# SAFETY DATA SHEET

**ANGUS CHEMICAL COMPANY**

Product name : Nitromethane Chloropicrin Grade

Issue Date: 12/05/2017
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ANGUS CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. PRODUCT AND COMPANY IDENTIFICATION

| | |
|---|---|
| Product name | Nitromethane Chloropicrin Grade |

**Manufacturer or supplier's details**

| | |
|---|---|
| Company name of supplier | ANGUS CHEMICAL COMPANY |
| Address | 1500 E. LAKE COOK ROAD<br>Buffalo Grove IL 60089-6553 |
| Customer Information Number | +1-847-808-3711 |
| E-mail address | NAR_CC@ANGUS.COM |
| **Emergency telephone number** | **800-424-9300** |

**Recommended use of the chemical and restrictions on use**

| | |
|---|---|
| Recommended use | Chemical intermediate.<br><br>For industrial use.<br>The ANGUS Chemical Company recommends that you use this product in a manner consistent with the listed use. If your intended use is not consistent with the stated use, please contact the Customer Information Group (see Section 1 of this data sheet). |

## 2. HAZARDS IDENTIFICATION

**GHS Classification**

| | |
|---|---|
| Flammable liquids | Category 3 |
| Acute toxicity (Oral) | Category 4 |

| | |
|---|---|
| Acute toxicity (Inhalation) | Category 4 |
| Carcinogenicity | Category 2 |
| Reproductive toxicity | Category 2 |

**GHS Label elements, including precautionary statements**

Hazard pictograms

Signal word: Warning

Hazard statements:

Flammable liquid and vapour.

Harmful if swallowed or if inhaled

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

Precautionary statements

**Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting/ equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
**Response:**
IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
**Storage:**
Store in a well-ventilated place. Keep cool.
Store locked up.
**Disposal:**
Dispose of contents/ container to an approved waste disposal

plant.

**Other hazards**

None known.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance.

**Components**

| Chemical Name | CAS-No. | Concentration (% w/w) |
|---|---|---|
| Nitromethane | 75-52-5 | >= 98.3 % |

## 4. FIRST AID MEASURES

| | |
|---|---|
| If inhaled | Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility. |
| In case of skin contact | Wash off with plenty of water. |
| In case of eye contact | Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. |
| If swallowed | Do not induce vomiting. Call a physician and/or transport to emergency facility immediately. |
| Most important symptoms and effects, both acute and delayed | Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information. |
| Protection of first-aiders | First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection).<br>If potential for exposure exists refer to Section 8 for specific personal protective equipment. |
| Notes to physician | Maintain adequate ventilation and oxygenation of the patient. |

May cause asthma-like (reactive airways) symptoms.
Bronchodilators, expectorants, antitussives and corticosteroids may be of help.
Administer 100% oxygen to relieve headache and a general sense of weakness. Determine methemoglobin concentration of blood every 3 to 6 hours for first 24 hours. It should return to normal within 24 hours.
If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
The decision of whether to induce vomiting or not should be made by a physician.
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
The treatment of toxic methemoglobinemia may include the intravenous administration of methylene blue.
If methemoglobin >10-20% consider methylene blue 1-2 mg/kg body weight as 1% solution intravenously over 5 minutes followed by 15-30 cc flush (Price D, Methemoglobinemia, Goldfrank Toxicologic Emergencies, 5th ed., 1994). Also provide 100% oxygen.

Skin contact may aggravate preexisting dermatitis.
Repeated excessive exposure may aggravate preexisting lung disease.
Methemoglobinemia may aggravate any preexisting condition sensitive to a decrease in available oxygen, such as chronic lung disease, coronary artery disease or anemia.

