Not appropriate for regulatory submission. Please visit www.spectrumchemical.com or contact Tech Services for the most up-to-date information contained in this information package.
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Thank you for your interest in Spectrum’s quality products and services.

Spectrum has been proudly serving our scientific community for over 45 years. It is our mission to manufacture and distribute fine chemicals and laboratory products with Quality and delivery you can count on every time.

To accomplish our mission, Spectrum utilizes our sourcing leverage and supplier qualification expertise in offering one of the industry’s most comprehensive line of fine chemical products under one brand, in packaging configurations designed to meet your research and production requirements. Our product grades include: USP, NF, BP, EP, JP, FCC, ACS, KSA, Reagent grade, as well as DEA controlled substances. We operate facilities in the United States on the East Coast, West Coast, as well as in Shanghai, China in order to provide the best logistical support for our customers.

At Spectrum, Quality is priority number one. Suppliers with the best qualifications are preferred and we employ full-functioning in-house analytical laboratories at each of our facilities. Our facilities and systems are USFDA registered and ISO certified. We frequently host customer audits and cherish opportunities for improvements. Quality is engrained into our culture. Quality is priority number one.

In the following pages, we have designed and prepared documented scientific information to aid you in your initial qualification or your continual use of our products. Please do not hesitate to contact us if further information or the most up-to-date documentation is desired from any of the covered areas.

We appreciate your business and we look forward to hearing from you.

Sincerely,

Alan Wang, MSQA, ASQ CQA
Senior Manager of Technical Services
techservices@spectrumchemical.com

M1266, Methylene Chloride, NF

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- Product Specification
- Safety Data Sheet (SDS)
- Manufacturer
- Certification of Quality Management System (QMS)
- Certification of current Good Manufacturing Practices (cGMP)
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- Product Allergen Statement
- Product Aflatoxin Statement
- General Label Information – Sample Label
- Product Certificate of Analysis Sample(s)
- General Lot Numbering System Guidance
- Stability – Shelf Life Guidance
<table>
<thead>
<tr>
<th>Test</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item Number</td>
<td>M1266</td>
</tr>
<tr>
<td>Item</td>
<td>Methylene Chloride, NF</td>
</tr>
<tr>
<td>CAS Number</td>
<td>75-09-2</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>CH₂Cl₂</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>84.93</td>
</tr>
<tr>
<td>MDL Number</td>
<td></td>
</tr>
<tr>
<td>Synonyms</td>
<td>Dichloromethane</td>
</tr>
<tr>
<td><strong>Test</strong></td>
<td><strong>Specification</strong></td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td><strong>Max</strong></td>
</tr>
<tr>
<td>ASSAY (CH₂Cl₂)</td>
<td>99.0 %</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY @ 25°C</td>
<td>1.318 - 1.322</td>
</tr>
<tr>
<td>WATER</td>
<td>0.02 %</td>
</tr>
<tr>
<td>LIMIT OF HYDROGEN CHLORIDE</td>
<td>0.001 %</td>
</tr>
<tr>
<td>LIMIT OF NONVOLATILE RESIDUE</td>
<td>0.002 %</td>
</tr>
<tr>
<td>HEAVY METALS</td>
<td>1 ppm</td>
</tr>
<tr>
<td>FREE CHLORINE (Cl)</td>
<td>TO PASS TEST</td>
</tr>
<tr>
<td>IDENTIFICATION</td>
<td>TO PASS TEST</td>
</tr>
<tr>
<td>EXPIRATION DATE</td>
<td></td>
</tr>
<tr>
<td>RESIDUAL SOLVENTS:</td>
<td>TO PASS TEST</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier

Product code: M1266
Product Name: METHYLENE CHLORIDE, NF

Other means of identification

Synonyms:
- Aerothene MM
- Chlorure de methylene (French)
- Dichloromethane
- Freon 30
- HCC 30
- Khladon 30
- Methane dichloride
- Methylene bichloride
- Methylene chloride
- Methylene dichloride
- Narkotil
- Solaesthin
- Soleana VDA
- Solmethine

CAS #: 75-09-2
RTECS #: PA8050000
CI#: Not available

Recommended use of the chemical and restrictions on use

Uses advised against: No information available

Supplier: Spectrum Chemicals and Laboratory Products, Inc.
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At: https://www.spectrumchemical.com

Emergency telephone number: Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Regina Wachenheim (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral Category 4

Product code: M1266
Product name: METHYLENE CHLORIDE, NF
Skin corrosion/irritation Category 2
Serious eye damage/eye irritation Category 2A
Carcinogenicity Category 2
Specific target organ toxicity (single exposure) Category 3
Specific target organ toxicity (repeated exposure) Category 2

Label elements

Warning

Hazard statements
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer
May cause respiratory irritation. May cause drowsiness or dizziness
May cause damage to organs through prolonged or repeated exposure

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
May be harmful if inhaled
May be harmful if absorbed through skin

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Specific treatment (see .? on this label)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Product code: M1266
Product name: METHYLENE CHLORIDE, NF
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>75-09-2</td>
<td>100</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>75-09-2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centres in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact:

Flush eye with water for 15 minutes. Get medical attention.

