# spectrum®



# SAFETY DATA SHEET

Preparation Date: 8/14/2017

Revision date 7/11/2019

Revision Number: G2

#### **1. IDENTIFICATION** Product identifier **Product code:** N1095 **Product Name:** NITROMETHANE, REAGENT, ACS Other means of identification Nitrocarbol Synonyms: CAS #: 75-52-5 **RTECS #** PA9800000 Not available CI#: Recommended use of the chemical and restrictions on use Recommended use: Rocket fuels. Uses advised against No information available Supplier: Spectrum Chemical Mfg. Corp 14422 South San Pedro St. Gardena, CA 90248 (310) 516-8000 Order Online At: https://www.spectrumchemical.com Chemtrec 1-800-424-9300 Emergency telephone number Tom Tyner (USA - West Coast) Contact Person: Ibad Tirmiz (USA - East Coast) **Contact Person:**

# 2. HAZARDS IDENTIFICATION

# **Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 4
Serious eye damage/eye irritation	Category 2B
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Flammable liquids	Category 3

#### Label elements

Warning

Hazard statements Harmful if swallowed Causes eye irritation Suspected of causing cancer May cause respiratory irritation



Hazards not otherwise classified (HNOC) Not Applicable

Other hazards Not available

#### **Precautionary Statements - Prevention**

Obtain special instructions before use Do not handle until all safety precautions have been read and understood Wear protective gloves/protective clothing/eye protection/face protection Wash face, hands and any exposed skin thoroughly after handling Do not eat, drink or smoke when using this product Avoid breathing dust/fume/gas/mist/vapors/spray Use only outdoors or in a well-ventilated area Keep away from heat/sparks/open flames/hot surfaces. — No smoking Keep container tightly closed Ground container and receiving equipment Use explosion-proof equipment Use only non-sparking tools Take precautionary measures against static discharge Keep cool

#### **Precautionary Statements - Response**

In case of fire: Use CO2, dry chemical, or foam to extinguish. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell Rinse mouth

#### **Precautionary Statements - Storage**

Store locked up Store in a well-ventilated place. Keep container tightly closed

#### **Precautionary Statements - Disposal**

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and international regulations as applicable

# 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Nitromethane	75-52-5	100

# 4. FIRST AID MEASURES

First aid measures

**General Advice:** 

National Capital Poison Center in the United States can provide assistance if you

Product code: N1095

Product name: NITROMETHANE, REAGENT, ACS

	have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.
Skin Contact:	Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention if irritation develops.
Eye Contact:	Flush eyes with water for 15 minutes. Get medical attention.
Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Ingestion:	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

#### Most important symptoms and effects, both acute and delayed

Causes eye irritation Symptoms Mild eye irritation Irritating to respiratory system Coughing and wheezing May affect the liver It may affect the kidneys May cause methemoglobinemia and cyanosis Central nervous system effects Drowsiness Dizziness Headache Fatigue Weakness May cause incoordination May cause nausea and vomiting May cause diarrhea May affect the cardiovascular system Dyspnea (Shortness of breath and difficulty breathing)

#### Indication of any immediate medical attention and special treatment needed

Notes to Physician:

Treat symptomatically.

#### Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

# **5. FIRE-FIGHTING MEASURES**

Extinguishing Media Suitable Extinguishing Media:	Carbon dioxide (CO2). Dry chemical. Alcohol-resistant foam. Water spray.
Unsuitable Extinguishing Media:	Do not use a solid (straight) water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	
Hazardous combustion products	Carbon Monoxide, Carbon Dioxide. Nitrogen oxides (NOx).
Specific hazards	Flammable. May be ignited by heat, sparks or flames. Vapor may travel considerable distance to source of ignition and flash back. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They

will spread along the ground and collect in low or confined areas (sewers, basements, tanks). Container explosion may occur under fire conditions or when heated. Fire may produce irritating, corrosive and/or toxic gases.

# Special Protective Actions for Firefighters

**Specific Methods:** 

**Special Protective Equipment for Firefighters:** 

No information available

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

# 6. ACCIDENTAL RELEASE MEASURES

#### Personal precautions, protective equipment and emergency procedures

Personal Precautions:	Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Remove all sources of ignition. Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. In case of large spill, water spray or vapor suppressing foam may be used to reduce vapors, but may not prevent ignition in closed spaces.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.
Methods and material for contai	nment and cleaning up
Methods for containment	Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.
Methods for cleaning up	Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use only non-sparking tools. Clean contaminated surface thoroughly.