## 5. FIREFIGHTING MEASURES

| | |
|---|---|
| Suitable extinguishing media | Water fog or fine spray.<br>Carbon dioxide fire extinguishers.<br>Foam.<br>Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.<br>Water fog, applied gently may be used as a blanket for fire extinguishment.<br>Dry chemical fire extinguishers rated tri-class ABC (containing monoammonium phosphate). |
| Unsuitable extinguishing media | Do not use direct water stream.<br>Straight or direct water streams may not be effective to extinguish fire.<br>Do not use bicarbonate based dry chemical extinguishers (Class BC). |
| Specific hazards during firefighting | Container may rupture from gas generation in a fire situation.<br>Heating of liquid nitromethane in heavy walled closed vessels or process equipment can cause explosions. Can detonate by adiabatic compression.<br>Nitromethane contaminated with sensitizing compounds (amines, alkalies, acids) may become shock sensitive.<br>Flammable concentrations of vapor can accumulate at |

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|---|---|
| | temperatures above flash point; see Section 9.<br>Flammable mixtures may exist within the vapor space of containers at room temperature.<br>Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. |
| Hazardous combustion products | During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.<br>Combustion products may include and are not limited to:<br>Nitrogen oxides.<br>Carbon dioxide.<br>Carbon monoxide. |
| Further information | Keep people away. Isolate fire and deny unnecessary entry.<br>Do not use direct water stream. May spread fire.<br>Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles.<br>Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.<br>Burning liquids may be extinguished by dilution with water.<br>Water fog, applied gently may be used as a blanket for fire extinguishment.<br>Water may not be effective in extinguishing fire.<br>Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.<br>Stay upwind. Keep out of low areas where gases (fumes) can accumulate.<br>Eliminate ignition sources.<br>Do not use bicarbonate based dry chemical extinguishers (Class BC).<br>Hand held ABC type dry chemical, carbon dioxide or water extinguishers may be used for small fires.<br>Reaction with alkaline bicarbonates or other strong alkalis can form salts that may reignite when dry.<br>Immediately withdraw all personnel from area if nitromethane is confined in tanks or process vessels. Do not attempt to fight fire.<br>Evacuation of the entire area is required when nitromethane is known or suspected to be enclosed in heavy walled containers (pipes, tanks, etc.) in the vicinity of the fire. |
| Special protective equipment for firefighters | Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves).<br>If protective equipment is not available or not used, fight fire from a protected location or safe distance. |

## 6. ACCIDENTAL RELEASE MEASURES

| | |
|---|---|
| Personal precautions, protective equipment and emergency procedures | Isolate area.<br>Keep unnecessary and unprotected personnel from entering the area.<br>Keep personnel out of low areas. |

| | |
|---|---|
| | Keep upwind of spill.<br>Ventilate area of leak or spill.<br>For large spills, warn public of downwind explosion hazard.<br>Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion.<br>No smoking in area.<br>Vapor explosion hazard. Keep out of sewers.<br>Potentially violent decomposition, possibly detonation, can occur if product experiences adiabatic compression. Do not heat liquid under confinement. Do not confine between closed valves. Use of thin-walled vessels is recommended.<br>Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.<br>Refer to section 7, Handling, for additional precautionary measures. |
| Environmental precautions | Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. |
| Methods and materials for containment and cleaning up | If available, use foam to smother or suppress.<br>Vapor explosion hazard. Keep out of sewers.<br>Contain spilled material if possible.<br>Use non-sparking tools in cleanup operations.<br>Ground and bond all containers and handling equipment.<br>Pump into suitable and properly labeled containers.<br>Collect in suitable and properly labeled containers.<br>Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion.<br>See the technical data sheet on this product for further information.<br>Suitable containers include thin-walled containers such as the original standard carbon steel nitromethane product drum.<br>Pump with explosion proof equipment.<br>Protect with 100 psig (690kPa) maximum relief devices.<br>See Section 13, Disposal Considerations, for additional information. |

## 7. HANDLING AND STORAGE

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|---|---|
| Advice on safe handling | Electrically bond and ground all containers and equipment before transfer or use of material.<br>Avoid breathing vapor.<br>Keep away from heat, sparks and flame.<br>No smoking, open flames or sources of ignition in handling and storage area.<br>Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.<br>Never use air pressure for transferring product.<br>Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.<br>Ignition sources can include and are not limited to pilot lights, flames, smoking, sparks, heaters, electrical equipment, and static discharges.<br>Use of non-sparking or explosion-proof equipment may be |

necessary, depending upon the type of operation.
Avoid mixing with strong alkalis or amines.
Do not use positive displacement pumps with this material.
All pumps and sections of pipes where nitromethane could be confined, (including between valves) must be fitted with 100 psig (690 kPa) maximum relief devices.
Do not swallow.
Avoid contact with eyes.
Wash thoroughly after handling.
Use with adequate ventilation.
Keep container closed.
See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage

Minimize sources of ignition, such as static build-up, heat, spark or flame.
Corrosive when wet (greater than 0.2 weight percent). Store in stainless steel or aluminum if wet.
Store in a cool, dry place.
Do not store in:
Copper.
Copper alloys.
Brass.
Lead and its alloys.
Keep container closed.
See Section 10 for more specific information.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

| CAS-No. | Components | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|---|---|---|---|
| 75-52-5 | Nitromethane | TWA | 20 ppm | ACGIH |
| 75-52-5 | Nitromethane | TWA | 100 ppm<br>250 mg/m3 | OSHA Z-1 |
| 75-52-5 | Nitromethane | TWA | 100 ppm<br>250 mg/m3 | OSHA P0 |

**Engineering measures**

Local exhaust ventilation may be necessary for some operations.
Use engineering controls to maintain airborne level below exposure limit requirements or guidelines.
If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation.

**Personal protective equipment**

Respiratory protection

For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.
In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.
Respiratory protection should be worn when there is a

| | |
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| | potential to exceed the exposure limit requirements or guidelines.<br>If there are no applicable exposure limit requirements or guidelines, use an approved respirator.<br>When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. |
| Hand protection | |
| | Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Polyethylene. Chlorinated polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Viton. Nitrile/butadiene rubber ("nitrile" or "NBR"). Neoprene. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier. |
| Eye protection | Use safety glasses (with side shields).<br>If exposure causes eye discomfort, use a full-face respirator. |
| Skin and body protection | Wear clean, body-covering clothing. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| Appearance | Liquid. |
| Color | Colorless |
| Odor | Characteristic |
| Odor Threshold | No test data available |
| pH | 6.4<br>Method: Literature<br>(0.01M aqueous solution) |
| Melting point/range | -28.4 °C (-19.1 °F)<br>Method: Literature |
| Freezing point | -28.4 °C (-19.1 °F)<br>Method: Literature |
| Boiling point/boiling range | 101.2 °C (214.2 °F)<br>Method: Literature |

| | |
|---|---|
| Flash point | 36 °C (97 °F)<br><br>Method: Tag Closed Cup ASTM D56<br>Test Type: closed cup |
| Evaporation rate | 1.39<br>Method: Literature |
| Flammability (solid, gas) | No data available. |
| Upper explosion limit | No test data available |
| Lower explosion limit | 7.29 %(V)<br>( 33 °C)<br>Method: Literature |
| Vapor Pressure | 35.65 mmHg<br>(25 °C)<br>Method: Measured |
| Relative Vapor Density (air = 1) | 2.1<br>Method: Literature |
| Relative density | 1.138 (20 °C)<br>Method: Pyknometer |
| Density | 1.1382 g/cm3 (20 °C)<br>Method: Literature |
| Water solubility | 104.5 (25 ˚C)<br>Method: Measured |
| Partition coefficient: n-octanol/water | log Pow: -0.25<br>Method: Measured<br>Bioconcentration potential is low (BCF < 100 or Log Pow < 3). |
| Auto-ignition temperature | 418 °C<br>Method: EC Method A15 |
| Decomposition temperature | No test data available |
| Viscosity | |
| Viscosity, dynamic | 647 mPa.s (20 °C)<br>Method: Literature |
| Viscosity, kinematic | 0.54 cS (25 °C)<br><br>Method: Literature |
| Explosive properties | No data available. |
| Oxidizing properties | No data available. |
| Surface tension | 73.6 mN/m, 20 °C, Calculated. |

| | |
|---|---|
| Molecular weight | 61.04 g/mol<br>Method: Calculated. |

NOTE: The physical data presented above are typical values and should not be construed as a specification.

