MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**METHYLENE CHLORIDE**
Version #	06
Revision date	04-26-2011
CAS #	75-09-2
Product Codes	**J.T.Baker: 9264, 9266, 9295, 9315, 9324, 9329, 9348, 9350, 9428, Q480** **Macron: 12229, 4874**
Synonym(s)	MC * METHYLENE DICHLORIDE * DICHLOROMETHANE * DICHLOROMETHANE (DCM)
Manufacturer	Avantor Performance Materials, Inc.
Address	222 Red School Lane Phillipsburg, NJ 08865 US
Customer Service	800-582-2537
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	WARNING Possible cancer hazard - may cause cancer based on animal data. Harmful if inhaled or swallowed. Causes skin and eye irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract. May cause an increase in carboxyhemoglobin levels.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Causes eye irritation.
Skin	Causes skin irritation.
Inhalation	Harmful if inhaled. May cause cancer by inhalation. High vapor concentrations may cause drowsiness. High vapor concentrations are irritating to the eyes, nose, throat, and lungs.
Ingestion	Harmful if swallowed. Irritating. May cause nausea, stomach pain and vomiting.
Target organs	Eyes. Skin. Central nervous system. Liver. Heart and cardiovascular system. Blood.
Chronic effects	Possible cancer hazard - may cause cancer based on animal data. May cause an increase in carboxyhemoglobin levels. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Potential environmental effects	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
METHYLENE CHLORIDE	75-09-2	98 - 100

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Skin contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Get medical attention immediately.
Ingestion	Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	Excessive carboxyhemoglobin from acute Carbon Monoxide poisoning is best reversed by aggressive oxygen therapy within the limits of oxygen toxicity. Hyperbaric treatment, if available, is especially useful in severe cases. Consult a poison control center for guidance. Treat symptomatically. Symptoms may be delayed.
General advice	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	This product is not flammable. May burn, but does not ignite readily.
Extinguishing media	
Suitable extinguishing media	Water. Carbon dioxide (CO2). Dry chemical powder. Foam.
Unsuitable extinguishing media	None known.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment and precautions for firefighters	Use water spray to cool unopened containers. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
Specific methods	In the event of fire and/or explosion do not breathe fumes.
Hazardous combustion products	Carbon monoxide and carbon dioxide. Hydrogen Chloride (HCl).

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.
Methods for cleaning up	Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. Collect in a non-combustible container for prompt disposal.

7. Handling and Storage

Handling Wear appropriate personal protective equipment. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Wash thoroughly after handling. See Section 8 of the MSDS for Personal Protective Equipment.

Storage Keep tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Material	Type	Value
METHYLENE CHLORIDE (75-09-2)	BEL	0.3000 mg/l
	TWA	50.0000 ppm

U.S. - OSHA

Material	Type	Value
METHYLENE CHLORIDE (75-09-2)	STEL	125.0000 ppm
	TWA	25.0000 ppm

Engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Eye / face protection Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

Respiratory protection Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General hygeine considerations Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

General Wear chemical protective equipment that is specifically recommended by the manufacturer. Launder contaminated clothing before reuse.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless.
Odor	Sweet. Pleasant.
Odor threshold	Not available.
Physical state	Liquid.
Form	Liquid.
pH	Not available.
Melting point	-139 °F (-95 °C)
Freezing point	-139 °F (-95 °C)
Boiling point	104 °F (39.75 °C) 101.325 kPa
Flash point	Not available.
Evaporation rate	27.5 BuAc
Flammability limits in air, upper, % by volume	66.4 %
Flammability limits in air, lower, % by volume	15.5 %

Vapor pressure	58 kPa at 25°C
Vapor density	2.93
Specific gravity	1.3255
Relative density	Not available.
Solubility (water)	20 g/l
Partition coefficient (n-octanol/water)	1.25
Auto-ignition temperature	1033 °F (556.1 °C)
Molecular weight	84.93 g/mol
Molecular formula	C-H2-Cl2

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Excessive heat. Moisture.
Incompatible materials	Strong oxidizing agents. Acids. Caustics. Aluminum. Chemically active metals. May attack some plastics, rubber and coatings.
Hazardous decomposition products	Carbon oxides. Hydrogen chloride. Phosgene.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Test Results
METHYLENE CHLORIDE (75-09-2)	Acute Inhalation LC50 Rat: 76 mg/l 4.00 Hours
	Acute Oral LD50 Rat: 1600 mg/kg

Sensitization	Not a skin sensitizer.
Acute effects	Harmful if inhaled or swallowed. May cause an increase in carboxyhemoglobin levels.
Local effects	Causes skin and eye irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract.
Chronic effects	May cause an increase in carboxyhemoglobin levels. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Carcinogenicity	Possible cancer hazard - may cause cancer based on animal data.

ACGIH Carcinogens

METHYLENE CHLORIDE (CAS 75-09-2)	A3 Confirmed animal carcinogen with unknown relevance to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

METHYLENE CHLORIDE (CAS 75-09-2)	2B Possibly carcinogenic to humans.

US NTP Report on Carcinogens: Anticipated carcinogen

METHYLENE CHLORIDE (CAS 75-09-2)	Anticipated carcinogen.

US OSHA Specifically Regulated Substances: Potential cancer hazard

METHYLENE CHLORIDE (CAS 75-09-2)	Potential cancer hazard.