Inhalation:

Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Toxic if swallowed. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Most important symptoms and effects, both acute and delayed

Symptoms:


Indication of any immediate medical attention and special treatment needed:

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:

Carbon dioxide (CO2). Dry chemical. Water spray mist or foam. Alcohol-resistant foam.

Unsuitable Extinguishing Media:

No information available.

Specific hazards arising from the chemical

Product code: M1266

Product name: METHYLENE CHLORIDE, NF
Hazardous Combustion Products: Hydrogen chloride gas; Carbon monoxide; Carbon dioxide; chlorinated hydrocarbons; trace amounts of phosgene and chlorine

Specific hazards: May be combustible at high temperatures. It may burn, but does not ignite readily. Container explosion may occur under fire conditions or when heated. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Air/vapor mixtures may explode when ignited. Fire may produce irritating and/or toxic gases.

Special Protective Actions for Firefighters

Specific Methods: Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out. Dike fire-control water for later disposal; do not scatter the material.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth).

Methods for cleaning up Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions: Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice: Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities
Technical Measures/Storage Conditions:
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride - 75-09-2</td>
<td>25 ppm TWA</td>
<td>None</td>
<td>50 ppm TWA</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>125 ppm STEL</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride - 75-09-2</td>
<td>50 ppm TWA</td>
<td>25 ppm TWA</td>
<td>50 ppm TWA</td>
<td>50 ppm TWAEV</td>
</tr>
<tr>
<td></td>
<td>174 mg/m³ TWA</td>
<td></td>
<td></td>
<td>174 mg/m³ TWAEV</td>
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</tbody>
</table>

Australia and Mexico

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>suspected carcinogen</td>
<td>100 ppm TWA</td>
</tr>
<tr>
<td>75-09-2</td>
<td>50 ppm TWA</td>
<td>330 mg/m³ TWA</td>
</tr>
<tr>
<td></td>
<td>174 mg/m³ TWA</td>
<td>500 ppm STEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1740 mg/m³ STEL</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles.

Skin and body protection: Chemical resistant apron. Gloves. Long sleeved clothing.

Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid.</td>
<td>No information available</td>
<td>Colorless.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Taste</th>
<th>Formula:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweet. Pleasant. Chloroform-like.</td>
<td>No information available</td>
<td>CH2Cl2</td>
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<table>
<thead>
<tr>
<th>Molecular/Formula weight:</th>
<th>Flash point (°C):</th>
<th>Flashpoint (°C/°F):</th>
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<tbody>
<tr>
<td>84.93</td>
<td>No data available</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flash Point Tested according to:</th>
<th>Lower Explosion Limit (%):</th>
<th>Upper Explosion Limit (%):</th>
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</thead>
<tbody>
<tr>
<td>Not available</td>
<td>12-13%</td>
<td>19-23%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Autoignition Temperature (°C/°F):</th>
<th>pH:</th>
<th>Melting point/range(°C/°F):</th>
</tr>
</thead>
<tbody>
<tr>
<td>556-605 °C/1033-1121 °F</td>
<td>No information available</td>
<td>-96.7 to -95 °C/-142.06 to -139 °F</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Boiling point/range(°C/°F):</th>
<th>Decomposition temperature(°C/°F):</th>
<th>Specific gravity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.8 °C/103.64 °F</td>
<td>No information available</td>
<td>1.3255 @ 20 °C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Density (g/cm3):</th>
<th>Bulk density:</th>
<th>Vapor pressure @ 20°C (kPa):</th>
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</thead>
<tbody>
<tr>
<td>No information available</td>
<td>No information available</td>
<td>46.66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaporation rate:</th>
<th>Vapor density:</th>
<th>VOC content (g/L):</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.5 (butyl acetate = 1)</td>
<td>2.93</td>
<td>No information available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor threshold (ppm):</th>
<th>Partition coefficient (n-octanol/water):</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-150</td>
<td>1.25</td>
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</table>