# 7. HANDLING AND STORAGE

#### Precautions for safe handling

# **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

#### Safe Handling Advice:

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Handle in accordance with good industrial hygiene and safety practice.

#### Conditions for safe storage, including any incompatibilities

# Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store in a segregated and approved area. Store away from incompatible materials.

#### **Incompatible Materials:**

Product code: N1095

Strong oxidizing agents Strong acids Strong bases Amines Alkalis Aluminum powder Copper Copper alloys Lead Lead alloys

# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Control parameters

# National occupational exposure limits

#### **United States**

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Nitromethane	75-52-5	100 ppm TWA 250 mg/m³ TWA	None	20 ppm TWA	None

#### Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Nitromethane	75-52-5	20 ppm TWA 50 mg/m³ TWA	20 ppm TWA	None	None

# Australia and Mexico

Component	CAS No	Australia	Mexico
Nitromethane	75-52-5	20 ppm TWA	20 ppm TWA
		50 mg/m <sup>3</sup> TWA	

#### Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

# Individual protection measures, such as personal protective equipment

**Personal Protective Equipment** 

Eye protection:	Goggles

Skin and body protection:Chemical resistant apron<br/>Long sleeved clothing<br/>GlovesRespiratory protection:Vapor respirator. Be sure to use an approved/certified respirator or equivalent.Hygiene measures:Avoid contact with skin, eyes and clothing. When using, do not eat, drink or<br/>smoke. Wash hands before breaks and immediately after handling the product

# 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state:** Liquid

Odor: Disagreeable.

Molecular/Formula weight (g/mole): Flammability (solid, gas) 61.04

Flash Point Tested according to: Closed cup

**Upper Explosion Limit (%):** No information available

Boiling point/range(°C/°F): 101.1 °C/ 214 °F

Specific gravity: 1.13-1.14

Evaporation rate: No information available

Odor threshold (ppm): 3.5

**Miscibility:** No information available Appearance: Oily.

Taste No information available.

Flammable

Autoignition Temperature (°C/°F): 418 °C/784.4 °F

Melting point/range(°C/°F): -29 °C/-20 °F

**Bulk density:** No information available

pН No information available

Vapor density: 2.11

Partition coefficient (n-octanol/water):  $\log Kow = -0.35$ 

Solubility: Soluble in Ethanol Soluble in Ether Soluble in Carbon tetrachloride Soluble in Water

Color: Colorless.

Formula CH3NO2

Flashpoint (°C/°F): 35-36 °C/95-97 °F

Lower Explosion Limit (%): 7.3%

Decomposition temperature(°C/°F): Explosive decomposition begins at 315 °C/599 °F Density (g/cm3): No information available

Vapor pressure @ 20°C (kPa): 3.64

VOC content (g/L): No information available

Viscositv: No information available

# Reactivity

Incompatible with Alkyl metal halides (sodium chloride, and Lithium Bromide), Diethyl aluminum bromide, methyl zinc iodide, ammonia hydroxide, calcium hypochlorite, formaldehyde

Addition of bases or acids to Nitromethane renders it susceptible to initiation by a detonator. These include aniline, diaminoethane. morpholine, methylamine, ammonium hydroxide, potassium hydroxide, sodium carbonate, and formic, nitric, sulfuric or phosphoric acid

**10. STABILITY AND REACTIVITY** 

Copper salts and nitromethane spontaneously form explosive materials

Nitromethane forms shock-sensitive mixtures with amines, strong acids, acetone, aluminum powder, copper, copper alloys, lead, lead alloys

Elevated temperatures can cause explosive decomposition, especially when confined

#### **Chemical stability**

Stability: Stable under recommended storage conditions. Possibility of Hazardous Reactions: Hazardous polymerization does not occur Conditions to avoid: Heat. Ignition sources. Incompatible materials. Strong oxidizing agents Incompatible Materials: Strong acids Strong bases

Product name: NITROMETHANE, REAGENT. ACS

	Amines Alkalis Aluminum powder Copper Copper alloys Lead Lead alloys
Hazardous decomposition products:	Carbon monoxide. Carbon dioxide. Nitrogen oxides (NOx).

Other Information Corrosivity: No information available

#### Special Remarks on Corrosivity: No information available

# **11. TOXICOLOGICAL INFORMATION**

# Information on likely routes of exposure

Principal Routes of Exposure: Ingestion. Inhalation. Skin.