## 10. STABILITY AND REACTIVITY

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|---|---|
| Chemical stability | Unstable at elevated temperatures and pressures. |
| Conditions to avoid | Exposure to elevated temperatures can cause product to decompose.<br>Generation of gas during decomposition can cause pressure in closed systems.<br>Pressure build-up can be rapid.<br>Product may decompose under severe impact.<br>Potentially violent decomposition, possibly detonation, can occur if product experiences adiabatic compression. Do not heat liquid under confinement. Do not confine between closed valves. Use of thin-walled vessels is recommended. |
| Incompatible materials | Avoid unintended contact with sensitizing chemicals such as:<br>Alkali metal hydroxides.<br>Amines.<br>Strong acids.<br>Heavy metal oxides.<br>Sensitizing chemicals greatly decrease the force required to detonate the material by shock. Salts formed in the reaction of these materials may be shock sensitive explosives when dry.<br>Avoid contact with metals such as:<br>Copper.<br>Copper alloys.<br>Lead and its alloys.<br>Brass.<br>Avoid unintended contact with:<br>Reducing agents.<br>Strong oxidizers.<br>Aldehydes.<br>Alkenes.<br>Avoid contact with absorbent materials such as:<br>Clay-based absorbents.<br>Activated carbon. |
| Hazardous decomposition products | Decomposition products depend upon temperature, air supply and the presence of other materials.<br>Decomposition products can include and are not limited to:<br>Methane.<br>Water.<br>Carbon dioxide.<br>Carbon monoxide.<br>Nitrogen.<br>Nitrogen oxides. |

## 11. TOXICOLOGICAL INFORMATION

*Toxicological information on this product or its components appear in this section when such data is available.*

**Acute toxicity**

**Product:**

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|---|---|
| Acute oral toxicity | Remarks: Low toxicity if swallowed.<br>Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.<br><br>LD50 (Rat, male): 1,506 mg/kg<br><br>LD50 (Rat, female): 1,499 mg/kg |
| Acute inhalation toxicity | Remarks: Vapor concentrations are attainable which could be hazardous on single exposure.<br>Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.<br>Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.<br>May cause central nervous system effects.<br><br>LC0 (Rat): > 12.75 mg/l<br>Exposure time: 1 h<br>Test atmosphere: vapour<br><br>LC0 (Rat): > 6 mg/l<br>Exposure time: 4 h<br>Test atmosphere: vapour<br>Method: Estimated.<br>Assessment: The component/mixture is moderately toxic after short term inhalation. |
| Acute dermal toxicity | Remarks: Prolonged skin contact is unlikely to result in absorption of harmful amounts.<br><br>LD50<br>(Rabbit): > 2,000 mg/kg<br>Symptoms: No deaths occurred at this concentration.<br>Assessment: The substance or mixture has no acute dermal toxicity |

**Components:**

**Nitromethane**

| | |
|---|---|
| Acute oral toxicity | LD50 (Rat, male): 1,506 mg/kg<br><br>LD50 (Rat, female): 1,499 mg/kg |
| Acute inhalation toxicity | Remarks: Vapor concentrations are attainable which could be hazardous on single exposure.<br>Excessive exposure may cause irritation to upper respiratory |

| | |
|---|---|
| | tract (nose and throat) and lungs.<br>Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.<br>May cause central nervous system effects.<br><br>LC0 (Rat): > 12.75 mg/l<br>Exposure time: 1 h<br>Test atmosphere: vapour<br><br>LC0 (Rat): > 6 mg/l<br>Exposure time: 4 h<br>Test atmosphere: vapour<br>Method: Estimated.<br>Assessment: The component/mixture is moderately toxic after short term inhalation. |
| Acute dermal toxicity | LD50 (Rabbit): > 2,000 mg/kg<br>Assessment: The substance or mixture has no acute dermal toxicity |

**Skin corrosion/irritation**

**Product:**

Remarks: May cause drying and flaking of the skin.
Prolonged exposure not likely to cause significant skin irritation.

**Components:**

**Nitromethane**

Remarks: May cause drying and flaking of the skin.
Prolonged exposure not likely to cause significant skin irritation.

**Serious eye damage/eye irritation**

**Product:**

Remarks: May cause slight eye irritation.
Vapor may cause eye irritation experienced as mild discomfort and redness.