<table>
<thead>
<tr>
<th>Miscibility:</th>
<th>Solubility:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscible with alcohol</td>
<td>Slightly soluble in water</td>
</tr>
<tr>
<td>Miscible with Acetone</td>
<td>Soluble in Ether</td>
</tr>
<tr>
<td>Miscible with Carbon tetrachloride</td>
<td>Soluble in alcohol</td>
</tr>
<tr>
<td>Miscible with Chloroform</td>
<td>Soluble in Ethanol</td>
</tr>
<tr>
<td>Miscible with Ether</td>
<td>Soluble in Acetone</td>
</tr>
<tr>
<td>Miscible with Dimethylformamide</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Miscibility:</th>
<th>Miscible with alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscible with alcohol</td>
<td>Slightly soluble in water</td>
</tr>
<tr>
<td>Miscible with Acetone</td>
<td>Soluble in Ether</td>
</tr>
<tr>
<td>Miscible with Carbon tetrachloride</td>
<td>Soluble in alcohol</td>
</tr>
<tr>
<td>Miscible with Chloroform</td>
<td>Soluble in Ethanol</td>
</tr>
<tr>
<td>Miscible with Ether</td>
<td>Soluble in Acetone</td>
</tr>
<tr>
<td>Miscible with Dimethylformamide</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

**Reactivity**
- Contact with potassium-tert-butoxide can cause ignition
- Prolonged heating of dichloromethane with water at 180 deg. C results in the formation of formic acid, methyl chloride, methanol, hydrochloric and some carbon monoxide
- Reactive with oxidizing agents
- Reactive with acids
- Reacts with bases

**Chemical stability**
- Stability: Stable at normal conditions
- Possibility of Hazardous Reactions: Hazardous polymerization does not occur

**Conditions to avoid:**

**Incompatible Materials:**
**Hazardous decomposition products:** Decomposition may occur after contact with open flame or hot surfaces. When heated to decomposition it emits highly toxic fumes. Carbon monoxide. Carbon dioxide. Hydrogen chloride gas. Chlorinated hydrocarbons. Phosgene. Chlorine.

**Other Information**

**Corrosivity:** When dry, it is noncorrosive at normal atmospheric temperatures to common metals such as iron, copper, etc.

**Special Remarks on Corrosivity:** When it is in contact with water/moisture, especially at elevated temperatures, it will corrode iron, some stainless steels, copper, nickel and certain other metals

---

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Principal Routes of Exposure:**
Ingestion. Inhalation. Skin.

**Acute Toxicity**

**Component Information**

*Methylene Chloride* - 75-09-2
- LD50/oral/rat = 1410-2524 mg/kg Oral LD50 Rat
- LD50/oral/mouse = 873-1987 mg/kg
- LD50/dermal/rabbit = No information available
- LD50/dermal/rat = >2000 mg/kg
- LC50/inhalation/rat = 76000 mg/m³ 4 h
- LC50/inhalation/mouse = No information available
- Other LD50 or LC50 information = 2000 mg/kg Oral LD50 Rabbit
  3000 mg/kg Oral LD50 Dog

**Product Information**

- LD50/oral/rat =
  VALUE- Acute Tox Oral = 1410mg/kg

- LD50/oral/mouse =
  Value - Acute Tox Oral = 873mg/kg

- LD50/dermal/rabbit
  VALUE-Acute Tox Dermal = No information available

- LD50/dermal/rat
  VALUE -Acute Tox Dermal = >2000mg/kg

- LC50/inhalation/rat
  VALUE-Vapor = 76000mg/m³ (4-hr)
  VALUE-Gas = No information available
  VALUE-Dust/Mist = No information available

- LC50/Inhalation/mouse
  VALUE-Vapor = No information available
  VALUE - Gas = No information available
  VALUE - Dust/Mist = No information available

**Product code:** M1266

**Product name:** METHYLENE CHLORIDE, NF
Symptoms

Skin Contact:
Causes skin irritation. Moderate skin irritation. It may be absorbed through the skin. If absorbed through skin it may cause systemic effects. May be harmful if absorbed through skin.

Eye Contact:
Causes eye irritation. Moderately irritating to the eyes. Causes conjunctival irritation. Causes conjunctivitis.

Inhalation
May be harmful if inhaled. Irritating to respiratory system. May affect respiration (respiratory depression). Causes lacrimation. Causes conjunctivitis. May cause loss of appetite. May cause nausea, vomiting. Inhalation of high concentrations of vapor may cause anesthetic effects. May cause acute bronchitis. It may cause pulmonary edema. Symptoms may include coughing and wheezing. Can cause dyspnea (shortness of breath and difficulty breathing). May affect behavior/central nervous system (central nervous system depression - headaches, lightheadedness, dizziness, euphoria, irritability, fatigue, somnolence, ataxia, stupor, irritability, hallucinations, loss of memory, convulsions, unconsciousness. May affect the brain. May cause numbness and tingling of the extremities (hands and feet). May cause carboxyhemoglobinemia (a conversion of methylene chloride to carbon monoxide in the lungs, which yields increased concentrations of carboxyhemoglobin in the blood). May affect the kidneys. It may affect the liver. It may affect the adrenal gland.

Ingestion
Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May affect urinary system (kidneys). May cause tingling, pricking feeling, or numbness in the extremities. May affect behavior/central nervous system (convulsions). May affect behavior/central nervous system (somnolence, ataxia). May affect the blood (anemia). May affect the cardiovascular system (hypotension or hypertension, tachycardia). May cause loss of appetite.

