

CHAPTER 4. CHEMICAL AND PHYSICAL INFORMATION

4.1 CHEMICAL IDENTITY

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

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

| Characteristic | Information | Reference |
|---|---|------------|
| Chemical name | Bis(chloromethyl)ether | NLM 1988 |
| Synonym(s) and registered trade name(s) | Oxybis (chloromethane); dichlorodimethyl ether; monochloromethyl ether | NLM 1988 |
| Chemical formula | C ₂ H ₄ Cl ₂ O | Weast 1985 |
| Chemical structure | $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{Cl}-\text{C}-\text{O}-\text{C}-\text{Cl} \\ \quad \\ \text{H} \quad \text{H} \end{array}$ | |
| Identification numbers: | | |
| CAS Registry | 542-88-1 | NLM 1988 |

CAS = Chemical Abstracts Services

4.2 PHYSICAL AND CHEMICAL PROPERTIES

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

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

| Property | Information | Reference |
|------------------|---------------------|-------------------|
| Molecular weight | 114.96 | Weast 1985 |
| Color | Colorless | Windholz 1983 |
| Physical state | Liquid | Windholz 1983 |
| Melting point | -41.5°C | Weast 1985 |
| Boiling point | 104°C | Weast 1985 |
| Density at 20°C | 1.328 | Weast 1985 |
| Odor | No data | |
| Odor threshold: | | |
| Water | No data | |
| Air | No data | |
| Solubility: | | |
| Water at 25°C | 22,000 ^a | Mabey et al. 1982 |
| Organic solvents | Miscible | Weast 1985 |

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

| | | |
|--------------------------------|-------------------------------|-------------------|
| Partition coefficients: | | |
| Log K _{ow} | -0.38 ^a | Mabey et al. 1982 |
| Log K _{oc} | 0.08 | Mabey et al. 1982 |
| Vapor pressure at 20°C | 30 | Mabey et al. 1982 |
| Henry's law constant at 25°C | 2.1x10 ⁻⁴ | Mabey et al. 1982 |
| Autoignition temperature | No data | |
| Flashpoint | 19°C | HSDB 1988 |
| Flammability limits | No data | |
| Conversion factors | | |
| ppm (v/v) to mg/m ³ | 1 ppm=4.7 mg/m ³ | ACGIH 1986 |
| in air (20°C) | 1 mg/m ³ =0.21 ppm | |

^aCalculated values. Due to the rapid hydrolysis of BCME in water, significant concentrations in water would not be expected to occur.