









# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
   	<b>Flammable material; avoid heat and sources of ignition.</b> <b>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</b> <b>Irritating to skin, eyes, and the respiratory system.</b> <b>CARCINOGEN. MINIMIZE EXPOSURE.</b>	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Nitromethane</b> (55% in Methanol, ca. 8.7mol/L)		
Catalog Number	N0239	Supplier	TCI America 9211 N. Harborage St. Portland OR 1-800-423-8616
Synonym	Not available.		
Chemical Formula	CH <sub>3</sub> NO <sub>2</sub>		
CAS Number	75-52-5 67-56-1 (Methanol)	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Nitromethane (55% in Methanol, ca. 8.7mol/L)	75-52-5 67-56-1 (Methanol)	55.0% 45.0% (Methanol)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.	Rat LD <sub>50</sub> (oral) 940 mg/kg Mouse LD <sub>50</sub> (oral) 950 mg/kg Mouse LD <sub>50</sub> (intraperitoneal) 110 mg/kg (Methanol) Rat LD <sub>50</sub> (oral) 5600 mg/kg Rabbit LD <sub>50</sub> (dermal) 15800 mg/kg Rat LC <sub>50</sub> (inhalation) 64000 ppm/4H

## Section III. Hazards Identification

Acute Health Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects. Rat TCLo Inhalation 9656.25 mg/kg/103 weeks intermittent <b>TOXIC Effects:</b> Tumorigenic - Carcinogenic by RTECS criteria Skin and appendages - Tumors Rat TCLo Inhalation 188 ppm/6 hours/2 years intermittent <b>TOXIC Effects:</b> Tumorigenic - Carcinogenic by RTECS criteria Skin and Appendages - Tumors Mouse TCLo Inhalation 23175 mg/kg/103 weeks intermittent <b>TOXIC Effects:</b> Tumorigenic - Carcinogenic by RTECS criteria Lung, Thorax, or Respiration - Tumors Endocrine - Tumors <b>DEVELOPMENTAL TOXICITY</b> Reproductive Effects. (Methanol) Rat TCLo Inhalation 20000 ppm/7 hours, female 1-22 days of pregnancy <b>TOXIC Effects:</b> Specific Developmental Abnormalities - Musculoskeletal system Specific Developmental Abnormalities - Cardiocascular (circulatory) system Specific Developmental Abnormalities - Urogenital system TDLo Oral 35295 mg/kg, female 1-15 days of pregnancy <b>TOXIC Effects:</b> Effects on Fertility - Female fertility index Effects on Fertility - Pre-implantation mortality Effects on Fertility - Post-implantation mortality Mouse TDLo Oral 4 gm/kg, female 7 days of pregnancy <b>TOXIC Effects:</b> Specific Developmental Abnormalities - Craniofacial Specific Developmental Abnormalities - Musculoskeletal system

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Emergency phone number (800) 424-9300

**Section IV. First Aid Measures**

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. 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. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

**Section V. Fire and Explosion Data**

Flammability	Flammable.	Auto-Ignition	418°C (784.4°F). 464°C (867.2°F). (Methanol)
Flash Points	36°C (96.8°F). 12°C (53.6°F). (Methanol)	Flammable Limits	LOWER: 7.3% LOWER: 5.5% UPPER: 44% (Methanol)
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ).		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.		


**Section VI. Accidental Release Measures**

Spill Cleanup Instructions	Flammable material. Toxic material. Irritating material. Carcinogenic material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.
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**Section VII. Handling and Storage**

Handling and Storage Information	FLAMMABLE. TOXIC. IRRITANT. CARCINOGEN. Keep locked up.. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, reducing agents, acids, alkalis (bases).
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**Section VIII. Exposure Controls/Personal Protection**

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Liquid. (Light yellow Clear.)	Solubility	Not available.
Specific Gravity	1.136 (water=1) 0.79 (water=1) (Methanol)	Partition Coefficient	Log K <sub>ow</sub> = 0.2
Molecular Weight	CH <sub>3</sub> NO <sub>2</sub> = 61.04 CH <sub>2</sub> OH = 32.04 (Methanol)	Vapor Pressure	27.3 mmHg (@ 20°C) 97.68 mmHg (@ 20°C)(Methanol)
Boiling Point	100 to 102°C (212 to 215.6°F) 64°C (147.2°F)(Methanol)	Vapor Density	2.1 (Air = 1) 1.1 (Air = 1)(Methanol)
Melting Point	-29°C (-20.2°F) -98°C (-144.4°F)(Methanol)	Volatility	Not available.
Refractive Index	Not available.	Odor	Not available.
Critical Temperature	Not available.	Taste	Not available.
Viscosity	0.61 Pas (@ 25°C)		

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**Section X. Stability and Reactivity Data**

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, strong reducing agents, strong acids, strong alkalis (bases), acid chlorides, acid anhydrides, and alkali metals.

**Section XI. Toxicological Information**

RTECS Number	PA9800000 PC1400000 (Methanol)
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LD <sub>50</sub> (oral) 940 mg/kg Mouse LD <sub>50</sub> (oral) 950 mg/kg Mouse LD <sub>50</sub> (intraperitoneal) 110 mg/kg (Methanol) Rat LD <sub>50</sub> (oral) 5600 mg/kg Rabbit LD <sub>50</sub> (dermal) 15800 mg/kg Rat LC <sub>50</sub> (inhalation) 64000 ppm/4H
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects. Rat TCLo Inhalation 9656.25 mg/kg/103 weeks intermittent TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Skin and appendages - Tumors Rat TCLo Inhalation 188 ppm/6 hours/2 years intermittent TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Skin and Appendages - Tumors Mouse TCLo Inhalation 23175 mg/kg/103 weeks intermittent TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Lung, Thorax, or Respiration - Tumors Endocrine - Tumors <b>DEVELOPMENTAL TOXICITY</b> Reproductive Effects. (Methanol) Rat TCLo Inhalation 20000 ppm/7 hours, female 1-22 days of pregnancy TOXIC Effects: Specific Developmental Abnormalities - Musculoskeletal system Specific Developmental Abnormalities - Cardiocascular (circulatory) system Specific Developmental Abnormalities - Urogenital system TDLo Oral 35295 mg/kg, female 1-15 days of pregnancy TOXIC Effects: Effects on Fertility - Female fertility index Effects on Fertility - Pre-implantation mortality Effects on Fertility - Post-implantation mortality Mouse TDLo Oral 4 gm/kg, female 7 days of pregnancy TOXIC Effects: Specific Developmental Abnormalities - Craniofacial Specific Developmental Abnormalities - Musculoskeletal system
Acute Toxic Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

**Section XII. Ecological Information**

Ecotoxicity	Not available.
Environmental Fate	<b>Nitromethane</b> Nitromethane's production and use as a solvent for cellulosic compounds, polymers, waxes, and fats, an ingredient in rocket fuel, and a drag racing fuel may result in its release to the environment through various waste streams. If released to air, an estimated vapor pressure of 35.8 mm Hg at 25 deg C indicates nitromethane will exist solely as a vapor in the atmosphere. Vapor-phase nitromethane will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 123 days. Nitromethane is expected to undergo direct photolysis in the atmosphere based on 83% degradation within 24 hours, and a half-life of 4.3 hours measured during tests for photodegradation. If released to soil, nitromethane is expected to have very high mobility based upon an estimated Koc of 15. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of 2.86X10 <sup>-5</sup> atm-cu m/mole. Nitromethane may volatilize from dry soil surfaces based upon its vapor pressure. Biodegradation in soil is expected to be slow based on 5.1 and 2.3% conversion to CO <sub>2</sub> in aerobic and anerobic soil, respectively after 35 days. If released into water, nitromethane is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Biodegradation in water may occur based on conflicting data, with 36.2% mineralization after 5 days using activated sludge but less than 10% degradation in a 28 day closed bottle test. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 17 hours and 10 days, respectively. A BCF of 1.4 suggests bioconcentration in aquatic organisms is low. Hydrolysis is not expected to be an important environmental fate process since this compound lacks functional groups that hydrolyze under environmental conditions.

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(55% in Methanol, ca. 8.7mol/L)

Occupational exposure to nitromethane may occur through inhalation and dermal contact with this compound at workplaces where nitromethane is produced or used. Monitoring data indicate that the general population may be exposed to nitromethane via inhalation of ambient air and dermal contact with this compound and other products containing nitromethane.



**Methanol**

Methanol's production and use as a solvent, fuel additive, and in the production of formaldehyde, acetic acid, and methyl tertiary butyl ether (MTBE) may result in its release to the environment through various waste streams. Methanol has been identified as a natural emission product from various plants and as a biological decomposition product of biological wastes and sewage. If released to the atmosphere, a vapor pressure of 127 mm Hg at 25 deg C indicates that methanol will exist solely in the vapor phase. Vapor phase methanol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 17 days. If released to soil, methanol is expected to have very high mobility based upon an estimated Koc of 1. Volatilization from moist soil surfaces is expected to be an important fate process based upon a Henry's Law constant of  $4.55 \times 10^{-6}$  atm-cu m/mole. Methanol may also volatilize from dry soils based upon its vapor pressure. Biodegradation of methanol in soils is expected to occur rapidly based on half-lives in a sandy silt loam from Texas and a sandy loam from Mississippi of 1 and 3.2 days, respectively. If released into water, methanol is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. Volatilization from water surfaces is expected to be an important fate process based upon this compound's Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 3 and 35 days, respectively. Biodegradation is expected to occur in natural waters since methanol is degraded quickly in soils and was biodegraded rapidly in various aqueous screening tests using sewage seed or activated sludge. BCF values of less than 10, measured in fish suggests bioconcentration in aquatic organisms is low. Hydrolysis of methanol and photolysis in sunlit surface waters are not expected since methanol lacks functional groups that are susceptible to hydrolysis or photolysis under environmental conditions. Occupational exposure to methanol may occur through inhalation and dermal contact with this compound at workplaces where methanol is produced or used. Monitoring data indicate that the general population may be exposed to methanol via inhalation of ambient air, and ingestion of food and drinking water.

**Section XIII. Disposal Considerations**

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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**Section XIV. Transport Information**

DOT Classification	DOT Class 3: Flammable liquid DOT Class 6.1: Toxic material
PIN Number	UN1992
Proper Shipping Name	Flammable liquid, toxic, n.o.s.
Packing Group (PG)	II
DOT Pictograms	 

**Section XV. Other Regulatory Information and Pictograms**

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC). On DSL
EINECS Number (EEC)	200-876-6 200-659-6 (Methanol)
EEC Risk Statements	R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R45- May cause cancer. R46- May cause heritable genetic damage. R47- May cause birth defects.
Japanese Regulatory Data	ENCS No. 2-191 ENCS No. 2-201 (Methanol)

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 6/12/2008.**  
**Printed 6/12/2008.**

**Notice to Reader****Continued on Next Page****Emergency phone number (800) 424-9300**

*(55% in Methanol, ca. 8.7mol/L)*

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