Aspiration hazard
No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity
Prolonged skin contact may cause skin irritation and/or dermatitis. Prolonged or repeated ingestion may cause weight loss. Prolonged or repeated inhalation may affect metabolism (weight loss). Prolonged or repeated inhalation or ingestion may affect the peripheral nervous system (weakness, paresthesia - a tingling, pricking, or numbness of the skin (known as the feeling of "pins and needles) generally of the hands and feet (extremities)). Prolonged or repeated ingestion may affect the liver. Prolonged or repeated inhalation may affect the liver. Prolonged or repeated ingestion may affect the kidneys. Prolonged or repeated inhalation may affect the kidneys. Prolonged or repeated inhalation may affect the brain. Prolonged or repeated inhalation may cause carboxyhemoglobinemia (a conversion of methylene chloride to carbon monoxide in the lungs, which yields increased concentrations of carboxyhemoglobin in the blood). Prolonged or repeated inhalation may affect the cardiovascular system (cardiac dysrhythmias and cardiac depression, heart disease). Prolonged or repeated inhalation may cause central nervous system effects. Prolonged or repeated inhalation may affect the spleen.

Sensitization:
No information available

Mutagenic Effects:
May affect genetic material
Animal experiments showed mutagenic effects
Mutagenic effects in mammalian somatic cells
Mutations in microorganisms
Experiments with bacteria and/or yeast have shown mutagenic effects

Carcinogenic effects:
Possibly carcinogenic to humans. Confirmed Animal Carcinogen with Unknown Relevance to Humans.

Product code: M1266
Product name: METHYLENE CHLORIDE, NF
Components | ACGIH - Carcinogens | IARC | NTP | OSHA HCS - Carcinogens | Australia - Prohibited Carcinogenic Substances | Australia - Notifiable Carcinogenic Substances
---|---|---|---|---|---|---

ACGIH (American Conference of Governmental Industrial Hygienists)
IARC (International Agency for Research on Cancer)
Group 2B - Possibly Carcinogenic to Humans
NTP (National Toxicology Program)
OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity

There is concern that methylene chloride exposure may produce testicular toxicity, but animal and human data on this matter is very limited. In one group of case reports, 4 of 34 men with occupational exposure to methylene chloride were found to have sperm concentrations in the subfertile or infertile range. Four other men had testicular or prostatic pain. In a small uncontrolled study organized by the National Institute of Occupational Safety and Health, no signs of oligospermia were found in 20 workers exposed to methylene chloride.

Developmental Effects:
A possible association with spontaneous abortion has been noted in 2 human studies. However, there is limited evidence.

Teratogenic Effects:
May cause birth defects (teratogenic effects) based on animal test data. Showed teratogenic effects in animal experiments. High doses of methylene chloride given to pregnant rats and mice were shown by one study to increase the incidence of minor skeletal anomalies although other studies in rats found this agent not to be associated with an increase in congenital anomalies.

Specific Target Organ Toxicity

STOT - single exposure
respiratory system. central nervous system.

STOT - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Target Organs:

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects:
Aquatic environment.

*Methylene Chloride - 75-09-2*

**Freshwater Algae Data:**
- 500 mg/L EC50 Pseudokirchneriella subcapitata 72 h
- 500 mg/L EC50 Pseudokirchneriella subcapitata 96 h

**Freshwater Fish Species Data:**
- 140.8 - 277.8 mg/L LC50 Pimephales promelas 96 h flow-through 1
- 262 - 855 mg/L LC50 Pimephales promelas 96 h static 1
- 193 mg/L LC50 Lepomis macrochirus 96 h flow-through 1
- 193 mg/L LC50 Lepomis macrochirus 96 h static 1

**Water Flea Data:**
- 1532 - 1847 mg/L EC50 Daphnia magna 96 h
- 190 mg/L EC50 Daphnia magna 48 h

**Persistence and degradability:**
No information available

Product code: M1266  Product name: METHYLENE CHLORIDE, NF
13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>U080</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
- UN-No: UN1593
- Proper Shipping Name: Dichloromethane
- Hazard Class: 6.1
- Subsidiary Risk: Not applicable
- Packing Group: III
- Marine Pollutant: No data available
- ERG No: 160
- DOT RQ (lbs): No information available
- Symbol(s): R4

TDG (Canada)
- UN-No: UN1593
- Proper Shipping Name: Dichloromethane
- Hazard Class: 6.1
- Subsidiary Risk: No information available
- Packing Group: III
- Description: No information available

ADR
- UN-No: UN1593
- Proper Shipping Name: Dichloromethane
- Hazard Class: 6.1
- Packing Group: III
- Subsidiary Risk: No information available
- Classification Code: No information available
- Description: No information available
- CEFIC Tremcard No: No information available