# Acute Toxicity

# **Component Information**

h
Nitromethane
CAS No 75-52-5
LD50/oral/rat = 940 mg/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rabbit = >2000 mg/kg Dermal LD50Rabbit
LD50/dermal/rat = No information available
LC50/inhalation/rat = >12.75 mg/L Inhalation LC50 Rat 1 h
LC50/inhalation/mouse = No information available
Other LD50 or LC50information = No information available
Product Information
LD50/oral/rat =
Value - Acute Toxicity = 940 mg/kg
LD50/oral/mouse =
Value - Acute Tox = No information available
LD50/dermal/rabbit
Value - Acute Toxicity = > 2000 mg/kg
LD50/dermal/rat

**VALUE - Acute Tox =** No information available

LC50/inhalation/rat VALUE-Vapor = >12.75 mg/l mg/m<sup>3</sup> VALUE-Gas = No information available **VALUE-Dust/Mist** = No information available

Product code: N1095

Product name: NITROMETHANE, REAGENT, ACS

LC50/Inhalation/mouse VALUE-Vapor = No information available VALUE - Gas = No information available VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:	May cause skin irritation.
Eye Contact:	May cause eye irritation.
Inhalation	Irritating to respiratory system. Symptoms may include coughing and wheezing. May cause sore throat. May cause nausea, vomiting. May cause diarrhea. May cause drowsiness/sleepiness. May cause headache. May cause weakness. It may affect behavior/central nervous system (ataxia). May cause methemoglobinemia (the formation of methemoglobin in the blood which causes deficient oxygenation of the blood due to decreased available hemoglobin). Methemoglobinemia can lead to cyanosis (bluish skin and lips due to deficient oxygenation of the blood), and can result in fatigue, dizziness, lightheadedness, headache, mental impairment, incoordination, muscular weakness, convulsions/seizures, tachycardia or bradycardia (slow or fast heart beat), hypertension, dysrthylmias, dyspnea (shortness of breath and labored breathing), loss of consciousness, and death. Arterial blood with elevated methemoglobin levels has a characteristic chocolate-brown color as compared to normal bright red oxygen containing arterial blood. Severe methemoglobinemia is characterized by bradycardia or tachydardia (slow or fast heart beat), dysrhythmias, seizures, coma and death.
Ingestion	Harmful if swallowed. It may affect the kidneys and liver.
Aspiration hazard	No information available.
Delayed and immediate effects	as well as chronic effects from short and long-term exposure
Chronic Toxicity	Chronic exposure may affect the liver and kidneys. Prolonged or repeated inhalation may cause bronchitis with coughing, phlegm, and/or shortness of breath. Prolonged skin contact may cause drying and cracking of the skin.
Sensitization:	No information available.
Mutagenic Effects:	No information available

Carcinogenic effects:

Possibly carcinogenic to humans.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Nitromethane	75-52-5	Possibly Carcinogenic to Humans Monograph 77	Animal Carcinogen	Reasonably Anticipated To Be A Human Carcinogen	Present	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity	No data is available		
Reproductive Effects:	No information available		
Developmental Effects:	No information available		
Teratogenic Effects:	No information available		

# Specific Target Organ Toxicity

STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target Organs:	No information available.

# **12. ECOLOGICAL INFORMATION**

# Ecotoxicity

Ecotoxicity effects:	Aquatic environment.
<i>Nitromethane - 75-52-5</i> Algae/aquatic plants Fish	EC50: =36mg/L (72h, Desmodesmus subspicatus) LC50: <278mg/L (96h, Pimephales promelas) LC50: =460mg/L (48h, Brachydanio rerio)
Crustacea	EC50: =450mg/L (24h, Daphnia magna)
Persistence and degradability:	No information available
Bioaccumulative potential:	No information available.
Mobility in soil Other adverse effects	No information available No information available.

# **13. DISPOSAL CONSIDERATIONS**

# **Disposal Methods**

#### Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

# Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Nitromethane	75-52-5	None	None	None	None

# 14. TRANSPORT INFORMATION

DOT

UN-No:	UN
Proper Shipping Name:	Nit
Hazard Class	3

JN1261 Nitromethane 3

**Subsidiary Class** No information available Packing group: Ш **Emergency Response Guide** 129 Number No data available Marine Pollutant No information available DOT RQ (lbs): **Special Provisions** No Information available Symbol(s): No information available **Description:** UN1261, Nitromethane, 3, II TDG (Canada) UN-No: UN1261 Proper Shipping Name: Nitromethane **Hazard Class** 3 Subsidiary Risk: No information available Packing Group: Ш Marine Pollutant No Information available **Description:** UN1261, Nitromethane, 3, II ADR **UN Number** UN1261 **Proper Shipping Name:** Nitromethane Transport hazard class(es) 3 Packing group Ш Subsidiarv Risk: No information available **Description:** UN1261, Nitromethane, 3, II IMDG UN-No: UN1261 **Proper Shipping Name:** Nitromethane Hazard Class: 3 Subsidiary Risk: No information available Packing Group: Ш Marine Pollutant No information available F-E EMS: **Special Provisions** 26 Description UN1261, Nitromethane, 3, II RID **UN Number** UN1261 **Proper Shipping Name:** Nitromethane Transport hazard class(es) 3 Subsidiary Risk: No information available Packing group ш **Description:** UN1261, Nitromethane, 3, II ICAO (air) UN1261 UN-No: **Proper Shipping Name:** Nitromethane **Hazard Class** 3 Subsidiary Risk: No information available Packing Group: ш Description: UN1261, Nitromethane, 3, II **Special Provisions** A1, A39 ΙΑΤΑ **UN Number** UN1261 **Proper Shipping Name:** Nitromethane Product code: N1095 Product name: NITROMETHANE, REAGENT, ACS

Transport hazard class(es)	3
Subsidiary Risk:	No information available
Packing group	II
Precautionary Statements -	3L
Response	
Special Provisions	No information available
Description:	UN1261, Nitromethane, 3, II

# **15. REGULATORY INFORMATION**

# International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
Nitromethane	75-52-5	PresentACTIV E	Present KE-26005	Present	Present (2)-191	Present	Present	Present 200-876-6

#### **U.S. Regulations**

Nitromethane

Massachusetts RTK: Present New Jersey RTK Hazardous Substance List: 1386 New Jersey (EHS) List: 1386 500 lb TPQ New Jersey TCPA - EHS: 2500lbTQ Pennsylvania RTK: Present Minnesota - Hazardous Substance List: Present California Directors List of Hazardous Substances: Present

#### California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

#### Chemicals Known to the State of California to Cause Cancer:

AWARNING: This product can expose you to chemicals including (see table below) which is (are) known to the State of California to cause cancer. For more information go to www.p65warnings.ca.gov.

#### Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male	Female
		_		Reproductive	Reproductive
				Toxicity	Toxicity:
Nitromethane	75-52-5	carcinogen	Not Listed	Not Listed	Not Listed

# CERCLA/SARA

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Nitromethane	75-52-5	None	None	None		0.1 % de minimis concentration

# U.S. TSCA

Component		TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Nitromethane	75-52-5	Not Applicable	Not Applicable

#### Canada

#### WHIMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component Nitromethane 75-52-5 (100) WHMIS 2015 Hazard Classification Flammable liquids - Category 3: H226 Flammable liquid and vapour.; Acute toxicity - Oral - Category 4: H302 Harmful if swallowed.; Carcinogenicity - Category 2: H351 Suspected of causing cancer.; Specific target organ toxicity - Repeated exposure - Category 2: H373 May cause damage to organs through prolonged or repeated exposure.; Physical Hazards Not Otherwise Classified - Category 1: May cause an explosion under conditions of shock and/or friction

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

#### DSL/NDSL

	CAS No	Canada (DSL)	Canada (NDSL)
Nitromethane	75-52-5	Present	Not Listed
Villometrialle	73-32-3	Flesent	NOT LISTED

Component	CAS No	CEPA Schedule I - Toxic Substances
Nitromethane	75-52-5	Not listed
Component		CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Nitromethane	75-52-5	Not listed

#### EU Classification

#### EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Nitromethane	75-52-5	Flammable liquids - Flam. Liq. 3: H226
		Flammable liquid and vapour.; Acute
		toxicity - Oral - Acute Tox. 4: H302
		Harmful if swallowed. (Minimum
		classification)609-036-00-7

#### EU - CLP (1272/2008)

#### R-phrase(s)

R22 - Harmful if swallowed

R 5 - Heating may cause an explosion.

R10 - Flammable

#### S -phrase(s)

S 2 - Keep out of the reach of children.

S41 - In case of fire and/or explosion do not breathe fumes

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Nitromethane	75-52-5	Xn; R22 R5-10	12.5%<=C Xn; R22	S2 S41

# The product is classified in accordance with Annex VI to Directive 67/548/EEC

#### Indication of danger: Xn - Harmful

Flammable



# **16. OTHER INFORMATION**

Preparation Date:	8/14/2017
Revision date	7/11/2019
Prepared by:	Sonia Owen

**Disclaimer:** All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

# **End of Safety Data Sheet**