Skin corrosion/irritation	Causes skin irritation.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	Not classified.
Neurological effects	High vapor/aerosol concentrations (attainable only at elevated temperatures) may cause central nervous system effects such as dizziness, drowsiness or headaches.
Reproductive effects	Contains no ingredient listed as toxic to reproduction

Teratogenicity	Components in this product have been shown to cause birth defects and reproductive disorders in laboratory animals. The relevance to humans is uncertain.
Symptoms and target organs	Irritant effects. Drowsiness and dizziness. Decrease in motor functions. Shortness of breath. Unconsciousness.

12. Ecological Information

Ecotoxicological data

Product	Test Results
METHYLENE CHLORIDE (75-09-2)	EC50 Water flea (Daphnia magna): 1250 mg/l 48.00 hours LC50 Fathead minnow (Pimephales promelas): 140.8 mg/l 96.00 hours

Ecotoxicity	Not expected to be harmful to aquatic organisms.
Environmental effects	Ecological injuries are not known or expected under normal use. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	Expected to biodegrade slowly.
Partition coefficient (n-octanol/water)	1.25

13. Disposal Considerations

Waste codes

US RCRA Hazardous Waste U List: Reference

METHYLENE CHLORIDE (CAS 75-09-2) U080

Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.
Contaminated packaging	Offer rinsed packaging material to local recycling facilities. Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN1593
Proper shipping name	Dichloromethane
Hazard class	6.1
Packing group	III

Additional information:

Special provisions	IB3, IP8, N36, T7, TP2

Basic shipping requirements:

Labels required	6.1

Additional information:

Packaging exceptions	153
Packaging non bulk	203
Packaging bulk	241
Reportable quantity	1000
ERG number	160

IATA

Basic shipping requirements:

UN number	1593
Proper shipping name	Dichloromethane
Hazard class	6.1
Packing group	III

Additional information:

ERG code 6L

IMDG

Basic shipping requirements:

UN number 1593

Proper shipping name DICHLOROMETHANE

Hazard class 6.1

Packing group III

DOT

IATA

IMDG

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

See OSHA Standard for medical surveillance, record keeping, and reporting requirements for methylene chloride (29 CFR 1910.1052).

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

METHYLENE CHLORIDE (CAS 75-09-2) 0.1 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

METHYLENE CHLORIDE (CAS 75-09-2) Listed.

CERCLA (Superfund) reportable quantity

METHYLENE CHLORIDE: 1000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical Yes

Clean Air Act (CAA) HAPS list

Clean Water Act (CWA) Priority pollutant
Toxic pollutant

Safe Drinking Water Act (SDWA) 0 mg/l
0.005 mg/l

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

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

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

METHYLENE CHLORIDE (CAS 75-09-2) Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

METHYLENE CHLORIDE (CAS 75-09-2) Listed: April 1, 1988 Carcinogenic.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

METHYLENE CHLORIDE (CAS 75-09-2) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

METHYLENE CHLORIDE (CAS 75-09-2) Listed.

US - Pennsylvania RTK - Hazardous Substances: Special hazard

METHYLENE CHLORIDE (CAS 75-09-2) Special hazard.

Saf-T-Data

Health: 2 - Moderate (Poison)
Flammability: 1 - Slight
Reactivity: 1 - Slight
Contact: 3 - Severe
Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: B - Blue (Health)

16. Labeling Info

Label Hazard Warning

WARNING

Possible cancer hazard - may cause cancer based on animal data. Harmful if inhaled or swallowed. Causes skin and eye irritation. High vapor concentrations may cause drowsiness and irritation of the eyes or respiratory tract. May cause an increase in carboxyhemoglobin levels.

Label Precautions

Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Flush skin thoroughly with water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention if irritation develops or persists. If ingestion of a large amount does occur, call a poison control center immediately. Do not induce vomiting without advice from poison control center.

17. Other Information

NFPA ratings

Health: 2
Flammability: 1
Instability: 0

Disclaimer	THE INFORMATION PRESENTED IN THIS MATERIAL SAFETY DATA SHEET (MSDS/SDS) WAS PREPARED BY TECHNICAL PERSONNEL BASED ON DATA THAT THEY BELIEVE IN THEIR GOOD FAITH JUDGMENT IS ACCURATE. HOWEVER, THE INFORMATION PROVIDED HEREIN IS PROVIDED “AS IS,” AND AVANTOR PERFORMANCE MATERIALS MAKES AND GIVES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES REGARDING SUCH INFORMATION AND THE PRODUCT TO WHICH IT RELATES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF ACCURACY, COMPLETENESS, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY, STABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. THIS MSDS/SDS IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PROPERLY TRAINED PERSON USING THIS PRODUCT, AND IS NOT INTENDED TO BE COMPREHENSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING, STORAGE, OR DISPOSAL OF THE PRODUCT. INDIVIDUALS RECEIVING THIS MSDS/SDS MUST ALWAYS EXERCISE THEIR OWN INDEPENDENT JUDGMENT IN DETERMINING THE APPROPRIATENESS OF SUCH ISSUES. ACCORDINGLY, AVANTOR PERFORMANCE MATERIALS ASSUMES NO LIABILITY WHATSOEVER FOR THE USE OF OR RELIANCE UPON THIS INFORMATION. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS, A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR TO VIOLATE ANY FEDERAL, STATE, LOCAL, OR FOREIGN LAWS. AVANTOR PERFORMANCE MATERIALS REMINDS YOU THAT IT IS YOUR LEGAL DUTY TO MAKE ALL INFORMATION IN THIS MSDS/SDS AVAILABLE TO YOUR EMPLOYEES.
Issue date	04-26-2011
This data sheet contains changes from the previous version in section(s):	Exposure Controls / Personal Protection: Respiratory protection