IMO / IMDG
- UN-No: UN1593
- Proper Shipping Name: Dichloromethane
- Hazard Class: 6.1
- Subsidiary Risk: No information available
14. TRANSPORT INFORMATION

Packing Group: III
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-A
MFAG: No information available
Maximum Quantity: No information available

RID
UN-No: UN1593
Proper Shipping Name: Dichloromethane
Hazard Class: 6.1
Subsidiary Risk: 6.1
Packing Group: III
Classification Code: No information available
Description: No information available

ICAO
UN-No: UN1593
Proper Shipping Name: Dichloromethane
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: III
Description: No information available

IATA
UN-No: UN1593
Proper Shipping Name: Dichloromethane
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: III
ERG Code: 6L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>Present</td>
<td>Present KE-23893</td>
<td>Present</td>
<td>Present (2)-36</td>
<td>Present</td>
<td>Present</td>
<td>Present 200-838-9</td>
</tr>
</tbody>
</table>

U.S. Regulations

Methylene Chloride

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: Present
New Jersey (EHS) List: Present
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
Pennsylvania RTK - Special Hazardous Substances: Present
RI RTK - Hazardous Substances List: Present
Michigan - Critical Materials List: Present
Minnesota - Hazardous Substance List: Present

Product code: M1266
Product name: METHYLENE CHLORIDE, NF

Chemicals Known to the State of California to Cause Cancer:
WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>carcinogen</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>1000 lb final RQ 454 kg final RQ</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>0.1 % de minimis concentration</td>
</tr>
</tbody>
</table>

U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>Not Applicable</td>
<td>10/04/1982 10/04/1992</td>
</tr>
</tbody>
</table>

Canada

WHMIS hazard class:
D1B  Toxic materials
D2A Very toxic materials
D2B  Toxic materials

Methylene Chloride
D1B  D2A  D2B

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

<table>
<thead>
<tr>
<th>Components</th>
<th>WHMIS Ingredient Disclosure List -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>0.1 %</td>
</tr>
</tbody>
</table>

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Chloride</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
</table>

Product code: M1266 Product name: METHYLENE CHLORIDE, NF
EU Classification

R-phrase(s)
R40 - Limited evidence of a carcinogenic effect

S-phrase(s)
S23 - Do not breathe gas/fumes/vapor/spray.
S24/25 - Avoid contact with skin and eyes.
S36/37 - Wear suitable protective clothing and gloves.

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
Xn - Harmful.

16. OTHER INFORMATION
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>Health Hazard 2</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Fire Hazard 1</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Reactivity 0</td>
</tr>
</tbody>
</table>

Preparation Date: 6/18/2014
Revision Date: 6/18/2014
Prepared by: Sonia Owen

Disclaimer:
All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Material Safety Data Sheet
Manufacturer

Product Covered: M1266, Methylene Chloride, NF

Spectrum takes ownership as the manufacturer for the Spectrum product listed above and provides full quality assurance, customer service, and technical product support.

While information concerning the raw material manufacturer of our starting materials is considered proprietary, such information can be made available upon request contingent on demonstration of business volume justification and successful execution of confidential disclosure agreement (CDA).

Requests for disclosure of proprietary raw material manufacturer information may be submitted to the assigned account representative for consideration.

Sincerely,

Alan Wang, MSQA, ASQ CQA
Senior Manager of Technical Services
techservices@spectrumchemical.com

Certificate of Registration

Intertek

This is to certify that the quality management system of

**Spectrum Chemicals and Laboratory Products, Inc.**

*Main Site:* 14422 South San Pedro Street, Gardena, California, 90248, USA

*Additional Sites:* 13915 South Main Street, Los Angeles, California, 90061, USA
755 Jersey Avenue, New Brunswick, New Jersey, 08901, USA
769 Jersey Avenue, New Brunswick, New Jersey, 08901, USA
7400 North Oracle Road, Suite 221, Tucson, Arizona, 85704, USA

has been assessed and registered by Intertek as conforming to the requirements of

**ISO 9001:2008**

The quality management system is applicable to

**California and New Jersey sites:** The manufacture and distribution of specialty fine chemicals, solutions, equipment, supplies and products for the laboratory, pharmaceutical, food, healthcare, cosmetic, fragrance, biotechnology, environmental and process industries.

**Arizona site:** Supporting Spectrum’s two manufacturing facilitates by: selecting and qualifying distributors of Laboratory and Safety Equipment; processing bids and quotes to generate new sales opportunities; sourcing bulk chemicals in support of bulk bids and quotes; assisting production operations through order expediting and IT infrastructure support.