**Components:**

**Nitromethane**

Remarks: May cause slight eye irritation.
Vapor may cause eye irritation experienced as mild discomfort and redness.

**Respiratory or skin sensitization**

**Product:**

Remarks: For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks: For respiratory sensitization:
No relevant data found.

**Components:**

**Nitromethane**

Remarks: For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks: For respiratory sensitization:
No relevant data found.

**Carcinogenicity**

**Product:**

Has caused cancer in laboratory animals.

| | |
|---|---|
| Carcinogenicity - Assessment | Limited evidence of carcinogenicity in animal studies |

**Components:**

**Nitromethane**

Has caused cancer in laboratory animals.

| | |
|---|---|
| Carcinogenicity - Assessment | Limited evidence of carcinogenicity in animal studies |

| | | |
|---|---|---|
| **IARC** | Group 2B: Possibly carcinogenic to humans | |
| | Nitromethane | 75-52-5 |
| **OSHA** | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. | |
| **NTP** | Reasonably anticipated to be a human carcinogen | |
| | Nitromethane | 75-52-5 |
| **ACGIH** | Confirmed animal carcinogen with unknown relevance to humans | |
| | Nitromethane | 75-52-5 |

**Teratogenicity**

**Product**

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Did not cause birth defects in laboratory animals.

**Components:**

**Nitromethane**

Has been toxic to the fetus in laboratory animals at doses toxic to the mother.
Did not cause birth defects in laboratory animals.

**Mutagenicity**

**Product**
Animal genetic toxicity studies were negative.
In vitro genetic toxicity studies were predominantly negative.

**Components:**

**Nitromethane**
Animal genetic toxicity studies were negative.
In vitro genetic toxicity studies were predominantly negative.

**Reproductive toxicity**

**Product:**

This material had no effect on the histopathology of the reproductive organs. Some reproductive endpoints were altered by the material; however, these changes were not considered to be toxicologically significant.

| | |
|---|---|
| Reproductive toxicity - Assessment | Suspected human reproductive toxicant |

**Components:**

**Nitromethane**

This material had no effect on the histopathology of the reproductive organs. Some reproductive endpoints were altered by the material; however, these changes were not considered to be toxicologically significant.

| | |
|---|---|
| Reproductive toxicity - Assessment | Suspected human reproductive toxicant |

**STOT - single exposure**

**Product:**

Assessment: Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Components:**

**Nitromethane**

Assessment: Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Repeated dose toxicity**

**Product:**

Remarks: In animals, effects have been reported on the following organs:
Blood.
May cause methemoglobinemia, thereby impairing the blood's ability to transport oxygen.

**Components:**

**Nitromethane**

Remarks: In animals, effects have been reported on the following organs:
Thyroid.
Blood.

May cause methemoglobinemia, thereby impairing the blood's ability to transport oxygen.

**Aspiration toxicity**

**Product:**

| | |
|---|---|
| Aspiration Hazard | May be harmful if swallowed and enters airways. |

**Components:**

**Nitromethane**

May be harmful if swallowed and enters airways.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Product:**

| | |
|---|---|
| Toxicity to fish | Remarks: Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).<br><br>LC50 (Pimephales promelas (fathead minnow)): > 659.2 mg/l<br>Exposure time: 96.0 h<br><br>LC50 (Danio rerio (zebra fish)): 460 mg/l<br>Exposure time: 48.0 h |
| Toxicity to daphnia and other aquatic invertebrates | EC50 (Daphnia magna (Water flea)): > 103 mg/l<br>Exposure time: 48.0 h |
| Toxicity to algae | EC50 (alga Scenedesmus sp.): > 102 mg/l<br>End point: Growth rate inhibition<br>Exposure time: 72 h |

**Components:**

**Nitromethane**

| | |
|---|---|
| Toxicity to fish | Remarks: Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).<br><br>LC50 (Pimephales promelas (fathead minnow)): > 659.2 mg/l<br>Exposure time: 96.0 h<br><br>LC50 (Danio rerio (zebra fish)): 460 mg/l<br>Exposure time: 48.0 h |
| Toxicity to daphnia and other aquatic invertebrates | LC50 (Daphnia magna (Water flea)): > 103 mg/l<br>Exposure time: 48.0 h |
| Toxicity to algae | EC50 (alga Scenedesmus sp.): > 102 mg/l<br>End point: Growth rate inhibition<br>Exposure time: 72 h |

