# 3. CHEMICAL AND PHYSICAL INFORMATION

## 3.1 CHEMICAL IDENTITY

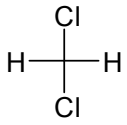
Information regarding the chemical identity of methylene chloride is located in Table 3-1. Methylene chloride is a halogenated hydrocarbon. It is also commonly known as dichloromethane.

Table 3-1 lists common synonyms, trade names, and other pertinent identification information for methylene chloride.

## 3.2 PHYSICAL AND CHEMICAL PROPERTIES

Information regarding the physical and chemical properties of methylene chloride is located in Table 3-2. Methylene chloride is a colorless liquid with a sweet, pleasant odor.

## Table 3-1. Chemical Identity of Methylene Chloride

| Characteristic | Information | Reference |
|---|---|---|
| Chemical Name | Methylene chloride | Lide 1994 |
| Synonyms | Dichloromethane | Lide 1994 |
| Registered trade name(s) | Narkotil; Solaesthin; Solmethine; and others | OHM/TADS 1998 |
| Chemical formula | $CH_2Cl_2$ | Lide 1994 |
| Chemical structure |  | Lide 1994 |
| Identification numbers: | | |
| CAS | 75-09-2 | Lide 1994 |
| NIOSH RTECS | PA8050000 | RTECS 1999 |
| EPA hazardous waste | U080, F002 | Lewis 1996 |
| OHM/TADS | 7217234 | OHM/TADS 1998 |
| DOT/UN/NA/IMCO shipping | UN1593, IMCO 6.1 | HSDB 1999 |
| HSDB | 66 | HSDB 1999 |
| NCI | C50102 | HSDB 1999 |

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

## Table 3-2. Physical and Chemical Properties of Methylene Chloride

| Property | Information | Reference |
|---|---|---|
| Molecular weight | 84.93 | Lide 1994 |
| Color | Colorless | Lewis 1996 |
| Physical state | Liquid | Lide 1994 |
| Melting point | -95.1 EC | Weast 1985 |
| Boiling point | 40 EC | Lide 1994 |
| Density: | | |
| at 25 EC | 1.3182 g/mL | Lide 1994 |
| Vapor density | 2.93 (Air =1) | Verscheuren 1983 |
| Odor | Sweet, pleasant | Verschueren 1983 |
| Odor threshold: | | |
| Water | 9.1 ppm | Amoore and Hautala 1983 |
| Air | 540–2,160 mg/$m^3$ (160–620 ppm) | Ruth 1986 |
| Solubility: | | |
| Water at 20 EC | 20,000 mg/L | Verschueren 1983 |
| at 25 EC | 16,700 mg/L | Verschueren 1983 |
| Organic solvent(s) | Soluble in alcohol, ether, acetone, chloroform, and carbon tetrachloride | Lewis 1996 |
| Partition coefficients: | | |
| Log $K_{ow}$ | 1.3 | Hansch and Leo 1979 |
| Log $K_{oc}$ | 1.4 | Roy and Griffin 1982 |
| Vapor pressure: | | |
| at 20 EC | 349 mmHg | Verscheuren 1983 |
| at 30 EC | 500 mmHg | Verscheuren 1983 |
| Henry's law constant | 2.03x$10^{-3}$ atm-$m^3$/mol at 25 EC | EPA 1982e |
| Autoignition temperature | 1,139 EF (615 EC) | Lewis 1996 |
| Flashpoint | Nonflammable | Sax and Lewis 1987 |
| Flammability limits | Nonflammable | Sax and Lewis 1987 |
| Coversion factors | 1 mg/$m^3$=0.28 ppm | WHO 1996 |
| | 1 ppm=3.53 mg/$m^3$ | WHO 1996 |
| Explosive limits | Not explosive | Sax and Lewis 1987 |