Certificate Number: 94-316m-01
Initial Certification Date: 27 December 1994
Certificate Issue Date: 29 January 2016
Certificate Expiry Date: 14 September 2018

Calin Moldovean, President
Intertek Testing Services NA, Inc.
900 Chelmsford Street, Suite 301-3, Lowell, MA, USA

In the issuance of this certificate, Intertek assumes no liability to any party other than to the Client, and then only in accordance with the agreed upon Certification Agreement. This certificate’s validity is subject to the organization maintaining their system in accordance with Intertek’s requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone.

The certificate remains the property of Intertek, to whom it must be returned upon request.

CT-ISO 9001-2008-ANAB-EN-LT-L-26.jun.15
Certificate of Registration

Intertek Certification Limited is a UKAS accredited body under schedule of accreditation no. 014.

In the issuance of this certificate, Intertek assumes no liability to any party other than to the client, and then only in accordance with the agreed upon Certification Agreement. This certificate's validity is subject to the organization maintaining their system in accordance with Intertek's requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The annual validity of the certificate can also be checked through the website http://www.cnca.gov.cn of CNCA in China.

The certificate remains the property of Intertek, to whom it must be returned upon request.

This is to certify that the quality management system of

Spectrum China Ltd.

Building A20, No. 3802, Shengang Road, Songjiang District, Shanghai, China

has been assessed and registered by Intertek as conforming to the requirements of

ISO 9001: 2008

The quality management system is applicable to:

Provision of service of purchase, testing and sales for chemical products, repacking of non-hazardous chemical products.

Organization Code: 77762704-8
Certificate Number: 111310001-01
Certificate Issue Date: 17 November 2015
Certificate Expiry Date: 14 September 2018

Authorised Signature: Calin Moldovean – President, Business Assurance
Intertek Certification Limited, 10A Victory Park, Victory Road, Derby DE24 8ZF, United Kingdom

In the issuance of this certificate, Intertek assumes no liability to any party other than to the client, and then only in accordance with the agreed upon Certification Agreement. This certificate’s validity is subject to the organization maintaining their system in accordance with Intertek’s requirements for systems certification. Validity may be confirmed via email at certificate.validation@intertek.com or by scanning the code to the right with a smartphone. The annual validity of the certificate can also be checked through the website http://www.cnca.gov.cn of CNCA in China.

The certificate remains the property of Intertek, to whom it must be returned upon request.
March 28, 2016

Certificate of cGMP

Dear Valued Customer:

Spectrum Chemicals and Laboratory Products certify that our USP, NF, FCC, EP, BP, JP, and food grade products are produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

Spectrum is an FDA registered and inspected drug establishment. Our United States Food and Drug Administration (USFDA) Registration numbers are as follows:

Spectrum-Gardena, CA: 2020632
Spectrum-New Brunswick, NJ: 2246824
Spectrum-Shanghai, China: 3006174778

Thank you for your interest with Spectrum products. Please feel free to contact the Quality Assurance department at 310-516-8000 or via email at qualityassurance@spectrumchemical.com if we may be of further assistance.

Sincerely,

Michelle Weston
Quality Assurance Specialist
April 18, 2016

Certificate of cGMP

Dear Valued Customer:

Spectrum Chemicals and Laboratory Products certify that the following product(s) is produced, processed, packaged and held in compliance with current Good Manufacturing Practices (cGMP) in accordance with the applicable parts of 21 CFR, parts 210 and 211 of the Code of Federal Regulations.

<table>
<thead>
<tr>
<th>Catalog Number</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1266</td>
<td>Methylene Chloride, NF</td>
</tr>
</tbody>
</table>

Spectrum is an FDA registered and inspected drug establishment. Our United States Food and Drug Administration (USFDA) Registration numbers are as follows:

Spectrum-Gardena, CA: 2020632
Spectrum-New Brunswick, NJ: 2246824
Spectrum-Shanghai, China: 3006174778

Thank you for your interest with Spectrum products. Please feel free to contact the Quality Assurance department at 310-516-8000 or via email at qualityassurance@spectrumchemical.com if we may be of further assistance.

Sincerely,

Michelle Weston
Quality Assurance Specialist
April 27, 2016

Re: Methylene Chloride, NF-M1266

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfr. Corp. understand the concern regarding Bovine Spongiform Encephalopathy (BSE). Please be assured that the chemical

Methylene Chloride, NF-M1266

is BSE/TSE free.

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfr. Corp.

This document has been produced electronically and is valid without a signature
April 27, 2016

Re: Methylene Chloride, NF-M1266

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfr. Corp. understand the concern regarding the presence of allergens in raw materials. Please be assured that the following chemical does not contain (Milk; Egg; Fish; Shellfish; Sulfur dioxide and sulfites at concentrations of more than 10 mg/kg or 10 mg/liter expressed as SO$_2$; Lupin; Tree nuts; Mollusks; Wheat; Peanuts; Soy; Cereals containing Gluten; Celery; Mustard; Sesame Seed).

Methylene Chloride, NF-M1266

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfr. Corp.