**Persistence and degradability**

**Product:**

| | |
|---|---|
| Biodegradability | Remarks: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.<br><br>Biodegradation: 10 %<br>Exposure time: 28 d<br>Method: OECD Test Guideline 301D or Equivalent<br>Remarks: 10-day Window: Fail<br><br>Biodegradation: 36.2 %<br>Exposure time: 5 d<br>Method: GSF Activated Sludge Test<br>Remarks: 10-day Window: Not applicable |
| ThOD | 1.050 mg/mg |
| Photodegradation | Rate constant: Degradation half life: 82 d<br>Method: Estimated. |

**Components:**

**Nitromethane**

| | |
|---|---|
| Biodegradability | Result: Not readily biodegradable.<br>Remarks: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.<br><br>Biodegradation: 10 %<br>Exposure time: 28 d<br>Method: OECD Test Guideline 301D or Equivalent<br>Remarks: 10-day Window: Fail<br><br>Biodegradation: 36.2 %<br>Exposure time: 5 d<br>Method: GSF Activated Sludge Test<br>Remarks: 10-day Window: Not applicable |
| ThOD | 1.050 mg/mg |
| Photodegradation | Rate constant: Degradation half life: 82 d<br>Method: Estimated. |

**Bioaccumulative potential**

**Product:**

| | |
|---|---|
| Bioaccumulation | Species: Fish.<br>Bioconcentration factor (BCF): 1.4<br>Method: Measured |
| Partition coefficient: n-octanol/water | log Pow: -0.25<br>Method: Measured<br>Remarks: Bioconcentration potential is low (BCF < 100 or Log |

Pow < 3).

**Components:**

**Nitromethane**

| | |
|---|---|
| Bioaccumulation | Species: Fish.<br>Bioconcentration factor (BCF): 1.4<br>Method: Measured |
| Partition coefficient: n-octanol/water | log Pow: -0.25<br>Method: Measured<br>Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3). |

**Mobility in soil**

**Product:**

| | |
|---|---|
| Distribution among environmental compartments | Koc: 8<br>Method: Estimated.<br>Remarks: Potential for mobility in soil is very high (Koc between 0 and 50). |

**Components:**

**Nitromethane**

| | |
|---|---|
| Distribution among environmental compartments | Koc: 8<br>Method: Estimated.<br>Remarks: Potential for mobility in soil is very high (Koc between 0 and 50). |

**Other adverse effects**

**Product:**

| | |
|---|---|
| Results of PBT and vPvB assessment | This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB). |

**Components:**

**Nitromethane**

| | |
|---|---|
| Results of PBT and vPvB assessment | This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB). |

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

| | |
|---|---|
| Waste from residues | DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. |

All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations.
Regulations may vary in different locations.
Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator.
THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information.
FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted:
Incinerator or other thermal destruction device.
Landfill.
ANGUS HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL.

## 14. TRANSPORT INFORMATION

**International Regulation**

**IATA-DGR**

| | |
|---|---|
| UN/ID No. | UN 1261 |
| Proper shipping name | Nitromethane |
| Class | 3 |
| Packing group | II |
| Labels | Flammable Liquids |
| Packing instruction (cargo aircraft) | 364 |
| Packing instruction (passenger aircraft) | Not permitted for transport |

**IMDG-Code**

| | |
|---|---|
| UN number | UN 1261 |
| Proper shipping name | NITROMETHANE |
| Class | 3 |
| Packing group | II |
| Labels | 3 |
| EmS Code | F-E, S-D |
| Marine pollutant | no |
| Remarks | PASSENGER AIRCRAFT SHIPMENTS ARE FORBIDDEN., TRANSPORTATION OF NITROMETHANE IN BULK IS FORBIDDEN<br>Stowage category A |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**National Regulations**

