

Material Safety Data Sheet

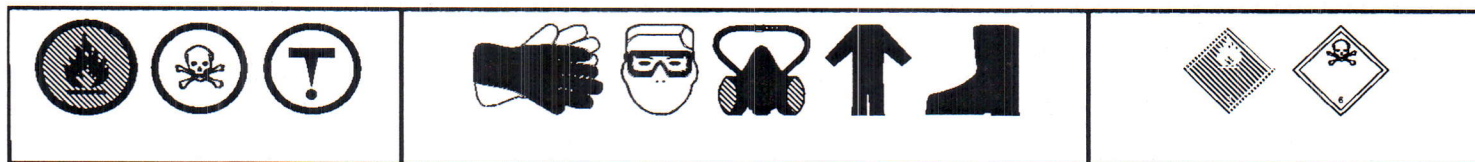


Methanol

WHMIS

Protective Clothing

TDG



1. Product and company identification

Product name : Methanol
 Supplier : QUADRA CHEMICALS LTD.
 3901 F.X. Tessier
 Vaudreuil-Dorion, Quebec
 Canada J7V 5V5
 Tel: 1-800-665-6553

Synonym : Methyl alcohol, methyl hydrate, wood spirit, wood alcohol.

Material uses : Industrial applications: Solvent; fuel; feedstock.

Code : Q01347

Additional Code : M01015

Validation date : 08/07/2013.

Responsible name : Regulatory Affairs / Affaires réglementaires

In case of emergency : **TRANSPORTATION EMERGENCY - 24HRS/DAY - 7 DAYS/WEEK
 IN CANADA - CALL 1-800-567-7455**

2. Hazards identification

Physical state : Liquid. [Clear.]

Odor : Characteristic. Alcohol-like. [Slight.]

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOR. HARMFUL IF SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE BIRTH DEFECT HAZARD - MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA. POSSIBLE DEVELOPMENTAL HAZARD - MAY CAUSE ADVERSE DEVELOPMENTAL EFFECTS, BASED ON ANIMAL DATA.

Flammable liquid. Harmful if swallowed. May be harmful if absorbed through skin. Irritating to eyes, respiratory system and skin. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Do not ingest. Do not get in eyes. Avoid contact with skin and clothing. Can cause target organ damage. May cause birth defects, based on animal data. May cause developmental abnormalities, based on animal data. Avoid exposure during pregnancy. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Irritating to respiratory system.

Ingestion : Toxic if swallowed. Swallowing even small amounts may cause blindness or death.

Skin : Harmful in contact with skin. Irritating to skin.

Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : Can cause target organ damage.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

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2. Hazards identification

- Teratogenicity : May cause birth defects, based on animal data.
Developmental effects : May cause developmental abnormalities, based on animal data.
Fertility effects : No known significant effects or critical hazards.
Target organs : Causes damage to the following organs: liver, central nervous system (CNS).

Over-exposure signs/symptoms

- Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Ingestion : May cause nausea, headache, abdominal pain, vomiting and visual disturbances ranging from blurred vision to light sensitivity.
- Skin : Adverse symptoms may include the following:
irritation
redness
- Eyes : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Methanol	67-56-1	60 - 100

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician : Ethyl alcohol inhibits the metabolism of methyl alcohol and has been used to treat methanol poisoning. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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5. Fire-fighting measures

- Flammability of the product** : Flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
- Flash point** : 11°C (51.8°F)
- Extinguishing media**
- Suitable** : Use dry chemical, CO₂, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Spill or leak** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

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7. Handling and storage

- Storage** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Product name
methanol

Exposure limits

ACGIH TLV (United States).

TWA: 200 ppm 8 hour(s).

STEL: 250 ppm 15 minute(s).

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: splash goggles
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: chemical-resistant protective suit
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Liquid. [Clear.]
- Flash point** : 11°C (51.8°F)
- Auto-ignition temperature** : 464°C (867.2°F)
- Flammable limits** : Lower: 6%
Upper: 36.5%
- Color** : Colourless.
- Odor** : Characteristic. Alcohol-like. [Slight.]

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9 . Physical and chemical properties

Molecular weight	: 32.04 g/mole
Molecular formula	: CH ₃ OH
Boiling/condensation point	: 64.7°C (148.5°F)
Melting/freezing point	: -97.8°C (-144°F)
Critical temperature	: 239.4°C (462.9°F)
Relative density	: 0.791 to 0.793 [@ 20°C]
Vapor pressure	: 12.8 kPa (96 mm Hg) @ 20°C
Vapor density	: 1.105 [Air = 1] @ 15°C
Volatility	: 100% (v/v)
Evaporation rate	: 4.1 (n-butyl acetate = 1)
Viscosity	: Dynamic: 0.3 mPa·s (0.3 cP) @ 25°C
Solubility	: Easily soluble in the following materials: cold water and diethyl ether.

10 . Stability and reactivity

Stability	: The product is stable.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. Avoid exposure during pregnancy.
Materials to avoid	: oxidizing materials metals acids alkalis
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological informationAcute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
methanol	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Mouse	7300 mg/kg	-
	LD50 Oral	Rat	6200 mg/kg	-
	LC50 Inhalation	Rat	64000 ppm	4 hours
	Vapor			

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : Readily biodegradable Bioaccumulation: None expected.

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
Methanol	-	EC50 >10000 mg/l	Daphnia	48 days
	-	IC50 22000 mg/l	Algae	72 hours
	-	LC50 15400 to 29400 mg/l	Fish	96 hours

Conclusion/Summary : Not available.

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

13 . Disposal considerations

- Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Waste and empty packaging must be disposed of in accordance with federal, provincial, and municipal environmental control regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory Information	UN number	Proper shipping name	Classes	PG* Label	Additional Information
TDG Classification	1230	METHANOL	3 (6.1)	II  	-

PG* : Packing group

5 . Regulatory information

- WHMIS (Canada) : Class B-2: Flammable liquid
Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
- Canada inventory : All ingredients are listed or exempted.

16 . Other information

- Additional Information : This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

- Other special considerations : Not available.

Regulatory Affairs Department : 1 800 665-6553

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.