This document has been produced electronically and is valid without a signature.
May 5, 2016

Re: Methylene Chloride, NF-M1266

To Whom It May Concern:

Thank you for your interest in Spectrum high quality chemicals.

We at Spectrum Chemical Mfg. Corp. understand the concern regarding Aflatoxins in raw materials. To the best of our knowledge, the product listed below is not contaminated with Aflatoxins. Aflatoxins are not used in production. The following product does not come in contact with Aflatoxins at any stage of production.

Methylene Chloride, NF-M1266

If you have any further questions, please contact Tech Services at (310) 516-8000 Extension 5471, or by email at techservices@spectrumchemical.com.

Sincerely,

Darlene Dagdag-Lyudmirskiy
Technical Services
Spectrum Chemical Mfr. Corp.

This document has been produced electronically and is valid without a signature
Methylene Chloride
(Dichloromethane)
N.F.
CAS 75-09-2

CAUTION:
For manufacturing, processing or repacking.
Read and understand the label and Safety Data Sheet (SDS) prior to use.

WARNING:
• Causes serious eye irritation • Causes skin irritation
• May cause respiratory irritation • May cause drowsiness or dizziness • May cause damage to organs through prolonged or repeated exposure • Suspected of causing cancer • Contact with flame or hot glowing surface may produce toxic gases.

FIRST AID:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
IF ON SKIN: Wash with plenty of water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED: Rinse mouth. Call a POISON CENTER or physician if you feel unwell.

KEEP FROM CHILDREN

DOT: UN1593, Dichloromethane, 6.1, PG III

CH₂Cl₂ F.W. 84.93

Assay ................................................. Min. 99.0%
Specific Gravity @ 25°C .................... 1.318-1.322
MAXIMUM LIMITS
Water ......................................................... 0.02%
Limit of Hydrogen Chloride ................. 0.001%
Limit of Nonvolatile Residue ............... 0.002%
Heavy Metals ........................................... 1 ppm
Free Chlorine .................................. To pass test
Residual Solvents .............................. To pass test

WARNING: This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Exp. Date: 03-31-2025

Spectrum Chemical Mfg Corp
Corporate Headquarters:  West Coast Facility:
769 Jersey Ave.   14422 S. San Pedro St.
New Brunswick, NJ 08901  Gardena, CA 90248
732.214.1300          310.516.8000

Yellow: Oxidizer
Red: Flammable
Green: General Storage
Blue: Health Hazard
White: Corrosive
<table>
<thead>
<tr>
<th>Test</th>
<th>Specification</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSAY (CH₂Cl₂)</td>
<td>99.0 %</td>
<td>99.99 %</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY @ 25°C</td>
<td>1.318 - 1.322</td>
<td>1.320</td>
</tr>
<tr>
<td>WATER</td>
<td>0.02 %</td>
<td>0.01 %</td>
</tr>
<tr>
<td>LIMIT OF HYDROGEN CHLORIDE</td>
<td>0.001 %</td>
<td>&lt;0.001 %</td>
</tr>
<tr>
<td>LIMIT OF NONVOLATILE RESIDUE</td>
<td>0.002 %</td>
<td>0.000 %</td>
</tr>
<tr>
<td>HEAVY METALS</td>
<td>1 ppm</td>
<td>&lt;1 ppm</td>
</tr>
<tr>
<td>FREE CHLORINE (Cl)</td>
<td>TO PASS TEST</td>
<td>PASSES TEST</td>
</tr>
<tr>
<td>IDENTIFICATION</td>
<td>TO PASS TEST</td>
<td>PASSES TEST</td>
</tr>
<tr>
<td>EXPIRATION DATE</td>
<td></td>
<td>03-JUN-2020</td>
</tr>
<tr>
<td>RESIDUAL SOLVENTS:</td>
<td>TO PASS TEST</td>
<td></td>
</tr>
<tr>
<td>CLASS 1 (solvent) / CARBON TETRACHLORIDE</td>
<td></td>
<td>&lt;4 ppm</td>
</tr>
<tr>
<td>CLASS 1 (solvent) / 1,1-DICHLOROETHENE</td>
<td></td>
<td>&lt;8 ppm</td>
</tr>
<tr>
<td>CLASS 2 (solvent) / CHLOROFORM</td>
<td></td>
<td>&lt;60 ppm</td>
</tr>
<tr>
<td>CLASS 2 (solvent) / 1,2-DICHLOROETHENE</td>
<td></td>
<td>&lt;1870 ppm</td>
</tr>
<tr>
<td>APPEARANCE</td>
<td></td>
<td>CLEAR COLORLESS LIQUID</td>
</tr>
<tr>
<td>MANUFACTURE DATE</td>
<td></td>
<td>03-JUN-2015</td>
</tr>
</tbody>
</table>

All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.
# Certificate Of Analysis

