{Cl} & -\text{C} & -\text{C} & -\text{O} & -\text{C} & -\text{C} & -\text{Cl} \\ & & & & & & \\ & \text{H} & \text{H} & & \text{H} & \text{H} & \end{array}$	
Identification numbers:		
CAS Registry	111-44-4	NLM 1988

CAS = Chemical Abstracts Service

4.2 PHYSICAL AND CHEMICAL PROPERTIES

Table 4-2 lists important physical and chemical properties of BCEE.

Table 4-2. Physical and Chemical Properties of Bis(2-Chloroethyl)Ether

Property	Information	Reference
Molecular weight	143.04	Weast 1985
Color	colorless, clear	Windholz 1983
Physical state	Liquid	Windholz 1983
Melting point	-24.5	Weast 1985
Boiling point	178	Weast 1985
Density at 20°C	1.2199	Weast 1985
Odor	pungent	Windholz 1983
Odor threshold:		
Air	0.049	Amoore and Hautala 1983

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Solubility:		
Water at 20°C	10,700 10,200 17,200	Hake and Rowe 1963 Verschueren 1977 Veith et al. 1980
Organic solvents	soluble	Weast 1985
Partition coefficients:		
Log K _{ow}	1.58 1.5 1.1	Callahan et al. 1979 Mabey et al. 1982 Veith et al. 1980
Log K _{oc}	1.1	Mabey et al. 1982
Vapor pressure at 20°C	0.71	Verschueren 1977
Henry's law constant at 25°C	1.31E-05	Mabey et al. 1982
Autoignition temperature	369	
Flashpoint	55	
Flammability limits	No data	
Conversion factors:		
ppm (v/v) to mg/m ³ in air (25°C)	1 ppm • 5.85 mg/m	Verschueren 1977
mg/m ³ to ppm (v/v) in air (25°C)	1 mg/m ³ • 0.17 ppm	Verschueren 1977