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Written by: Miguel Morara  Signature/Date: 31.10.12
Reviewed by: Nicolette Signature/Date: 30.1.13
Approved by: Julian Mr Arabadi  Signature/Date: 4.2.13
1. **Chemical Product**

*Product Name:* Dichloromethane  
*Chemical name:* Dichloromethane  
*Synonyms:* Methylene chloride; Methane dichloride; Methylene bichloride; Methylene dichloride; Dichloromethane; DCM  
*Chemical Formula:* CH$_2$Cl$_2$

2. **Composition and Information on Ingredients**

*Composition:* >99.5% by weight dichloromethane  
*Toxicological Data on Ingredients:* Methylene chloride: ORAL (LD50): Acute: 1600 mg/kg [Rat].
3. Hazards Identification

**Potential Acute Health Effects:** Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator). Inflammation of the eye is characterized by redness, watering, and itching.

**Potential Chronic Health Effects:** Possible cancer hazard based on tests with laboratory animals. Prolonged or repeated skin contact may cause dermatitis. May cause reproductive and foetal effects. Laboratory experiments have resulted in mutagenic effects. Chronic exposure may cause lung, liver, and pancreatic tumours. May cause conjunctivitis and/or corneal burns.

*CARCINOGENIC EFFECTS:* Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC

*MUTAGENIC EFFECTS:* N/A

*TERATOGENIC EFFECTS:* N/A. This substance has caused adverse reproductive and foetal effects in animals.

*DEVELOPMENTAL TOXICITY:* N/A. The substance is toxic to lungs, the nervous system, liver, mucous membranes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.
### 4. First Aid Measures

**General measures:** N/A

**Skin contact:** In case of contact, immediately flush skin with plenty of water and cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious skin contact:** Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Eye contact:** Contact with eyes may cause severe irritation, and possible eye burns.

**Ingestion:** Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious indigestion:** N/A

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

**Serious inhalation:** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.
## 5. Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** 556 °C (1,032.80 deg F)

**Flash points:** N/A

**Flammable limits:** LOWER: 12% UPPER: 19%

**Products of Combustion:** These products are carbon oxides (CO, CO2), halogenated compounds.

**Fire Hazards in Presence of Various Substances:** N/A

**Explosion Hazards in Presence of Various Substances:**
- Risks of explosion of the product in presence of mechanical impact: N/A.
- Risks of explosion of the product in presence of static discharge: N/A.

**Fire fighting media and Instructions:**
- SMALL FIRE: Use DRY chemical powder.
- LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** N/A

**Special Remarks on Explosion Hazards:** N/A
6. Accidental Release Measures

NB: Wear appropriate protective equipment/clothing including gloves before removing any spills.

Small spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

7. Handling and Storage

Precautions: Keep locked up, away from heat and sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest and do not breathe gas/ fumes/ vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage: Keep container tightly closed in a cool, well-ventilated area.
### 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**
- TWA: 50 from ACGIH (TLV) [United States]
- TWA: 174 from ACGIH (TLV) [United States]
- Consult local authorities for acceptable exposure limits.

**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the workstation location.

**Personal Protection:** Splash goggles, gloves, lab coat and vapour respirator making sure to use an approved/certified respirator or equivalent.
9. Physical and Chemical Properties

Physical state and appearance: Colourless liquid
Odour: Ethereal odour - chloroform-like
Taste: N/A
Molecular Weight: 84.93g/mole
pH (1% solution/water): N/A
Boiling Point: 39.75°C (103.5°F)
Melting Point: -96.7°C (-142.1°F)
Critical Temperature: N/A
Specific Gravity (Water = 1): 1.3266
Vapour Pressure (mmHg): 46.5 kPa (@ 20°C)
Vapour Density: 2.93 (Air = 1)
Volatile: N/A
Odour Threshold: 214 ppm
Water/Oil Distribution Coefficient: The product is equally soluble in oil and water; log(oil/water) = 0.1
Ionicity (in Water): N/A
Dispersion Properties: See solubility in water, methanol, diethyl ether, n-octanol, acetone.
Solubility: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Partially soluble in cold water.

10. Stability and Reactivity Data

Stability: The product is stable.
Corrosivity: Non-corrosive in presence of glass
Instability temperature: N/A
Conditions of Instability: N/A
Incompatibles: N/A
Polymerization: Will not occur.
11. Toxicological Information

**Toxicity to animals:** WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 1600 mg/kg [Rat]. Acute toxicity of the vapour (LC50): 52000 1 hours [Rat].

**Effects on humans:**

**Acute potential health effects:** N/A

**Chronic potential health effects:** CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. Causes damage to the following organs: lungs, the nervous system, liver, mucous membranes, central nervous system (CNS). Human: passes through the placenta, excreted in maternal milk.

**MUTAGENIC EFFECTS:** N/A
**TERATOGENIC EFFECTS:** N/A
**DEVELOPMENTAL TOXICITY:** N/A

**Other information:** Very hazardous in case of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator).

12. Ecological Information

**Ecotoxicity:** N/A

13. Disposal Considerations

**Waste Disposal:** Waste must be disposed of in accordance with local environmental control regulations.
14. References


15. Appendices

N/A
### Revision History

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<thead>
<tr>
<th>Version Number</th>
<th>Amendments/ Reasons for change</th>
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<tr>
<td>01</td>
<td>Initial Release</td>
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**Note:**
- **UNIVERSITY OF MALTA**
- **FACULTY OF MEDICINE & SURGERY**
- **PHARMACY DEPARTMENT**
- **MATERIAL SAFETY DATA SHEET**
- **DICHLOROMETHANE**
- Ref. No. MSDS /PD/16_01
- Valid for: 2 years from approval

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