<table>
<thead>
<tr>
<th>Item Number</th>
<th>M1266</th>
<th>Lot Number</th>
<th>2EG0307</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Methylene Chloride, NF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS Number</td>
<td>75-09-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>CH₂Cl₂</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>84.93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>Specification</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASSAY (CH₂Cl₂)</strong></td>
<td>99.0 %</td>
<td>99.96 %</td>
</tr>
<tr>
<td><strong>SPECIFIC GRAVITY @ 25°C</strong></td>
<td>1.318 - 1.322</td>
<td>1.320</td>
</tr>
<tr>
<td><strong>WATER</strong></td>
<td>0.02 %</td>
<td>0.01 %</td>
</tr>
<tr>
<td><strong>LIMIT OF HYDROGEN CHLORIDE</strong></td>
<td>&lt;0.001 %</td>
<td></td>
</tr>
<tr>
<td><strong>LIMIT OF NONVOLATILE RESIDUE</strong></td>
<td>&lt;0.001 %</td>
<td></td>
</tr>
<tr>
<td><strong>HEAVY METALS</strong></td>
<td>&lt;1 ppm</td>
<td></td>
</tr>
<tr>
<td><strong>FREE CHLORINE (Cl)</strong></td>
<td>TO PASS TEST</td>
<td>PASSES TEST</td>
</tr>
<tr>
<td><strong>IDENTIFICATION</strong></td>
<td>TO PASS TEST</td>
<td>PASSES TEST</td>
</tr>
<tr>
<td><strong>EXPIRATION DATE</strong></td>
<td>23-JUN-2020</td>
<td></td>
</tr>
<tr>
<td><strong>RESIDUAL SOLVENTS:</strong></td>
<td>TO PASS TEST</td>
<td></td>
</tr>
<tr>
<td>CLASS 1 (solvent) / CARBON TETRACHLORIDE</td>
<td>&lt;4 ppm</td>
<td></td>
</tr>
<tr>
<td>CLASS 1 (solvent) / 1,2-DICHLOROETHANE</td>
<td>&lt;8 ppm</td>
<td></td>
</tr>
<tr>
<td>CLASS 2 (solvent) / CHLOROFORM</td>
<td>&lt;60 ppm</td>
<td></td>
</tr>
<tr>
<td>CLASS 2 (solvent) / 1,2-DICHLOROETHENE</td>
<td>&lt;1870 ppm</td>
<td></td>
</tr>
<tr>
<td><strong>APPEARANCE</strong></td>
<td>CLEAR COLORLESS LIQUID</td>
<td></td>
</tr>
<tr>
<td><strong>DATE OF MANUFACTURE</strong></td>
<td>23-JUN-2015</td>
<td></td>
</tr>
</tbody>
</table>

Spectrum Chemical Mfg Corp  
755 Jersey Avenue  
New Brunswick 08901 NJ

Certificate of Analysis Results Certified By:

[Signature]

Mulbah F. Dwanah  
Laboratory Supervisor  
Spectrum Chemicals & Laboratory Products

All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.
January 26, 2016

**RE: Lot Numbering System**

Dear Valued Customer:

This letter is to inform you of Spectrum Chemicals and Laboratory Products’ Lot Numbering System. The system is based on an alpha-numerical sequence which provides the month, year and location of production.

The lot numbering system utilized until 2010 is a sequence of six characters, two letters followed by four numbers. The first letter represents the year, for example, Y denotes 2009 and Z denotes 2010. The second letter represents the month and site, for example, A-L denotes January through December at Spectrum’s Gardena, CA facility, while M-X denotes January through December at the New Brunswick, NJ facility. The following four numbers are sequentially assigned.

**Example:** ZI0928 = The 928th material produced in California in September 2010

The lot numbering system utilized for 2011 and forward, is a sequence of seven characters. The first character, a number, represents the production facility:

1 = Gardena, CA Facility
2 = New Brunswick, NJ Facility
3 = China Facility

The second character, a letter, represents the year. For example, A denotes 2011 and B denotes 2012. The third character, a letter, represents the month, with A denoting January and L denoting December. The following four numbers are sequentially assigned.

**Example:** 2AA0706 = The 706th material produced in New Jersey in January 2011

Thank you for your interest with Spectrum products. Please feel free to contact us at 310-516-8000 or via email at qualityassurance@spectrumchemical.com if we may be of further assistance.

Sincerely,

Michael Dang
Manager, GMP Compliance
Stability — Shelf Life Guidance

Product Covered: M1266, Methylene Chloride, NF

Spectrum Chemical’s manufacturing partner has assigned the following shelf life guidance for the product listed above.

The product, M1266, Methylene Chloride, NF, is assigned a 60 months shelf life from date of manufacturing. The quality and integrity of the chemical depends on the handling and storage conditions. Please refer to the Safety Data Sheet for proper storage and handling procedures.

Adan R. Hernandez
Quality Control Manager

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