**49 CFR (DOT) – NON BULK**

| | |
|---|---|
| UN/ID/NA number | 1261 |
| Proper shipping name | NITROMETHANE |
| Class | 3 |

| | |
|---|---|
| Packing group | II |
| Labels | Class 3 - Flammable Liquid |
| ERG Code | 129 |
| Marine pollutant | no |
| Remarks | PASSENGER AIRCRAFT SHIPMENTS ARE FORBIDDEN., TRANSPORTATION OF NITROMETHANE IN BULK IS FORBIDDEN |

**49 CFR (DOT) - BULK**

| | |
|---|---|
| UN/ID/NA number | 1261 |
| Proper shipping name | NITROMETHANE |
| Class | 3 |
| Packing group | II |
| Labels | Class 3 - Flammable Liquid |
| ERG Code | 129 |
| Marine pollutant | no |
| Remarks | PASSENGER AIRCRAFT SHIPMENTS ARE FORBIDDEN., TRANSPORTATION OF NITROMETHANE IN BULK IS FORBIDDEN |

*This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.*

## 15. REGULATORY INFORMATION

**OSHA Hazards** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**EPCRA - Emergency Planning and Community Right-to-Know Act**

**CERCLA Reportable Quantity**

| Components | CAS-No. | Component RQ (lbs) |
|---|---|---|
| Propionitrile | 107-12-0 | 10 |
| 2-Nitropropane | 79-46-9 | 10 |

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|---|---|---|---|
| Propionitrile | 107-12-0 | 10 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 311/312 Hazards** Fire Hazard
Acute Health Hazard
Chronic Health Hazard
Reactivity Hazard

**SARA 302** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313** The following components are subject to reporting levels established by SARA Title III, Section 313:

| Cas No. | Component |
|---|---|
| 75-52-5 | Nitromethane |

**Clean Air Act**

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**US State Regulations**

**Massachusetts Right To Know**

Massachusetts Right to Know List of Chemicals and Hazard Classifications

| Cas No. | Component |
|---|---|
| 75-52-5 | Nitromethane |
| 107-12-0 | Propionitrile |
| 79-46-9 | 2-Nitropropane |

**Pennsylvania Right To Know**

The following chemicals are listed because of the additional requirements of Pennsylvania law:

| Cas No. | Component |
|---|---|
| 75-52-5 | Nitromethane |
| 67-56-1 | Methanol |
| 107-12-0 | Propionitrile |
| 79-46-9 | 2-Nitropropane |

**New Jersey Right To Know**

The following chemicals are listed because of the additional requirements of New Jersey law:

| Cas No. | Component |
|---|---|
| 75-52-5 | Nitromethane |

**California Prop. 65**

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

| Cas No. | Component |
|---|---|

67-56-1 Methanol

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

| Cas No. | Component |
|---|---|
| 75-52-5 | Nitromethane |
| 79-46-9 | 2-Nitropropane |

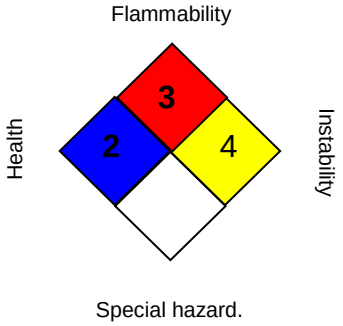
**The components of this product are reported in the following inventories:**

United States TSCA Inventory
All Components OK

## 16. OTHER INFORMATION

**Further information**

**NFPA:**




**HMIS III:**

| | |
|---|---|
| HEALTH | 1* |
| FLAMMABILITY | 3 |
| PHYSICAL HAZARD | 0 |

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

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US / EN

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe

handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Full text of other abbreviations**

(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; DSL - Domestic Substances List (Canada); KECI - Korea Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); AICS - Australian Inventory of Chemical Substances; IECSC - Inventory of Existing Chemical Substances in China; ENCS - Existing and New Chemical Substances (Japan); ISHL - Industrial Safety and Health Law (Japan); PICCS - Philippines Inventory of Chemicals and Chemical Substances; NZIoC - New Zealand Inventory of Chemicals; TCSI - Taiwan Chemical Substance Inventory; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods