

Material Safety Data Sheet

Nitromethane

ACC# 01129

Section 1 - Chemical Product and Company Identification

MSDS Name: Nitromethane

Catalog Numbers: AC148510010, AC148510025, AC167860025, AC167865000, AC213370250, AC213371000, AC213375000, AC424015000, N98-500

Synonyms: Nitrocarbol; NM; NMT.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
75-52-5	Nitromethane	>95	200-876-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: 35 deg C.

Warning! Employ care in contact of nitromethane with reducing agents, strong bases, amines, heavy metals or their oxides, especially at elevated temperatures or in confined spaces - explosion may result. Anhydrous salts of nitromethane may explode. Heating may cause an explosion. **Flammable liquid and vapor.** May cause eye, skin, and respiratory tract irritation. May be harmful if swallowed or inhaled. May cause central nervous system depression. May cause cancer based on animal studies. May cause liver damage.

Target Organs: Blood, central nervous system, liver, eyes, thyroid, skin.

Potential Health Effects

Eye: May cause eye irritation. Vapors may cause eye irritation.

Skin: Exposure may cause irritation characterized by redness, dryness, and inflammation. Not expected to cause an allergic skin reaction. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Did not cause allergic skin reactions when tested in guinea pigs (Angus Chemical Company).

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver damage. May cause central nervous system depression. May be harmful if swallowed.

Inhalation: May cause respiratory tract irritation. May cause pulmonary edema and severe respiratory disturbances. Vapor concentrations are attainable which could be hazardous on single exposure. May cause central nervous system effects. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

Chronic: Possible cancer hazard based on tests with laboratory animals. Prolonged or repeated skin contact may cause dermatitis.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: Evacuate area and fight fire from a safe distance. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Flammable liquid and vapor. Vapors may form an explosive mixture with air. Explosive decomposition may occur under fire conditions. Closed containers may rupture violently when heated. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Nitromethane is shock- and heat- sensitive. Explosive decomposition begins at 599°F (315°C). May be detonated by nearby explosions.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam. Do not use bicarbonate based dry chemical extinguishers for fires involving nitromethane or nitroethanes. Reaction with alkaline bicarbonates or other strong alkalis can form salts that may reignite when dry. Solid streams of water may be ineffective and spread material.

Flash Point: 35 deg C (95.00 deg F)

Autoignition Temperature: 418 deg C (784.40 deg F)
Explosion Limits, Lower:7.3%
Upper: 62%
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 4

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Isolate area and deny entry. Provide ventilation. Prevent spreading of vapors through sewers, ventilation systems and confined areas. Approach spill from upwind. Use water spray to cool and disperse vapors and protect personnel. Do not use clay-based absorbents. Ground and bond containers and handling equipment. Pump with explosion-proof equipment into suitable and properly labeled containers.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Avoid mechanical shock and friction. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame. Avoid breathing vapor. Employ care in contact of nitromethane with reducing agents, strong bases, amines, heavy metals or their oxides, especially at elevated temperatures or in confined spaces - explosion may result. Anhydrous salts of nitromethane may explode. Do not use air pressure to empty containers.

Storage: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Outside or detached storage is preferred. Do not store in copper or copper alloy storage vessels. DO NOT STORE WITH OTHER FLAMMABLES. Store in stainless steel or aluminum if wet.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Nitromethane	20 ppm TWA	750 ppm IDLH	100 ppm TWA; 250 mg/m3 TWA

OSHA Vacated PELs: Nitromethane: 100 ppm TWA; 250 mg/m3 TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: colorless

Odor: fruity odor - disagreeable odor

pH: 6.12 (0.1M sol)

Vapor Pressure: 27.8 mm Hg @ 20 deg C

Vapor Density: 2.1 (air=1)

Evaporation Rate:1.39 (butyl acetate=1)

Viscosity: 0.61 cP 25 deg C

Boiling Point: 101 deg C

Freezing/Melting Point:-29 deg C

Decomposition Temperature:315 deg C

Solubility: Slightly soluble.

Specific Gravity/Density:1.13 (water=1)

Molecular Formula:CH3NO2

Molecular Weight:61.04

Section 10 - Stability and Reactivity

Chemical Stability: Substance is shock sensitive and thermally unstable. Substance forms an explosive sodium salt which bursts into flame on contact with water. Nitromethane is made more sensitive to detonation by contamination with certain other materials such as amines and acids. Risk of explosion if heated under confinement.

Conditions to Avoid: High temperatures, mechanical shock, ignition sources, confined spaces.

Incompatibilities with Other Materials: Strong oxidizing agents, reducing agents, strong acids, strong bases, amines, formaldehyde, nitric acid, alkenes, metal oxides, hydrocarbons, combustible materials, heavy metals, clay-based absorbents.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:**CAS#** 75-52-5: PA9800000**LD50/LC50:****CAS#** 75-52-5:

Oral, mouse: LD50 = 950 mg/kg;

Oral, rat: LD50 = 940 mg/kg;

Carcinogenicity:**CAS#** 75-52-5:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 5/1/97
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

Epidemiology: No evidence was found in the literature that exposure of humans to nitromethane resulted in methemoglobinemia. Nitromethane is a weak narcotic and respiratory irritant which may cause liver damage on prolonged exposure.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Mutagenicity: No information available.

Neurotoxicity: Rats were exposed to nitromethane by inhalation, 6 hrs/day, 5 days/ week, for 16 days. Sciatic nerve degeneration was present in all male and female rats exposed to 375 ppm or greater; rats exposed to 750 or 1500 ppm also had reduced myelin around sciaticaxons. Rats were exposed to nitromethane by inhalation, 6 hrs/day, 5 days/week, for 13 weeks. Clinical findings included hindlimb paralysis in rats in the 750 and 1500 ppm groups. Rats were exposed to 0, 94, 188, or 375 ppm nitromethane by inhalation, 6 hrs/day, 5 days/week, for 2 years. No hindlimb paralysis, as occurred in rats in the 13-week study, was observed in male or female rats in the 2-year study.

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	NITROMETHANE	NITROMETHANE
Hazard Class:	3	3
UN Number:	UN1261	UN1261
Packing Group:	II	II
Additional Info:		FLASHPOINT 35 C

Section 15 - Regulatory Information

US FEDERAL**TSCA**

CAS# 75-52-5 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 75-52-5: Effective 4/13/89, Sunset 12/19/95

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 75-52-5: immediate, delayed, fire, reactive.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

CAS# 75-52-5 is considered highly hazardous by OSHA.

STATE

CAS# 75-52-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Nitromethane, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 10 Flammable.

R 22 Harmful if swallowed.

R 5 Heating may cause an explosion.

Safety Phrases:

S 41 In case of fire and/or explosion do not breathe fumes.

WGK (Water Danger/Protection)

CAS# 75-52-5: 2

Canada - DSL/NDSL

CAS# 75-52-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B2, D2B, F.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 75-52-5 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997

Revision #10 Date: 8/10/2005

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.